

Drug-Enabled Mystical Experiences

with Virginia Ballesteros, “*Applied Mysticism: A Drug-Enabled Visionary Experience against Moral Blindness*”; and Richard H. Jones, “*Limitations on the Scientific Study of Drug-Enabled Mystical Experiences.*”

LIMITATIONS ON THE SCIENTIFIC STUDY OF DRUG-ENABLED MYSTICAL EXPERIENCES

by *Richard H. Jones*

Abstract. Scientific interest in drug-induced mystical experiences reemerged in the 1990s. This warrants reexamining the philosophical issues surrounding such studies: Do psychedelic drugs cause mystical experiences? Are drug-induced experiences the same in nature as other mystical experiences? Does the fact that mystical experiences can be induced by drugs invalidate or validate mystical cognitive claims? Those questions will be examined here. An overview of the scientific examination of drug-induced mystical experiences is included, as is a brief overview of the history of the use of psychedelic drugs in religion.

Keywords: attribution theory; consciousness; entheogens; mystical experience; mysticism; neuroscience; psychedelics; scientific study of mystical experiences; Huston Smith

In a classic article in 1964, Huston Smith asked “Do Drugs Have Religious Import?” and concluded that psychedelic drugs regularly touch off experiences that give the users a sense of the sacred. Scientific interest in this drug-enabled mystical experiences waned after the early 1960s, but interest has been renewed today within the scientific community in the study of the brain, and this warrants revisiting the issue in light of the new findings. The most basic questions that mystical experiences occasioned by psychedelics raise are these: Do such drugs trigger mystical experiences? Are drug-enabled mystical experiences the same in nature as naturally occurring ones? Do recent scientific findings provide grounds to support the cognitivity of mystical experiences or grounds to discredit such a claim? The issues also impinge the larger issue of the nature of the human mind. Looking at the contemporary scientific studies does show that scientists

Richard H. Jones is a retired attorney in New York City. He holds a PhD in Philosophy and History of Religions and has published numerous books and articles on mysticism over the past four decades. He may be contacted at rhjones2488@gmail.com.

can demonstrate that psychedelics in proper dosages can touch off genuine mystical experiences in many cases, especially with a supportive “set and setting,” and that mystical experiences are distinguishable from other types of experience, but beyond this science cannot tell us about the nature and veridicality of mystical experiences.

Before addressing these issues, two preliminary points must be made. First, of interest here is only the scientific study of psychedelics as alleged “triggers” of mystical experiences. The drugs include four classic major psychedelics: mescaline (the active drug in peyote), lysergic acid diethylamide (LSD; derived from ergotamine found in ergot fungi), psilocybin (the active drug in “sacred mushrooms”), and dimethyltryptamine (DMT; the active drug in the *ayahuasca* vine). These in the proper dosages and setting touch off mystical experiences in a large number of users, especially in those disposed to having religious experiences. Two newer drugs, “ecstasy” (MDMA) and the anesthetic ketamine touch off mystical experiences less frequently. The term “entheogen” was coined in 1979 (Ruck et al. 1979) for any substance that, when ingested, catalyzes or generates an altered state of consciousness (ASC) deemed to have spiritual significance. But the term “psychedelic”—literally, “mind-opening” or “soul-revealing”—will be used here for the class of psychotropic chemicals, whether found in nature or artificially created, that allegedly enable mystical and religious experiences. This term fell into disrepute by 1980 because of its association with recreational use of such drugs, but it has regained scholarly respectability since the 1990s. It has the advantage of being more neutral than “hallucinogenic” and “entheogenic,” both of which carry baggage on the issue of whether mystical experiences are cognitive—the first con (i.e., “generating hallucinations”) and the second pro (i.e., “generating God within”).

Second, the term “mystical experience” is notoriously vague, and so what experiences are included and excluded by the term for this article must be specified. Here, the term “mystical experiences” will be restricted to the range of ASCs and experiences that involve emptying the mind of conceptual context and in particular a sense of a real “self” (see Jones 2016, chap. 1).¹ This is a restrictive definition, but it includes more than the experience of “union with God”—different extrovertive and introvertive experiences fall within its range.² Extrovertive and some introvertive experiences retain differentiated content within the mind, but one type of introvertive experience is allegedly empty of all such content—the “depth-mystical experience.” But mystical experiences as specified here differ from “religious experiences” in general such as praying, speaking in tongues, and so forth.³ In particular, mystical experiences involve a lessening or annihilation of a sense of otherness and thus can be distinguished from visions and auditory experiences of a person or other reality *set apart* from the experiencer (Cole-Turner 2014, 645). Nonmystical ASCs, whether taken to be religious or not, will also not be the subject of this article. The term

“mysticism” will encompass more than having a mystical experience: It will refer to different ways of life centered around cultivating mystical experiences and includes different doctrines, interpretations, and understandings of the significance of mystical experiences and the nature of what is experienced in introvertive experiences. “Meditation” will encompass any yogic or other attention-based technique for inner transformation involving the mind or body undertaken to attain a mystical insight (Eifring 2016, 1).

