

Psychedelics 101¹

Plants of the Gods

Countless cultures, for tens of thousands of years, have utilized fasting, dancing, drumming, chanting, breathing exercises, meditation practices, and so on in order to induce altered states of consciousness. These non-ordinary forms of awareness were, and are, highly valued by these cultures as ways for individuals and groups to establish powerful and transformative contact with the spiritual beings (i.e., the gods and goddesses, ancestors, animal and plant spirits, and so on) who were, and are, understood to inhabit the spiritual dimensions of reality as well as the (spiritually-infused) natural world.

In many of these cultures, one of the most important ways to catalyze these states of supernormal awareness has been to ingest mind-altering plants and their derivatives (e.g., peyote, psilocybin mushrooms, and ayahuasca).

These types of plants (and plant-based derivatives) have long been deeply revered within these cultures. They are understood to be gifts from the gods, or even divine beings in their own right; they are seen as supernatural emissaries and spiritual allies who have the power to heal, to bless, and to catalyze out-of-body journeys to other dimensions of reality. Within these cultures, it is understood that these sacred plants and substances bring the gift of music and art; they help to locate game to hunt; they give the power of clairvoyance and telepathy; and they offer profound insights into the nature of the cosmos and humanity's place within it. Ingesting these sacramental substances within a communal and ritual context is a way for participants to deepen

their bonds, not only with each other, but also with the natural world and the spiritual beings that are thought to undergird the cosmos. For members of these cultures, it would be sheer insanity to reject the visionary knowledge and spiritual power that these mind-altering substances bring.²

Visions or Hallucinations?

For most members of indigenous cultures, the alterations of consciousness catalyzed by substances such as peyote, psilocybin mushrooms and ayahuasca are understood to be *visions*, that is, they are seen as truthful, useful, and powerful experiences of a real spiritual world and real spiritual beings. Many in the modern Western world, however, would likely think that such vivid experiences are *hallucinations* rather than visions, that is, that they are perceptions of something that is imaginary, something that is not real. For individuals in the modern West, the only “really real” world is the world that can be seen, heard, tasted, smelled, and felt; a world of matter that is physical, measurable, and publicly accessible to all. Therefore, any perception of non-physical worlds or non-physical entities is, from our cultural perspective, understood to be pathological and hence, is nothing more than a hallucination.

Which of these understandings is correct? Are members of indigenous cultures simply not as sophisticated as individuals in the modern West? Or is it possible that the West has lost something essential?

Names Matter

Many if not most of the scholars and scientists who first encountered these unique substances (and/or discovered their active chemical ingredients) tended to assume that they engendered

hallucinations. These substances were therefore frequently said to be *hallucinogenic* (“producing hallucinations”) or were even *psychotomimetic* (“mimicking psychosis”). However, in 1956, in an attempt to find a term that was more neutral, Humphry Osmond, a British psychiatrist, coined the term *psychedelic* (“mind-manifesting”) as a way to underscore how these types of substances often seem to unearth previously hidden subconscious thoughts and feelings within those who take them. Nonetheless, while the literal meaning of the word “psychedelic” is innocuous, many people (especially since the mid-1960s) associate this term with the recreational use (and abuse) of these substances. Therefore, when referring to psychedelics that are specifically taken in order to catalyze spiritual or mystical experiences, scholars (especially since the 1990s), often prefer to use the term *entheogen* (“generating divinity within”).

If and when a person chooses to take these sorts of powerful mind-altering substances, names matter. Imagine taking a “psychotomimetic drug” as a “research subject” who is part of a “laboratory experiment.” Now imagine taking a “sacramental entheogen” as a “participant” in a “sacred ceremony.” In these two situations, even if you took exactly the same dose of exactly the same mind-altering substance, when you began to undergo powerful shifts in perception and feeling, how would you interpret what you were experiencing? Would you tend to see yourself as “going crazy” or would you understand that you were “being blessed by the gods”? And depending upon how you “named” that experience, in what subtle (or dramatic) ways would these patterns of understanding themselves shape the very quality and tone of your ongoing experience?

Although no one denies that dosage is a key factor, taking these types of substances is never simply about physiology. The types of experiences that a person can have with psychedelics differ radically, and are strongly influenced by the *set* and the *setting* (two terms coined in the 1960s by Timothy Leary and Ralph Metzner). The “set” is the sum total of the psychological and cultural background of the person taking the substance, her or his (often pre-conscious) expectations, attitudes, beliefs, and feelings – especially those pertaining to the process of taking psychedelics itself. The “setting” refers to the immediate surroundings in which the substance is taken, not only the physical environment, but also the emotional state and level of preparation of those who are with the person who is taking psychedelics.

Classifications and Clarifications

Scholars and scientists in the West first began to research plant-based mind-altering substances in the late-1800s, and worked hard to discover the active ingredients of these visionary plant-based substances. *Mescaline* is the active ingredient in (at least) two cacti found in the Americas: peyote and San Pedro. *Psilocybin* and *psilocin* are the active ingredients of a variety of mushrooms found in numerous locations around the world. *DMT* is the active ingredient in *ayahuasca* (an Amazonian brew also called *yagé*, that is typically made from a woody climbing vine, *banisteriopsis caapi*, boiled together with the leaves of a shrub, the *psychotria viridis*.) *DMT* is located throughout the plant and animal kingdoms, as well as, importantly, in the human body itself. *LSD* is derived (through a complex chemical process) from ergot – a fungus that grows on rye, as well as other grains and grasses. *Ibogaine* is the active ingredient of *iboga*, a substance taken in religious rituals by certain sub-Saharan tribes that comes from the rootbark of a small West African bush, *taberantha iboga*.