A BRIEF HISTORY OF THE RELIGIOUS USE OF PSYCHEDELIC DRUGS

Empirical psychologists are beginning to note the history of mysticism and the uses of indigenous psychedelics in different cultures (e.g., Barrett and Griffiths 2018, 395–400, Carhart-Harris et al. 2018, 725). Over a hundred natural psychedelic plants, fungi, and animals (e.g., the Colorado River toad) have been identified. The most familiar today are peyote (mescaline), certain mushrooms (psilocybin), cannabis, coca, opium poppies, and the *ayahuasca* vine in the Amazon and Orinoco rainforest (DMT). Plants with DMT were once common throughout the Mediterranean region. Their mind-altering effects were probably discovered by accident in our early evolution. All of these “flesh of the gods” or “sacred medicines” are found wild and do not require cultivation, but they apparently became popular in agricultural societies of even the Paleolithic era (see Devereux 1997). Psychedelics in shamanic practices appear to have been part of religion since its early days (see Winkelman 1999).⁴ Evidence is found in early Mesoamerica, sub-Saharan and northern Africa (including Egypt), and even from the Paleolithic era in territories from Europe to China. Some Neanderthal graves also contain plants with psychedelic properties. The fly-agaric mushroom was apparently used by shamans in Siberia; it was also used in the Baltics and Scandinavia. Germanic tribes apparently used opium poppies in rituals.

However, as societies became more complex drug-facilitated states and other ASC-oriented practices were dropped from the mainstream religions of the world’s cultures in favor of more sedate practices. Nevertheless, references to their continued use have survived in early texts. In India, almost 12 percent of the hymns in the second-millennium BCE *Rig Veda* are devoted to *soma* (in the Zoroastrian *Avesta*, *haoma*), a psychedelic concoction used in rituals, and it is referred to in many others (see Jones 2014, 22–29, 170–71)—indeed, it permeates the *Rig Veda*, and its ritual is the central ritual of the Vedic religion. After Vedism, only informal references to psychedelic drug use are recorded in later Hinduism—for example, the god Shiva is often portrayed with a psychedelic *datura* flower in his hand. Buddhism condemned getting intoxicated as interfering with a mindful state, but later Hindu and Buddhist Tantrics retained the use of

psychedelics. But the Tantric traditions are the last traditions within the world religions where psychedelic experiences are considered important.

In the West, vestiges of shamanic drug use are present in Greek mythology (Wasson et al. 1986). The Eleusinian Mysteries utilized a drink called *kykeon* whose central component may have had psychedelic properties similar to LSD's from a fungus ergot parasite in the rye that was a central component of the brew (Ruck 2006). The Delphi oracles may have uttered their prophecies under the influence of psychedelic ethylene vapors emanating from cracks in the earth. However, nonmystical forms of religion soon won out in Judaism, Christianity, and Islam. But some scholars have also suggested that the story in the Bible of the forbidden fruit of the "tree of knowledge of good and evil" in the Garden of Eden may have evolved from tales of psychedelic herbs that were forbidden to the general population and that Moses's encounter with the burning bush that was not consumed but made his face shine brightly was a drug-enabled experience (e.g., Shannon 2008). Dan Merkur (2000, 2001) has proposed that the "manna" that the Israelites received from heaven was a psychedelic drug and became the "hidden manna" in medieval European Christianity that is usually interpreted as a symbol for contemplation. Some scholars have suggested that the frankincense given by the "wise men" (*magi*) to honor the birth of Jesus contained one or more psychedelic ingredients. Some have theorized that the original Eucharist was a psychedelic sacrament. There is also some evidence that these drugs played a role in the religious life of early Middle Eastern Christians and perhaps in the Islamic world (see Ruck 2006; Shannon 2008). Medieval Jewish Kabbalah medical texts refer to the hidden powers of certain psychedelics such as mandrake. (Such theories are, of course, controversial—most Christians and Jews do not want even to consider the possibility that hearing the voice of God and so forth may be merely hallucinations occasioned by drugs.)

Psychedelics have remained outside the mainstream traditions of the Abrahamic religions for most of their history. However, in the 1960s the works of Aldous Huxley, Alan Watts, Timothy Leary, Richard Alpert (Ram Dass), and Ralph Metzner made psychedelics popular in religious circles (see Partridge 2018). Many outside of religion also saw psychedelic experiences as having religious significance. Robert Masters and Jean Houston stated that from their research on LSD "authentic religious experiences may occur within the context of the psychedelic drug-state" (1966, 257). Timothy Leary said that the "deepest religious experience" of his life came from eating seven sacred mushrooms and that he had repeated the ritual "several hundred times" and almost every time he was "awed by religious revelations as shattering as the first experience" and in addition that over 75 percent of the several thousand participants in his research reported "intense mystico-religious responses" and well over half claimed that they had the deepest spiritual experience of their life (1968, 13–14). Elsewhere