There are a variety of ways to scientifically classify psychedelic substances. For example, the active ingredients in most psychedelic substances are chemical compounds called indole alkaloids. There are four primary indole families of compounds. 1) LSD and LSD-like compounds. 2) The tryptamine indoles, including DMT, psilocin, and psilocybin. 3) The ibogaine family of indoles. 4) The beta-carbolines, such as *harmine* and *harmaline*, which while not strongly psychedelic in themselves, serve a crucial role in the chemistry of ayahuasca.

Another way to organize psychedelics is to note that there are two major classes of chemicals found in these substances, each of which is related to one of the brain's major neurotransmitters: 1) Tryptamines, which are related to serotonin. Tryptamines, understood broadly, not only include DMT, psilocybin, psilocin, but also LSD and ibogaine. 2) Phenethylamines, which are related to dopamine. Phenethylamines include mescaline and MDMA, better known as "Ecstasy". (Phenethylamine is also a major constituent of chocolate.)³

Misperceptions and Stigmas

In 1970, President Richard Nixon signed the Controlled Substance Act and most psychedelics were legally classified as Schedule One drugs, that is, as drugs that are understood to have a high potential for abuse; have no accepted medical uses; and are unsafe to use even under medical supervision.⁴ Psychedelics, as Schedule I substances,⁴ were grouped with drugs such as heroin, even though psychedelics are neither addictive nor psychologically or physiologically harmful if used within structured ritual contexts or under clinical supervision. (There have been no recorded cases of deaths directly caused by classical psychedelic substances.) Psychedelics, contrary to

public perception, are among the safest substances in the medical pharmacopoeia (again, if they are used in carefully supervised religious or clinical contexts.)⁵

The contrast between the Western culture's fear and hostility towards psychedelics and the way in which they are viewed by indigenous cultures (where they are understood to be sacred medicines that are actively good for a person's physical, mental and spiritual well-being) is striking. It seems important, therefore, to ask: why are psychedelic substances considered to be so frightening and dangerous that in Western cultures a person can be imprisoned for years simply for possessing them, while alcohol and nicotine, which are much more physiologically, psychologically, and socially destructive, are legal and consumed in massive quantities?

Some have argued that Western culture reacts so negatively to psychedelics primarily due to the association of these substances with the social upheaval of the 1960s, but other authors have suggested that this hostility is rooted in something more fundamental: psychedelic experiences, at least historically, have caused many individuals to strongly question some of Western culture's most fundamental, taken-for-granted assumptions and values.⁶ For example, contemporary Western culture, with its emphasis on rationality and discursive logic, assumes that only a very narrow range of consciousness (i.e., that which takes place in our waking experience) is real, while insights that emerge from other forms of consciousness (e.g., from dreams, intuition, and trance) are often ignored or disparaged. But the powerful altered states of consciousness that are generated by psychedelic substances often dramatically challenge this underlying assumption. Psychedelic substances can also at times dissolve the egoic boundaries between the self and others, or between the self and the world, that individuals (especially in the contemporary West) have worked so hard to construct and maintain. This egoic dissolution can, for

some individuals, bring about a frightening loss of control, even if, in others, that same softening of egoic boundaries can lead to powerful feelings of ecstatic release and spiritual awe.

Soma

It appears likely that entheogens have been used for thousands of years. One of the earliest recorded use of entheogens can be found in the early scriptures of the Indo-European peoples: the Vedas – the foundational texts of the religion we now call Hinduism. In the oldest of the Vedas, the Rig-Veda, there are 120 hymns to Soma – which is understood to be simultaneously a plant, a drink made from the plant, and a God. Nonetheless, the significance of Soma extends well beyond these hymns. As Wendy Doniger O’Flaherty points out, Soma not only “saturates the Rig-Veda,” but in addition, “the Soma sacrifice was the focal point of the Vedic religion.”⁷ O’Flaherty also suggests that the thrust of Indian mystical thought and spiritual practices was, at least to a certain extent, “an attempt to recapture the vision granted by the Soma plant.”⁸

Soma was created when dried Soma plants were soaked in water and then the sap of these plants was pressed or pounded out with stones on wooden boards covered with bull hides. (The word “Soma” means “to squeeze out liquid.”) This juice was then poured through a woolen filter and then mixed (at least at times) with milk, yogurt, barley water, ghee, and honey.

It appears that drinking Soma gave priests the experience of having discovered the gods, of attaining immortality, of traveling to worlds of divine light. The hymns to Soma are rapturous: “Where there is eternal light, in the world where the sun is placed, in that immortal imperishable world place me, O Soma Where life is free, in the third heaven of heavens, where the

worlds are radiant, there make me immortal Where there is happiness and delight, where joy and pleasure reside, where the desires of our desire are attained, there make me immortal.”⁹

At some point in time, the identity of the Soma plant was lost, leading Western Indologists to propose numerous candidates. Gordon Wasson argued that Soma was a mushroom – the fly agaric (*Amanita muscaria*), an ancient shamanic entheogen used by the Tungusic tribes of the Arctic regions of Siberia. Terence McKenna in turn agreed that Soma was a mushroom, but argued, instead, for psilocybin mushrooms. Other recent scholars have argued that perhaps Soma was actually cannabis. It may never be possible to come to a definitive answer to this mystery, but one thing does seem to be almost certain: that Hinduism, a thriving world religion with millions of followers, historically emerges out of the ecstatic visions catalyzed by an entheogenic plant.

The Eleusinian Mysteries

The Vedic culture on the Indian subcontinent was not the only ancient civilization deeply influenced by an unknown entheogenic substance. For almost two thousand years (from around 1500 B.C.E. to the fourth century C.E.), citizens of the Greco-Roman world celebrated the Eleusinian Mysteries. Based in the cult of Demeter and Persephone in the Greek city of Eleusis, participation in the Mysteries began as a local ritual, eventually became an important part of Athenian citizenship, and finally developed into a crucially important pan-Hellenic institution during the time of the Roman Empire.

The “Greater Mystery” began at the end of September, with four days of festivities, followed by a procession from Athens to Eleusis, fourteen miles away, followed in turn by sacrifices and

purification ceremonies. However, the culmination of this ritual, in which a transformative illuminating vision was bestowed upon the initiates, is veiled in mystery, since for millennia initiates kept their vow to never reveal what occurred in the inner sanctum (the *telesterion*) where the crux of the Mystery took place.

What type of experience was so powerfully illuminative to initiates that a regional cult rather rapidly developed into the most spiritually meaningful, and socially influential, Mystery of antiquity? Given the fact that revealing what took place at the climax of the Mystery was punishable by death, initiates had a strong incentive to never break their vows of secrecy, so it is impossible to answer this question in any detail. Nonetheless, it is clear that whatever occurred was powerfully significant, and often life-changing, to initiates, and appeared to revolve around the mysteries of life and death. We can get some glimpses of the importance of the Mysteries in the writings of several famous initiates. For example, Pindar, an ancient Greek lyric poet, wrote: “Blessed is he who, having seen these rites, undertakes the way beneath the Earth. He knows the end of life, as well as its divinely granted beginning.”¹⁰ Similarly, Cicero, a famous Roman philosopher and orator, wrote that, “Though Athens brought forth numerous divine things, she never created anything nobler than those sublime Mysteries through which we became gentler and advance from a barbarous and rustic life to a more civilized one, so that we not only live more joyfully but also die with a better hope.”¹¹

Initiates of the Eleusinian Mysteries were among some of the most notable figures in our Western heritage, for example, the Roman emperor and Stoic philosopher Marcus Aurelius as well as Plato himself (some scholars have even argued that Plato’s central philosophical

understanding of the Forms emerged from his experience of the Mystery). And although we will likely never know what it was that so deeply inspired the initiates of the Mystery, it is well known that just before the climax of the ritual, they were given a sacred potion, the *kykeon*.

Several scholars of the Mysteries have argued that although the *kykeon* was composed, at least in part, of barley and mint, it must have also possessed entheogenic properties, given that a life-altering ecstatic visionary state was induced, annually, almost on command, to hundreds of initiates at the height of the Mystery. In the highly regarded text, *The Road to Eleusis*, three scholars, Albert Hofmann (the discoverer of LSD and psilocybin/psilocin, the active ingredients of the psilocybin mushrooms), Gordon Wasson (who, as was noted above, theorized that Soma was the *Amanita muscaria* mushroom) and Carl Ruck, Professor of Classical Studies at Boston University, hypothesized that the *kykeon* contained an LSD-like consciousness altering substance. They noted that LSD-like compounds are present in the ergot fungus that is frequently found in the wild grass *Paspalum distichum* that common in the Mediterranean area. The Eleusinian priests therefore would simply have had to gather the ergot found in this species of grass, pulverize it, and then add it to the *kykeon* in order to imbue this potion with entheogenic properties.¹² (The authors also noted that ergot parasitizes ears of grain, making it even more likely that an ergot-based substance would be utilized in the temple of Demeter, the goddess of grain.)

Scholars have proposed other candidates for the mind-altering substance that was hypothetically present in the *kykeon* (e.g., psilocybin and *amanita muscaria* mushrooms; opium derivatives from poppies; and DMT – found in many wild plants in the Mediterranean – if combined with

the MAO inhibitor found in Syrian Rue, which also grows in the area). Nonetheless, regardless of the specific identity of this psychedelic additive, it is widely accepted that a potent, transformative (and yet highly mysterious) entheogenic substance dramatically influenced, albeit in a hidden form, the historical foundations of Western culture.

The “Discovery” of Psilocybin Mushrooms

In the first few decades of the twentieth century, scientists and scholars were busy uncovering yet another entheogenically-based mystery – this time in Mexico. In the early sixteenth century, Spanish Catholic friars became aware of the indigenous practice of eating mushrooms that were said to cause visions. The native Mexican peoples called these mushrooms *teonanácatl*, an Aztec word that is often translated as “the flesh of the gods.” Not surprisingly, the friars, assuming that such visions were demonic in origin, condemned the practice. Their efforts to suppress it were so successful that by the early twentieth century, Western scholars were convinced that the friars had mistakenly thought that *teonanácatl* was mushrooms, when in fact it was peyote (a cactus that also produces visions).

However, in 1936, the Mexican ethnobotanist Blas Pablo Reko, not convinced that *teonanácatl* was peyote, visited the indigenous peoples in the mountains of south central Mexico, and discovered that *teonanácatl* was indeed a mushroom (later given the botanical name *psilocybe mexicana*) and that these mushrooms were still being used in secret magico-religious ceremonies called *veladas*. In these *veladas*, indigenous concepts were intertwined with Christian beliefs. During the *veladas*, which were led by a shaman, families would gather together to eat the

mushrooms with great reverence, not only for religious reasons, but also to cure physical and mental illness, and to resolve ethical dilemmas or family disputes.