he stated that the data show that if administered in a supportive but not spiritual setting, 40 to 75 percent of psychedelic subjects will report “intense life-changing philosophic-religious” experiences, and if the “set and setting” is supportive and spiritual, 40 to 90 percent of the experiences will be “revelatory and mystico-religious” (Leary 2001, 11–12).⁵ Masters and Houston report similar numbers if the setting is supportive (1966, 255). (That these are reports from the early 1960s when psychedelics provoked worry and distrust is significant. The general cultural opinion of psychedelics influences the expectations and preconceptions of individuals [Carhart-Harris et al. 2018, 726].) Huston Smith, who took mescaline under Leary’s supervision, said that “overnight” he became “a visionary—one who not merely believes in the existence of a more momentous world than this but one who has actually visited it” (2000, 15).⁶ He asked how something that felt like an “epochal change” in his life could be “crowded into a few hours and occasioned by a chemical.” Since the experiences are not tied to any particular religious traditions, cross-cultural understandings of their significance such as “perennial philosophy” became popular in scientific circles. Concepts of transcendent realities from different traditions became interchangeable—as William Richards (2016, 211) says, one can say “God (or whatever your favorite noun for ultimate reality may be).”⁷

However, the cultural revolution envisioned by Leary and company in the early 1960s did not materialize—enthusiasm for psychedelics simply waned (Laiglitz 2012, 13). The association of psychedelics with the hippie culture led to regulation. By 1980, New Age gurus had begun to distance themselves from psychedelics and to focus more on meditation (Partridge 2005, 83)—if one could attain enlightenment in a pill, there was no need for gurus. But today some religious groups, including the Santo Daime tradition in Brazil (see Barnard 2014) and the Native American Church in North America, have made psychedelics a sacrament. DMT, psilocybin, and mescaline have become the drugs of choice in religious circles. Books are on the increase in theology and the anthropology of religions on psychedelic plants that play a central role in religious rituals—in particular, peyote of the American Plains Indians and brews from the *ayahuasca* vine containing DMT of various Amazon River basin peoples. The internet has also allowed the expansion of religious interest in psychedelics outside of religious institutions. Some want to establish a new religion with psychedelics as the principle sacrament and educational tool, following Huxley’s novel *Island* with its Soma and Leary’s prediction that psychedelics would be the religion of the twenty-first century (he started the “League of Spiritual Discovery,” with LSD as its sacrament).⁸ Jack Kornfield is not alone in advocating psychedelics within Buddhist practice. But drugs have also pulled many seekers away from both Western and Eastern religious traditions to “neo-shamanism” and “pagan”-oriented spiritualities (thanks to Carlos Castaneda, Terence McKenna, and Michael Harner).

Today, the recreational use of major psychedelics has greatly declined and is not a matter of general public concern in the United States and Europe (Langlitz 2012, 13). The West in the twentieth century also appears to be the first large culture in which these drugs were used mainly for mere recreation even if some experiencers end up attaching religious significance to their experiences.⁹ In prior cultures, use of psychedelics appears to have been confined principally to initiates in particular cults or to religious rituals involving specialists. But now some people see psychedelics as a way to an “experimental mysticism.” The late twentieth century also saw the first “secular mysticism” in which meditation is undertaken for merely psychological and physiological benefits and in which mystical experiences are understood as merely products of the brain having no cognitive significance. Psychedelics became seen as merely breaking the hold of our ego and letting material from our subconscious emerge into the conscious mind. Even within religious communities, there is a nagging doubt, expressed or unexpressed, that if religious experiences come in a pill, psychedelic experiences cannot be cognitive of any reality but must be only generated by the brain.¹⁰ Many scientists studying psychedelics now understand their effects on the brain, the accompanying experiences, and their causes solely in natural terms. Thus, such metaphysical naturalists do not see the need to include any transcendent realities in the full explanation of mystical experiences and its effects.

THE SCIENTIFIC STUDY OF PSYCHEDELIC DRUGS AND MYSTICISM EXPERIENCES

Hallucinogens became an object of scientific investigation in the nineteenth century as Europeans and Americans observed their uses in other cultures. For example, the spreading use of peyote among Native Americans in the second half of the century led American and English researchers to study the effects of the cactus, and in 1897 through a series of self-experiments the German chemist Arthur Heffter identified and isolated mescaline as its pharmacologically active principle (Langlitz 2012, 27). Scientific interest in such drugs entered the mainstream early in the twentieth century with William James’s interest in conversion experiences and his experimenting with nitrous oxide ([1902]1958, 298). Interest lagged until Aldous Huxley’s experiences of the “is-ness” of reality enabled by mescaline were recounted in *The Doors of Perception* (1954). In 1962, Walter Pahnke conducted the now famous “Good Friday” experiment in a chapel as a part of a religious service in which a group of Protestant theological students and their professors were given either psilocybin or a placebo after a religious ceremony (see Pahnke 1966; Smith 2000, 15–32). Robert Masters and Jean Houston (1966) were also advocates of psychedelics who claimed to have duplicated all the phenomenological features of

spontaneous and meditative mystical experiences through LSD, thereby making them experientially indistinguishable, not merely something “similar to” a natural mystical experience or a “partial” mystical experience.¹¹ Bruce Eisner, a recent follower of Huxley, found that the drug “ecstasy” led patients to a profound sense of “unconditional love” and to a state of empathy in which they, others, and the world all seemed basically good (1989).¹²

In reaction to the recreational use of LSD and other drugs in the 1960s, the general use of psychedelics was declared illegal in the United States and most of Europe and the scientific study of them ended. But clinical drug studies returned in the 1990s, first with DMT (Strassman 2001). The renewed investigation of psychedelics has “significantly advanced neuroscientific knowledge,” for example, contributing to our understanding of cortical metabolism and the neurochemical substates of psychotic processes, and leading to new forms of psychotherapeutic treatments (Langlitz 2012, 240). The effect of drugs on the production of the neurotransmitter serotonin, which plays a role in regulating consciousness, has been of special interest because it inhibits prefrontal cortex activity. LSD apparently deactivates regions of the brain that integrate our senses and our sense of a “self,” thereby permitting other areas of the brain to become more active. That is, psychedelics may expand the mind by (paradoxically) inhibiting certain brain activities (Cole-Turner 2014, 645–46; Halberstadt and Geyer 2015).¹³ In addition to more intense visual and auditory sensations, this can lead to an extrovertive sense of being connected to the rest of reality—the extrovertive type of “mystical union”—without any memory loss. But “cosmic consciousness” and LSD experiences may be qualitatively *different* states of consciousness (Smith and Tart 1998).

Psychedelic drugs have been found reliably to perturb self-consciousness and occasion ego-dissolution in steps in a progressive dose-dependent manner (Nour and Carhart-Harris 2017, 178). The sense of “self” that is disrupted or dissolved in a number of ASCs including psychedelic states and also mystical experiences is the coherent “narrative self” (ego-identity) built up by different neural networks; when this is dissolved, the “minimal self” of first-person subjective experiences including a sense of unity, ownership of experience, and agency still remains (Lebedev et al. 2015; Nour and Carhart-Harris 2017, 177). Under normal conditions, communication between areas of the brain is organized into stable networks (Johnson et al. 2019, 47–51). The networks include the salience network, the frontal parietal network, and the background default mode network (DMN) that is involved in high-level psychological functions including introspection and autobiographical memory (Nour and Carhart-Harris 2017, 177). Recent magnetoencephalographic studies showed that the degree of ego-dissolution occasioned by psychedelics is correlated with increased whole-brain integration (by increasing the level of communication between normally distinct brain networks) and inversely correlated

with DMN network integrity (Nour and Carhart-Harris 2017, 178; but see Lebedev et al. 2015, 10; Johnson et al. 2019, 48). Changes in the activity, connectivity, and neural oscillatory processes in regions of the DMN may underlie dimensions of mystical experiences, especially the decreased self-referential processing and altered sense of time and space that accompany introvertive mystical experiences (Barrett and Griffiths 2018, 414–21, 423–24). That is, there is increase in global integration within the brain mediated by certain serotonin receptors and the thalamus but a decrease in the internal module integrity of the DMN network (Tagliazucchi et al. 2016, 1048). Thus, ego-dissolution is dependent on changes in the whole brain, not just specific functional modules (Tagliazucchi et al. 2016). There may also be less interhemispheric connectivity (Lebedev et al. 2015). Ego-dissolution is related to the feeling of increased unity with others and one's surroundings (Nour and Carhart 2017, 178). It shares some phenomenological features with schizophrenia, but experiencers having mystical ASCs have a positive mental set producing a more stable and positive experience (Nour and Carhart 2017, 177–78). Thus, ego-dissolution is not necessarily an unpleasant or pathological experience (Lebedev et al. 2015).

On the negative side, these drugs can also enable disturbing and terrifying experiences—visions of hells, not only heavens (Huxley 1955). “Bad trips” can deeply disturb a person’s emotional balance (Newberg and Waldman 2016, 77, 79). Meditation may also induce very negative experiences, but it appears to do so less often. In particular, the dissolution of a sense of an ego—the loss of all that makes our personality distinct—is an “experience of death.” Destabilizing a sense of a self can be terrifying and dangerous for someone not prepared for it, even if one is psychologically healthy, and may exacerbate mental disorders and can lead to psychotic episodes. Introvertive experiences can lead to confusion, fear, panic, paranoia, and megalomania. In one drug study, 44 percent of the volunteers reported at least some delusions or paranoid thinking, although the authors of the report hypothesized that this could be controlled by better screening of participants and by qualified guidance during the experiences (Griffiths et al. 2011). On the other hand, if one is prepared psychologically (e.g., with a religious framework of beliefs), one can better handle the experiences associated with the changes in brain activity. Moreover, the negative effects, unlike the positive ones, do not appear to last past the drug session (Griffiths et al. 2006, 2008).