In 1952, Gordon Wasson (mentioned above as a key theorist of both Soma and the Eleusinian Mysteries) read two articles published by Richard Evans Schultes in 1939 and 1940 that identified the *teonanácatl* as a mushroom (Schultes had been an assistant of Reko.) Wasson was, at the time, an investment banker for J.P. Morgan. But he and his wife Valentina had also become, after years of dedication and research, highly regarded experts on the history of the use of mushrooms throughout the world. The Wassons contacted Schultes (by then the director of the Harvard Botanical Museum). Schultes then generously shared his contacts in the village of Huautla de Jiménez with the Wassons.

The Mazatec Mushroom Velada

On their first trip to Huautla de Jiménez in 1953 (a difficult journey up terrible mountain roads) the Wassons were allowed to observe a velada, but were not invited to participate. Then, in 1955, Gordon Wasson, accompanied by Allan Richardson, a photographer from *Life* magazine, returned to Huautla de Jiménez. On the night of June 29, 1955, these two men became the first non-indigenous people to take part in a velada.

The velada began around 10:00 pm, and took place in a darkened room of a hut on the outskirts of the village. It was led by a Mazatec female shaman named María Sabina. After the mushrooms were passed through the smoke of copal incense while being praised by Sabina, all of the twenty-five people who were present reverently ate the mushrooms, and the candles were

extinguished. Then, after twenty minutes of silence, Sabina began to hum, and eventually to chant. Her chanting continued periodically throughout the night, punctuated at times with clapping and percussive thumping on her chest.

By 11:20pm, Wasson wrote in his notebook, “spirit comes down from above,” an experience that was followed soon after by “geometric patterns, angular not circular, in richest colors, such as might adorn textiles or carpets. Then the patterns grew into architectural structures . . . [that] seemed to belong . . . to the imaginary architecture described by the visionaries of the Bible.”¹³ Numerous other visionary experiences occurred, all of which left Wasson amazed at the power of the mushrooms and the beauty of what they revealed.

Two years later, in 1957, Wasson discussed this *velada* in great detail when he published a respectful, fair, and scientific article in *Life* magazine.¹⁴ This announcement, in a highly public forum, of the religious use of psilocybin mushrooms in Mexico, exposed millions of Westerners for the first time to the idea that a fungus could catalyze dramatic, and seemingly quite beneficial, religious visions.

Even though Wasson had taken care to use false names for María Sabina and the village of Huautla, it was not long before the town was swarmed with beatniks, journalists, and others seeking mushroom-generated altered states of consciousness. Their all-too-frequent inappropriate behavior caused enormous difficulties for Sabina and the inhabitants of the village. At one point, some angry townspeople even burned down Sabina’s house, blaming her for

revealing their long-held secret (thankfully, they eventually reconciled with her, and by the time that she died, in 1985, at the age of eighty-seven, she was honored throughout Mexico.)

In the meantime, Wasson had sent samples of the mushrooms to the noted mycologist Roger Heim in Paris for analysis. After Heim was unable to isolate the active chemicals within the mushroom, he in turn sent them to the Swiss pharmaceutical chemist and LSD discoverer Albert Hofmann, which led to the isolation of the active alkaloids of the psychedelic mushrooms (psilocybin and psilocin) in 1957.

Psilocybin Experiments

In certain respects, Wasson's *Life* article played a key role in inaugurating the widespread interest in psychedelics during the 1960s. Timothy Leary, one of the key figures in the psychedelic movement had his first experience with entheogens when he took psilocybin mushrooms in Mexico in 1960. Not long afterwards he organized the Harvard Psilocybin Project, a group of graduate students and junior faculty who gathered together to research the potential therapeutic benefits of psilocybin.

One of the most famous studies to emerge from the Project (supervised by Leary) was the "Good Friday Experiment," designed by Walter Pahnke, a young M.D. and graduate student at the Harvard Divinity School who, for his doctoral thesis, proposed to test whether psilocybin might catalyze mystical experiences if consumed in a religious setting by a group of spiritually predisposed subjects. Panke (with the support of Walter Houston Clark who taught the psychology of religion at Andover Newton Theological Seminary) recruited twenty divinity

students for the study. Ten more volunteers from the Psilocybin Project were chosen as guides. On April 20, 1962, just before the Good Friday service in Boston University's Marsh Chapel, all of the participants gathered downstairs in a small chapel. Ten of the students (and five of the guides) received a placebo of nicotinic acid (which produces facial flushing and tingling) while the other ten students (and five guides) received a capsule of thirty milligrams of psilocybin. In this double-blind study, neither the students nor the guides knew what was in their capsule. But it soon became all too clear: as the sermon and music from upstairs was piped in, those with the placebo sat quietly on the pews, while the other fifteen lay on the benches moaning or wandered around the chapel peering intently at various religious icons while making statements such as "God is everywhere," or "Oh, the glory."

The next day everyone filled out a 147-item questionnaire that was scored by independent raters (another form was filled out six months later). This questionnaire was designed, at least in part, to assess the degree to which what the subjects' state of awareness during the experiment included seven classical traits of a mystical experience – traits which Pahnke had drawn from the work of the philosophers William James and W.T. Stace. Nine of the ten students who had received psilocybin reported at least four of the categories of mystical experience, whereas only one of the ten receiving nicotinic acid reported anything even vaguely mystical.

In a series of follow-up interviews twenty-five years later, Rick Doblin discovered that even decades later, "all the participants that he spoke with who had consumed the psilocybin still felt that they'd had genuine and beneficial mystical experiences."¹⁵ (Doblin noted, however, that Pahnke's original account failed to mention that one of the students receiving psilocybin had to

be restrained and given Thorazine, a potent antipsychotic, after he suddenly left the chapel and headed rapidly down Commonwealth Avenue to announce the dawn of the Messianic Age.)