In a more rigorous double-blind psilocybin study than Pahnke’s 1962 experiment, a quarter of the subjects still reported that a significant portion of the session was characterized by anxiety, paranoia, and negative moods, but three-fifths of the participants had what the researchers considered “complete” mystical experiences;¹⁴ 31 percent experienced “significant”

fear, while one-third of the participants considered it the most significant spiritual experience of their lives, and for another quarter it was one of the top five, and that significance was still persisting when the participants were questioned 14 months later (Griffiths et al. 2006, 2008; see Barrett and Griffiths 2018 for similar numbers).¹⁵ The researchers also found that the experiences occasioned by psilocybin induced persisting positive changes in attitudes, mood, life satisfaction, behavior, altruism/social effects, and social relationships with family and others. A long-term study of Pahnke's experiment also showed that the drug-enabled mystical experiences had lasting positive effects for many participants on their attitude and behavior, and persisting negative effects for a few; how they saw their experiences also changed slightly over time (Doblin 1991).¹⁶ The effects included recognizing the arbitrariness of ego boundaries, a deepening of faith, and a heightened sense of joy and beauty. Most of the psilocybin recipients had subsequent mystical experiences in dreams, prayer, out in nature, or with other psychedelics. Significant differences between their nondrug and drug-enabled mystical experiences were reported, with the drug experiences reported as both more intense and composed of a wider emotional range; however, the nondrug mystical experiences were composed primarily of peaceful, beautiful moments while the drug experiences had moments of great fear, agony, and self-doubt. Feelings of unity led many of the subjects to identify with and feel compassion for minorities, women, and the environment; it also reduced their fear of death.¹⁷ But few reported completely positive experiences without significant psychological struggles such as paranoia, fear they were going insane or dying; the researcher suspected that difficult moments were significantly under-reported. For example, Walter Pahnke did not mention that most who were given psilocybin in the "Good Friday" experiment experienced the fear that they were dying or "going crazy" and that one had to be restrained and given the antipsychotic thiorazine (Doblin 1991, 22).¹⁸

But such experiences have also led some drug users to adopt a mystical way of life. However, when a drug-facilitated experience does not occur to someone already seeking a religious way of life, one may dismiss any sense of oneness or interconnectedness the next day as nothing more than a delusion produced by the chemical reaction in the brain, just as LSD's effects on perception usually are dismissed. In such cases, isolated drug experiences do not usher in a permanent selfless enlightened state. Thus, drugs have not proven to be efficient in producing mystical lives. Hence, the mystical objection to drugs: Mysticism is about aligning one's life with reality, not any momentary experience, no matter how interesting. One psilocybin study examined increases in well-being and the subjects' enduring traits in conjunction with ongoing daily meditation and spiritual practices. The study found that both the mystical experiences and

spiritual practices contributed to positive outcomes, with mystical experience making a substantially greater contribution: “mystical experience and/or its neurophysiological or other correlates are likely determinants of the enduring positive attitudinal, dispositional, and behavioral effects of psilocybin when administered under spiritually supported conditions” (Griffiths et al. 2018, 67). The analyses suggested that “the determinants of these effects were the intensity of the psilocybin-occasioned mystical experiences and the rates of engagement with meditation and other spiritual practices” (Griffiths et al. 2018, 68).

The importance of “set and setting,” a concept introduced by Timothy Leary et al. (1963), in producing mystical experiences must be noted. That is, differences in a user’s background beliefs, expectations, mood, mental attitude, and past experiences with drugs (one’s mental “set”) and the physical and social environment when a drug is ingested (the “setting”) at least partially account for the great variation in the experiences, from deep mystical experiences to no mystical or religious experiences at all.¹⁹ For example, people who are highly open to new experiences are more likely to have positive experiences, while people who are emotionally unstable or rigidly conventional in their views are likely to experience greater anxiety and confusion and have disturbing experiences (Studerus et al. 2012; but see Griffiths et al. 2018).²⁰ Psilocybin users who are relatively unchurched are more likely to have mystical experiences than those who are deeply entrenched in traditional beliefs and practices (Newberg and Waldman 2016, 240, 247; Yaden et al. 2016, 249–50). When drugs are used recreationally, fewer mystical experiences occur (Newberg and Waldman 2016, 235–36).²¹ In one study, the researcher intentionally avoided anything that might be interpreted as a “religious setting” and yet 24 percent of the volunteers had a mystical or spiritual experience (see Partridge 2018, 24). With a naturalistic set and setting, about a quarter to a third of the general population will nevertheless have a religious experience; when subjects have a religious proclivity in a supportive environment, the figure jumps to three-quarters (see Smith 2000, 20). Intentionally neglecting or even manipulating the setting in a negative way produces considerably less positive outcomes (Carhart-Harris et al. 2018, 726). But even in nonreligious settings, a significant percentage of the subjects may report religious significance to their ASC experiences (Partridge 2005, 129).

Even a researcher calling the drug an “entheogen” rather than a “hallucinogen” affects the experimenter’s mental set. One can use terms for mystical experiences that are less religious and encompass more types of experiences—for example, “peak experiences,” “selftranscending experiences,” or “quantum change experiences.” The experiments that Roland Griffiths’s group at Johns Hopkins University (Griffiths et al. 2006, 2008, 2011) conducted produced more mystical experiences than did those conducted by Robin Carhart-Harris’s group at the Imperial College in London

(Carhart-Harris et al. 2012, 2014a) perhaps in part because the former used terminology related to “mystical experience” while the latter used language related to “ego-death” and “psychosis-like states.” That is, the Johns Hopkins group was looking specifically for reports of mystical experiences and this helped to generate them, while the London group was looking for the neurological effects of psilocybin, not what they deemed “magical thinking” and thus generated fewer mystical experiences (Cole-Turner 2014, 649–50). The Johns Hopkins group (Griffiths et al. 2006) tried to provide “substantial controls” to counter “expectancy bias,” but Griffiths conceded that the “setting” of the lab was “in many ways optimized to produce the kinds of experiences we are seeing.” But that group also used larger dosages of psilocybin.