Then, in 2002, Ronald Griffiths and others at John Hopkins University designed a similar, but much more rigorously scientific experiment. In this double-blind experiment, 36 volunteers during three sessions received either psilocybin or an active placebo, Ritalin (at some point, all of the volunteers took both substances). In the paper published in 2006 that discussed the findings of the experiment, it was noted that based on the same seven criteria used in Pahnke's design, twenty-two of the thirty six volunteers had a "complete" mystical experience after taking psilocybin, as compared to only four of the thirty six taking Ritalin, and sixty seven percent of the participants ranked their psilocybin sessions as "either the single most meaningful experience of his or her life, or among the top five most meaningful experiences of his or her life."¹⁶

Peyote

Peyote is a small cactus without spines that grows in the Chihuahua Desert (extending from north-central Mexico into southern Texas). There are at least nine psychoactive alkaloids in peyote. The most well known in the West is mescaline.

Peyote has been used for centuries, if not millennia, by indigenous peoples in northern Mexico. It is a bitter, metallic-tasting plant that usually produces queasiness and often vomiting. To minimize this discomfort, peyote is often dried, ground into a powder, and drunk as an infusion. Its visionary effects typically last for eight to ten hours.

Among some tribal groups in Mexico, such as the Huichol, the ritual ingestion of peyote is, in certain respects, the central organizing principle of their entire religious lives. Participants use its powers to commune with divine beings, to experience themselves uplifted into a transfigured natural landscape, and to create bonds of love among all those of take the sacramental plant. Peyote is seen as a holy medicine, and as such is taken to discern the causes of illness, to relieve pain, to increase the flow of a new mother's breasts, and to increase energy and endurance. It is even used as a poultice for wounds. There are countless testimonies that proclaim the power of peyote to cure numerous types of illness, including not only depression and alcoholism, but also ailments such as pneumonia and cancer.

Before the 1890s, peyote was rarely used north of the Rio Grande. But as a result of the inter-tribal bonds of friendship established by the Ghost Dance (a Pan-Indian messianic visionary movement of the late 1800s), by the early twentieth century, over thirty-five tribes – primarily in the Plains area, but extending from the Southwest to Wisconsin – used peyote in their religious rituals.

The religious use of peyote spread so quickly throughout North America due, at least in part, to the fact that most of these tribal groups already deeply valued the sacred power of visions, and stressed the need to seek them in order to gain blessings in one's life. What peyote enabled North American indigenous vision seekers to do was to obtain the power and blessings that flowed from visionary contact with supernatural beings, without having to endure the long periods of arduous fasting and religiously-inspired suffering that had previously been required.

Traditionally, a peyote ritual takes place around a fire in a ceremonial tipi with an earthen altar and the door facing east. (Normally, participants will purify themselves before the ceremony with observances such as sweat baths.) It is an all-night ritual, and is led by a “roadman.” The content and structure of the ceremony varies by tribe, as well as by the prior training of the roadman, but typically everyone eats peyote, sits in a circle, prays, confesses wrongdoings, and sings peyote songs accompanied by rattles and drums.

As the religious use of peyote spread in North America, it became increasingly Christianized. As early as the 1890s, the Bible began to be introduced to peyote rituals, and prayers that had previously been made to traditional indigenous spiritual beings began to be directed to the God of Christianity. Although the outer form of the ritual often remained unchanged, numerous symbolic events within the ritual began to be understood through a Christian lens. (For example, the central fire began to be seen as the Light of Christ, and the meal eaten in the early morning after the completion of the ritual became a sacrament to be shared by those who had been saved by Christ.) In this Christianized version of the peyote ceremony, the roadman reads from the Bible and asks the participants to confess their sins and to repent, and Christian hymns have replaced the traditional chants and songs. Peyote participants believe that the Great Spirit (seen as identical to the Christian God) put His power into the peyote, and when it is consumed in the proper ritual way, it is thought to have the same redemptive power as the Eucharist. Non-Christianized forms of the peyote ritual remain, but the Christianized version now predominates.

Legal Challenges to the Use of Peyote in North America

Christian missionaries and officials in the Bureau of Indian Affairs were, from early on, disturbed by the spread of peyote among tribal peoples, since peyote rituals not only vitalized native religious traditions, but also cultivated pan-Indian solidarity. The BIA therefore frequently attempted to draft legislative bills in Congress to forbid the use of peyote, but at least before 1920, had no success. The BIA therefore went to the Treasury Department and persuaded them, in 1915, to issue a regulation forbidding peyote from being imported into the US, justifying the regulation with the (medically unsubstantiated) claim that it was dangerous to consume. (That regulation was rescinded in 1937).

Meanwhile, several loosely organized inter-tribal groups attempted, under various names, to obtain legal protection for peyote rituals, claiming that they should be granted the freedom to practice their religion as they saw fit. Finally, in 1918, the “Native American Church” was incorporated in Oklahoma. This organization quickly grew into an intertribal peyote church that extended throughout the central and western United States. Now legally known as the “Native American Church of North America,” (there are other peyote churches that do not operate under this umbrella), this group eventually persuaded twenty-seven state courts to honor their right to use peyote in a religious context.

However, in 1990, the United States Supreme Court upheld a previous Oregon Supreme Court ruling against the religious use of peyote, claiming that the First Amendment did not protect the peyote rituals of the Native American Church. Then, in 1993, explicitly responding to this ruling, Congress passed the Religious Freedom Restoration Act, thereby restoring the Native American Church’s right to use peyote in a religious context. (Although certain sections of this

Act were overturned by the Supreme Court in 1997, the Native American Church is still legally permitted to use peyote in its religious rituals.)¹⁷

Mescaline and *The Doors of Perception*

Several highly popular books by Carlos Castenada, published in the late 1960s and early 1970s, describing his alleged apprenticeship with a Yaqui shaman, sparked a revival of interest in the use of peyote among young (mostly non-Indian) North Americans. However, in many ways it was mescaline, the primary active ingredient of peyote, that was arguably more central to the growth of interest in psychedelic substances in the West.

Louis Lewin, a toxicologist in Berlin, was the first to isolate different alkaloids in peyote, but he refused to try any himself. That task was undertaken in 1897 by Arthur Heffter, a colleague (and rival) of Lewin's, who ingested each alkaloid until he determined which one (eventually given the name "mescaline") had mind-altering properties.

Mescaline was used by the Dadaists and the Surrealists in the early twentieth century as part of their attempt to amplify their creative powers, but it emerged perhaps most forcefully in Western culture when Aldous Huxley, the renowned author of *Brave New World*, described his first experience with mescaline in *The Doors of Perception*.

In this text, published in 1954, Huxley drew upon numerous Eastern, and Western, philosophical, religious, and artistic sources in his attempt to articulate what took place within him after ingesting four tenths of a gram of mescaline on May 4, 1953. (Huxley was supervised by

Humphrey Osmond, the psychiatrist who soon afterwards coined the term “psychedelic” in a playful back and forth exchange of letters with Huxley.) In *Doors*, Huxley emphasized that he was not hallucinating during this eight-hour session. Instead, he felt as if he was seeing reality as it truly was. He was seeing reality (in the form of, for instance, a glass vase with three flowers) in a “transfigured” form – it was as if he were perceiving “what Adam had seen on the morning of his creation – the miracle, moment by moment, of naked existence.”¹⁸ Huxley was convinced, as he looked at the flowers, shining with “living light,” pulsing with a type of subtle “equivalent of breathing,” and glowing with “a repeated flow from beauty to heightened beauty, from deeper to ever deeper meaning” that he was experiencing something similar to what the mystics from all the world’s religions dedicated their lives attempting to see. However, in his case, he had attained that mystical vision effortlessly, simply by ingesting this mysterious chemical substance.¹⁹

Mysticism Sacred and Profane

Others, of course, were not persuaded by Huxley’s claim. R.C. Zaehner, a professor of Eastern Religions at Oxford (and a former M16 intelligence officer) in *Mysticism Sacred and Profane* wrote a scathing critique of Huxley’s suggestion that profound mystical experiences, similar to those undergone by, for example, Christian mystics, can be facilitated by mind-altering substances. Zaehner, a Roman Catholic convert, noted that if a “drug-taker’s consciousness bears . . . a superficial resemblance to that of the religious mystic,” that does not mean that the two experiences are of equal value.²⁰ For Zaehner, Huxley’s mescaline-catalyzed experience was, in a way similar to those suffering from mania, simply a degraded, perhaps even pathological form of awareness that contrasted, vividly, with the exalted experiences of Christian

mystics. For Zaehner, genuine mystics (who are inevitably Christian), experience themselves as united with God Himself. Huxley, in contrast, was simply experiencing “union with . . . three chair legs, grey flannel trousers, and, by extension, with all natural objects within his vision.”²¹ According to Zaehner, in a way that is similar those in “primitive communities and certain ecstatic sects,” Huxley may have thought that he was communing with the Divine, but he had simply made a “vulgar error.”²² Christian mysticism, according to Zaehner is “sacred,” whereas drug-induced mysticism is clearly “profane.”

Psychedelics and the Mind at Large

Huxley, not surprisingly, had a radically different understanding of the theological and philosophical underpinnings of his mescaline experience. The title of *The Doors of Perception* referred to a well-known quote from *The Marriage of Heaven and Hell*, a book written by the English visionary poet, William Blake: “If the doors of perception were cleansed, everything would appear to man as it really is, infinite.” For Huxley, the world is innately sacred. All that we have to do is to cleanse our minds of our deeply engrained, socially-approved, and deeply limiting habits of perception, and open ourselves to Life, and we will experience a world shining with Divine Light.

In *Doors*, Huxley (drawing upon the work of the French philosopher Henri Bergson), argues that the main function of the brain is *not* to create our conscious awareness. Instead, the primary function of the brain is actually to protect us from being overwhelmed and confused by the torrent of information that ceaselessly pours into us from the cosmos, a cosmos which Huxley saw not as a soulless machine, but instead, as something closer to an all-pervasive Mind. Understood in this way, each of us is, under the surface of conscious awareness, linked to this (to use Huxley’s phrasing) “Mind at Large,” but in

order to make biological survival possible, that Mind-at-Large, for the most part, needs to be funneled through the reducing valve of the brain.

That “valve” can, however, be opened by psychedelic compounds (or by the various spiritual exercises advocated by different mystical traditions). Seen in this way, the changes in the neurochemical activity in the brain that are catalyzed by the ingestion of various psychoactive substances do not produce aberrant hallucinations. Instead, they serve to open up an individual’s awareness to dimensions of reality that already exist, but were previously screened or filtered from our ordinary level of awareness, bringing about (at least potentially) visions of extraordinary beauty, or a glimpse into the infinite meaningfulness and glory of Reality.

To use an anachronistic example (one that is, however, aligned with Huxley’s philosophical proposal), perhaps psychedelic substances are simply a way to “change the channel” of the “television” of the brain, so that it can receive information from previously unrecognized levels of our mind or from “higher” dimensions of reality. Understood in this way, psychedelics do not distort our perceptions, but instead, “tune us into” levels of reality that are typically screened by the brain (as well as by our socially constructed sense of ourselves as separate egos).