The role of our mental set also raises the issue of whether members of different religions and nonbelievers have the same experiences. Each person has a unique background mental set making each experience unique, with the only exception being a mystical experience that is completely empty of any differentiated content (which would have no individualized content to be affected by differences in people’s mental sets). Drugs may set up the same neural base in the brain for mystical experiences as meditation does, but they more often facilitate a mystical experience only when the subject is prepared for one by pre-experience spiritual practices and beliefs and is in a religious or otherwise favorable setting, although the disruption of the baseline state of consciousness induced by drugs cannot guarantee a mystical experience will occur even then.²² The drugs’ disruptive effect may be universal due to our common physiology, but what then fills our mind is not universal. In addition, most volunteers for such experiments are spiritually inclined and seeking religious experiences, and thus they are already predisposed to having such experiences. So too with lasting effects: if one is a seeker, one sees a significance in these experiences that reflects one’s beliefs, and the effect of the experience may be transformative, but if one is not interested in religion the experiences is less likely to have any lasting effect on how one sees the world. “Instant enlightenment” through drugs does not create any mystical wisdom in itself—one is simply “taking a trip” and returning home to one’s old state of consciousness, either immediately or slowing over time, as the experience fades into a memory. The memory may affect one’s beliefs and how one behaves, but one’s state of consciousness is once again ego-driven and dualistic. And again, the dangerous effects of having one’s consciousness disrupted when one is not prepared for it or not properly supervised during the experience cannot be played down.²³

Drug studies were revived in the 1990s as part of the “Decade of the Brain.” Advocates of psychedelic research for the general neuroscientific study of the brain during self-consciousness see these drugs as the “next big thing” in psychopharmacology (Carhart-Harris et al. 2014b, 662) since

they affect the state of the brain as more extreme states of consciousness are occurring. But the attention to psychedelics is dwarfed now by the attention to meditation, especially mindfulness. Moreover, drug research still has not been endorsed by the psychological research community as a whole or by mainstream clinical psychiatrists. Government funding for experiments on therapeutic applications has occurred in some countries, but psychedelic researchers are still having difficulty gaining funding in the United States from the National Institutes of Health.

CAN PSYCHEDELIC DRUGS ENABLE MYSTICAL EXPERIENCES?

With this as background, three issues arise concerning the alleged import of mystical experiences: Do psychedelics occasion mystical experiences? Are the drug-enabled experiences the same as mystical experiences that occur spontaneously or through meditative preparation? Does the establishment of the brain chemistry associated with mystical experiences invalidate mystical cognitive claims or validate them?

As to the first question: the scientific evidence is that psychedelics can reliably occasion mystical experiences under supportive conditions. Mystical experiences do not occur only through meditation or spontaneously. Indeed, the effect of psychedelics usually occurs much faster than with other triggers.²⁴ But calling drugs “triggers” is something of a misnomer since nothing can *force* a mystical experience to occur 100 percent of the time. Even with a proper dosage and a supportive set and setting, mystical experiences or other ASC experiences are not guaranteed, although discussions of drugs as triggers often appear to presume that. With the proper set and setting and dosage, drugs induce a percentage of subjects—sometimes seventy-some percent—to have either extrovertive or introvertive mystical experiences or, more typically, visions. (LSD is especially connected to inducing visions.²⁵) But ingesting a psychedelic drug does not in fact assure *any* ASC experience. William Richards reports that a substantial number of people have ingested psychedelics on many occasions without experiencing any profound ASCs (Richards 2016, 15). J. Harold Ellens agrees: many persons have taken psychedelics repeatedly and never come close to experiencing profound states of consciousness, spiritual or otherwise (2014, 2: 22–23). Sometimes mystical experiences or visions do not occur during drug-enabled states but precede or follow them (Richards 2016, 10). But on the other hand, many people meditate daily for decades without any mystical experiences occurring. The process of attaining an experience is not mechanical. Drugs only break the hold that the ordinary ego-driven mind that sets up a dualism of multiple objects set off from a distinct self has on us by altering the chemistry of the brain in relevant areas—what the mind finds after that depends on other factors. They facilitate religious experiences, especially for the religiously inclined. For this reason, it is not

correct to refer to drugs as the *cause* of a mystical experience: It is part of a package of causes and conditions that can “enable,” “facilitate,” or “occasion” a mystical experience, but it is not a simple cause of any experience.²⁶ Rather, a psychedelic drug is one way to arrange the necessary conditions in the brain for a mystical experience, but it is not sufficient to create any particular experience.