If we are willing to accept Huxley’s “filter theory” of the relationship between the activity of the brain and changes in our states of consciousness (a theory shared by Bergson, Fredric Myers, William James, C.D. Broad, and many others) then the visionary and mystical experiences that take place after taking entheogens can be understood as valid and valuable, and not as debilitating and psychopathological hallucinations.

LSD

In 1938, Albert Hofmann, a Swiss chemist doing research at Sandoz Laboratories in the hopes of creating drugs to ease the pain of giving birth, synthesized a series of ergot derivatives called lysergic acid. Nothing came of this work, and so it was shelved and forgotten. However, five years later, after dreaming about the molecular structure of the twenty-fifth of the series (lysergic acid diethylamide, hence LSD-25), and after having what he later termed a “peculiar presentiment,” Hofmann decided to re-synthesize LSD-25 on April 16, 1943. While working with the substance, Hofmann began to feel somewhat woozy and took the rest of the day off. While in bed at home, he began to perceive an “uninterrupted stream of fantastic images of extraordinary plasticity and vividness . . . accompanied by an intense kaleidoscopic play of colors.”²³ Suspecting that these images had been created by LSD-25, the following Monday, April 19th, Hofmann dissolved a minute amount of the substance (250 millionths of a gram) into a glass of water and drank it. After beginning to feel the effects, Hofmann left work and bicycled back home – a bicycle “trip” that afterwards became legendary in psychedelic circles. After receiving extensive testing in Sandoz, LSD began to be marketed in 1949 as a drug that could be used by researchers to investigate the origins of mental illness, and by therapists to help uncover material hidden in the subconscious of their patients. Easily available, and completely legal, LSD was utilized in laboratories and clinics for more than two decades. Hundreds of papers and dozens of books were published about the findings gathered by numerous researchers (including, covertly, those sponsored by the CIA) from around the world who gave LSD to thousands of healthy volunteers and psychiatric patients – a research process that was generously funded by the government. The findings were stunning: LSD seemed to be almost a wonder drug, able to help “previously untreatable patients suffering from obsessions and compulsions, post-traumatic stress, eating disorders, anxiety, depression, alcoholism, and heroin dependence.”²⁴

In 1960, any lingering concerns about the safety of this powerful substance were assuaged when Sidney Cohen published his research on the adverse reactions to LSD (based on a survey sample of five thousand people who had taken LSD a cumulative total of twenty-five thousand times). The study showed that although problems could at times occur if unstable subjects took LSD (especially if combined with alcohol and other drugs in uncontrolled settings), adverse reactions to LSD were extremely low in both normal volunteers and psychiatric patients when taken with adequate supervision in a secure environment. Cohen's conclusion: "LSD is an astonishingly safe drug."²⁵

It also became clear to many of therapists and researchers that the psychedelic experiences generated by carefully guided high dose LSD sessions frequently catalyzed powerful visionary and mystical experiences that were strikingly similar to those described by classic texts in Hinduism, Buddhism and Taoism. Afterwards, individuals also often demonstrated a keen and ongoing interest in spirituality, even if they had previously had been hostile to such a worldview. As Stanislav Grof, one of the world's foremost LSD therapists and researchers notes, "It would appear that everybody who experiences these levels [during an LSD session] develops convincing insights into the utmost relevance of the spiritual dimension in the universal scheme of things."²⁶

Nonetheless, by the mid-1960s, the media began to publish numerous exaggerated and at times fabricated stories of suicides, murders, visits to emergency rooms, birth defects, and broken chromosomes that were allegedly linked to the use of LSD. Subsequent research conclusively absolved LSD from toxicity and chromosome damage, but these studies received almost no publicity. It was, therefore, perhaps inevitable that in 1970, over the objections of almost every

researcher in the field, Congress passed a law making LSD and other psychedelics illegal, effectively shutting down any further research in this area.

Ayahuasca

For perhaps thousands of years, indigenous peoples in the Amazon rainforest region of South America have been using entheogenic substances as an integral part of their spiritual and social lives. One of the most important of these substances is ayahuasca. “Ayahuasca” is a Quechua word meaning, the “vine of the soul.” In the Amazon region, ayahuasca is seen as an all-purpose healing elixir, and is taken to purge the body from parasites and other toxins. Most people report feeling physically and psychically recharged after taking ayahuasca.

As was noted above, ayahuasca is a brew that comes from a woody vine: *Banisteriopsis caapi*, boiled together with the leaves of a shrub, the *Psychotria viridis*. While the leaves from the *Psychotria viridis* bush contain DMT (a powerful psychedelic substance), this DMT cannot catalyze a psychedelic effect if the leaves are ingested orally because MAO enzymes found in the digestive track (and elsewhere) quickly break down the DMT. However the harmine and harmaline found in the *Banisteriopsis caapi* vine (the second ingredient in the ayahuasca brew) inhibit the MAO, therefore allowing the DMT in the leaves to be orally absorbed and activated, and permitting a slow (usually 4 to 6 hour) release of DMT.²⁷

For decades, researchers have been puzzled by how, out of the thousands (if not millions) of plants in the Amazon, indigenous peoples somehow discovered the synergy between these two plants, plants that appear to have little if any psychoactive effects separately. Recently however, in a thoughtful and well-researched article, Gayle Hightower, after presenting a concise history

of the use of the term “ayahuasca” by anthropologists and ethnobotanists, concludes that originally ayahuasca shamanism focused solely on *Banisteriopsis caapi*; that the combination of *B. caapi* and *Psychotria viridis* may be rather recent (perhaps linked to colonialism and the Rubber Boom); that this synergy was discovered in the area of present-day Iquitos, Peru; and that this discovery occurred because the ayahuasca vine was thought to be the “mother of all plants,” and was mixed with other plants by shamans in order to come to know the healing qualities of these plants (which had often been located via visions given to the shaman as a result of drinking brews of the ayahuasca vine).²⁸