It is also important to note that drugs apparently induce a variety of psychedelic experiences, including a variety of mystical ones—there is no one universal psychedelic ASC—even though researchers routinely refer to “*the* mystical experience” and also “*the* psychedelic state” (e.g., Nour and Carhart-Harris 2017, 177). Even if there is one distinctive brain state connected to all mystical experiences (or all psychedelic experiences), there is still a variety of subjective experiences. That is, there is no generic “psychedelic state of consciousness” following the ingestion of these drugs (Richards 2016, 16). Even during one session, there is a variety of states of consciousness during the actions of the entheogens (Richards 2016, 115).²⁷ As Huston Smith said, “there is no such thing as *the* drug experience per se—no experience that the drugs, as it were, secrete” (2000, 20). Every experience results from a mixture of three ingredients, the drug, set, and setting (2000, 20). The psychologist Stanislav Grof (2009) makes the point that LSD has no one invariant pharmacological effect, nor is there one inevitable experience associated with it—rather, LSD is a catalyzer that amplifies and exteriorizes dynamics within the person’s subconscious. Researchers also agree that all the experiences are not products of the chemical changes alone. And in these experiments, some participants who were given only a placebo also had mystical experiences. Although mystical experiences occur with a higher frequency with a psychedelic than a placebo in these experiments, some claim that psychedelics are high-voltage “active placebos” or catalysts: They disrupt the neurology underlying our baseline state of consciousness and make the experiencer more susceptible to the effects of set and setting but do not set up any one ASC—instead, our subconscious completes the experience. Timothy Leary inadvertently suggested this possibility when he first discussed set and setting: “Of course, the drug does not produce the transcendent experience. It merely acts as a chemical key—it opens the mind, frees the nervous system of its ordinary patterns and structures. The nature of the experience depends almost entirely on set and setting” (Leary et al. 1964, 11). So too, if one expects a life-changing experience, one will usually get it, and if one does not, one will not. Thus, our underlying mental set may be responsible for the differences in ASC experiences, not differences in the drugs or their effects on the brain. The drugs open healthy volunteers up to greater suggestibility (Carhart-Harris et al. 2015, 791) and magnify whatever meaning they bring to the experiences. This, it is argued, is why expectation and the rest of the set

and setting are so important, and thus studying those in connection with placebos may prove valuable (Hartogshon 2016).

It is worth noting that psychedelics do not induce introvertive mystical experiences as readily as extrovertive ones, and the introvertive ones are typically with differentiated content rather than the depth-mystical experience.²⁸ “Unitive” experiences in which the sense of a distinct self ceases are rare (e.g., Strassman 2001; Griffiths et al. 2006, 2008). But some do occur: In extrovertive experiences, the boundary between oneself and nature is dissolved; in introvertive experiences, the sense of the separation of one’s self and a transcendent reality is overcome—the world is not set up in a duality of material objects set off from a distinct ego. Part of the cause of this may be that Westerners are more likely to be seeking “union with God” than most non-Western peoples. But unitive states of consciousness with or without content in the introvertive experiences are interpreted differently after the fact depending on one’s tradition—example, becoming a universal consciousness, connecting our soul with God, realizing a common transcendent reality underlying all phenomena (Brahman), realizing our pure self (the conscious selves of Samkhya-Yoga or Jainism), or only experiencing a unified state of natural consciousness free of differentiated content. The unitive sense does not always mean the “union” of all reality or of a self with God. Even among Abrahamic mystics who include a non-personal Godhead in their ontology (such as Meister Eckhart), most affirm that the soul is in some sense separate from God even if God provides the soul’s substance. The absence of a sense of “self” during the mystical experience is not always interpreted after the experience is over as a denial of the *existence* of a “self” or “soul.” Rather, one is simply *unaware* of it during certain experiences, just as an experience that seems timeless does not negate the reality of time (at least in the phenomenal world). The sense of unity is then seen by theists as either a loving connection to God or as only attaining the ground of one’s own soul.

Thus, some introvertive mystical experiences are seen as theistic, rather than a vision of a distinct entity, but unitive experiences or introvertive mystical experiences with differentiated content are not inherently *theistic*. The felt sense of unity in extrovertive mystical experiences from the loss of a sense of boundaries to the self may be seen as union with nature. Roger Walsh notes that Westerners trained in shamanic practices may report unitive experiences, but they are experiences of union with the universe rather than with a deity (1990, 240). A “pronounced pantheistic tendency” is common in the history of entheogens (Partridge 2005, 127; also see Forte 1997), but pantheism is more impersonal than theism with a personal deity. In introvertive experiences, the loss of a sense of self may be seen as union, but in drug experiences this tends to be seen in deistic terms or as realizing a universal and nonpersonal cosmic consciousness. Nor is it clear whether those introvertive experiences that are taken to be theistic

are actually constructed with cultural conceptions or instead are seen only after the experiences are over as theistic.

In addition, a religious framework in one's mind that is prepared for or expecting not only a psychedelic experience but a religious one affects the content of some or all experiences and also whether the experience has a continuing impact on the experiencer after it is over. The mystical experiences that drugs enable do not transform subjects' subsequent character as often as cultivated mystical experiences do, although some persons with only drug-enabled experiences do permanently change and some become interested in a spiritual path. This suggests that a religious transformation is not from the drugs' effects on one's consciousness alone. Rather, if one has been pursuing a religious life and expects a mystical or other experience—even if the phenomenological *content* of the experience ends up not being what one anticipated—one is more likely to see the experience as involving a reality beyond the natural mind, thus leading to a change in character or way of life. Mystical experiences facilitated by drugs (especially from recreational use in a nonreligious setting by a person without religious beliefs) may seem to be more subjective even to the experiencer than “genuine” encounters with reality and thus may not have as great a lasting effect. (But changes in one's *view of the world* brought about by drug experiences are more common among subjects with no religious aspirations [Newberg and Waldman 2016, 75–76].) And as noted earlier, any lasting change of character may result more from an experiencer's beliefs than the chemical effect of the psychedelic drug.