DMT

DMT is not only found in the leaves of the *Psychotria viridis* plant. It also exists throughout the plant and animal kingdoms and is actually found within the human body. As such DMT is the only “endogenous” psychedelic substance (which is probably the reason why people who drink ayahuasca never build up a tolerance to it, as opposed to all other psychedelic substances.) DMT is not only one of the few substances able to pass through the “blood-brain barrier,” but also appears to be produced by the human brain. (This raises an important issue: should the government be allowed to penalize the use of a substance that is produced by our own bodies?)

Rick Strassman, the first researcher in the U.S. to be approved to scientifically investigate on the effects of psychedelics on human beings (after a twenty year legally-enforced moratorium), points out that “It’s difficult to ignore the overlap of research subjects’ descriptions of high dose DMT sessions with those from people who have undergone spontaneous near-death, spiritual and mystical states.”²⁹ Strassman suggests that the striking similarities between non-psychedelically catalyzed spiritual and mystical experiences, and the experiences undergone by those who take

DMT, raises the possibility that many spiritual/mystical experiences might well be, in fact, “mediated by elevated levels of *endogenous* DMT.”³⁰

Strassman is not arguing that the powerful spiritual experiences of mystics and shamans in numerous religions throughout history are *caused* by DMT within the body. Strassman is actually an advocate of the “television set” understanding of the relationship between consciousness and the brain. As such, he believes that elevated levels of endogenous DMT “change the channel” of the brain, so that it can then access levels of consciousness (and planes of existence) that were always there, but were previously not able to be perceived because of human beings’ focus on everyday reality.³¹

¹ This appendix is a revision of material previously published in G. William Barnard, “Entheogen-Based Religions and Spirituality” in Niki Kasumi Clements, ed., *Religion: Mental Religions* (Farmington Hills, MI: MacMillan Reference USA, 2016), 339-354.

² Rick Strassman, *DMT: The Spirit Molecule* (Rochester, VT: Park Street Press, 2001), 22.

³ *DMT Spirit Molecule*, 32-37.

⁴ Tom Shroder, *Acid Test: LSD, Ecstasy, and the Power to Heal* (New York: Blue Rider Press, 2014), 50.

⁵ Jay Stevens, *Storming Heaven: LSD and the American Dream* (New York: Grove Press, 1987), 173.

⁶ Daniel Pinchbeck, *Breaking Open the Head: A Psychedelic Journey into the Heart of Contemporary Shamanism* (New York: Broadway Books, 2003), 4.

⁷ Gordon Wasson, *Soma: the Divine Mushroom of Immortality*. (New York: Harcourt Brace Jovanovich, 1978), 95.

⁸ Soma, 95.

⁹ Terence McKenna, *Food of the Gods* (New York: Bantam Books, 1993), 104.

¹⁰ Robert Forte, *Entheogens and the Future of Religion* (San Francisco: Council on Spiritual Practices, 2000), 33.

¹¹ *Entheogens and the Future of Religion*, 92.

¹² *Entheogens and the Future of Religion*, 35.

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- ¹³ Valentina Wasson and Gordon Wasson, *Mushrooms Russia and History* (New York: Pantheon Books, 1957), 293).
- ¹⁴ Gordon Wasson, "Seeking the Magic Mushroom." *Life*, 17 (May, 1957): 100-120.
- ¹⁵ Roger Walsh and Charles Grob, eds., *Higher Wisdom* (Albany: State University of New York Press, 2005), 239.
- ¹⁶ Roland Griffiths, William Richards, Una McCann, et al. "Psilocybin Can Occasion Mystical-type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance," *Psychopharmacology* 187, no. 3 (2006), 268-283.
- ¹⁷ The information on peyote was primarily drawn from Robert Fuller, *Stairways to Heaven* (Boulder, CO: Westview Press, 2000), 38-48.
- ¹⁸ Aldous Huxley, *The Doors of Perception* (New York: Harper Collins, 1954), 17.
- ¹⁹ *The Doors of Perception*, 18.
- ²⁰ R.C. Zaehner, *Mysticism Sacred and Profane* (Oxford: Oxford University Press, 1961), xii.
- ²¹ *Mysticism Sacred and Profane*, 32.
- ²² *Mysticism Sacred and Profane*, 24.
- ²³ Albert Hofmann, *LSD: My Problem Child* (MAPS, 2009), 14.
- ²⁴ *DMT: The Spirit Molecule*, 25.
- ²⁵ *Storming Heaven*, 173.
- ²⁶ *Higher Wisdom*, 245.
- ²⁷ Dennis J. McKenna, "Ayahuasca: An Ethnopharmacologic History," in Ralph Metzner, ed., *Ayahuasca: Sacred Vine of Spirits* (Rochester, VT: Park Street Press, 1999), 40-62.
- ²⁸ Gayle Highpine, "Unraveling the Mystery of the Origin of Ayahuasca," 2012. http://www.neip.info/html/objects/downloadblob.php?cod_blob=1184.
- ²⁹ *DMT: Spirit Molecule*, 311.
- ³⁰ *DMT: Spirit Molecule*, 311.
- ³¹ *DMT: Spirit Molecule*, 315-316.