In sum, psychedelics do disrupt our baseline state of consciousness and very often occasion experiences some of which are mystical in nature. But the relation of the activity of the drugs on the content of the experiences and the continuing effect of the experience on the experiencer after the experience is over is not straightforward. Nor does the fact that drugs may occasion mystical experiences mean that persons who have been engaged in mystical ways of life may not have deeper experiences than do nonpractitioners who have their first mystical experience enabled by taking drugs. So too, the drug-enabled experiences of those who have engaged long-term in advanced meditative practices or the ascetic discipline of the body may be different from those of novices. The experiences of the nonpractitioners may seem superficial to the mystically engaged, however profound it seems to the experiencers themselves. And this leads to the next question.

ARE DRUG-ENABLED MYSTICAL EXPERIENCES THE SAME AS NATURAL ONES?

Even if some experiences occasioned by drugs are mystical in nature, a recurring issue is whether the mystical experiences occasioned by drugs are the *same* as those occurring either spontaneously or through mystical

practices. Are drug-enabled experiences in fact not duplicating the full phenomenology of a mystical experience occurring “naturally”? Or are some mystical experiences that are enabled by drugs not merely *similar* to what are deemed “genuine” mystical experiences but in fact *genuine* mystical experiences?²⁹

The prevailing view in scientific discussions of psychedelics is that drug-enabled mystical experiences are the same as those facilitated by other means such as yoga or fasting—the drugs produce the same effects in the brain as those activities do, and thus the resulting mystical experiences are the same. The evidence for this is that the *phenomenology* of the experiences enabled either way appears to be the same, as revealed in the first-hand depictions of mystical experiences in descriptive accounts from both traditional mystics around the world and today’s drug subjects. As the philosopher Walter Stace said of chemically facilitated experiences, “[i]t is not a matter of its being *similar* to mystical experience; it *is* mystical experience” (quoted in Smith 2000, 24). Huston Smith concurred: given the right set and setting, “drugs can induce religious experiences that are indistinguishable from such experiences that occur spontaneously” (2000, 20). That is, they are phenomenologically indistinguishable.³⁰ That God or another transcendent reality may cause experiences that are distinguishable in content is not even discussed.

However, many theists object on theological grounds that drug-enabled experiences are not “genuine” mystical experiences but only pale copies—true mystical experiences are different in nature and content and come only from God. The Roman Catholic R. C. Zaehner was an early advocate of this view. He tried mescaline and ended up with only an upset stomach (1957, 212–26). (But this does point again to the issue of a proper dosage and a supportive mental set and setting.) He believed that the drug-taker’s consciousness bears only “a superficial resemblance to that of the religious mystic” (1957, xii). He did accept that “nature” and “monistic” mystical experiences may be enabled by drugs, but he insisted that “theistic” introvertive mystical experiences can be produced only by acts of grace from God (1957, 14–29). That is, no set of natural conditions such as ingesting a drug can *compel* God to act in any way or force God to be known against his will. To many theists, drug-enabled mystical experiences seem unearned and undeserved (see Pahnke 1966, 309–10)—a “cheap grace.” So too, if genuine mystical experiences could occur without Christian faith, then grace would not be restricted to Christians. Mystical experiences may well be grounded in the brain, and theists would expect God to utilize our neural system to produce mystical experiences rather than somehow bypass it, but manipulating brain states with chemicals could not force God to enter our mind through drugs since he chooses those he wants to know him. Psychedelics merely fool users into thinking that they have experienced something more than brain events. (This position presupposes that God

initiates all “genuine” mystical experiences—i.e., that mystical experiences are a product of divine agency rather than, like other experiences, initiated by the mind or reducible to the brain.)

That comparatively few *theistic* mystical experiences occur through drugs also upsets theists—as already noted, most drug-enabled introvertive mystical experiences do not involve any sense of connecting with a *person or a reality personal in nature*, nor do drugs facilitate introvertive mystical experiences as readily as extrovertive ones. From surveying the literature, it appears that drugs enable visions of realities distinct from the experiencer more often than mystical experiences, including theistic experiences.³¹ Theistic visions are more common than theistic mystical experiences. For example, members of the Native American Church often have visions of Christ in their rituals with peyote as a sacrament (Masters and Houston 1966, 257). However, some introvertive theistic experiences of a sense of being connected or “oned” with a reality do occur since mystical experiences break down barriers that our mind have set up between ourselves and the rest of reality. As also noted above, any sense of a transcendent reality is typically of a nonpersonal reality (a deistic source or encompassing consciousness), although after the experience theists often reinterpret their conception of “God” as nonpersonal (e.g., the ground of being) in order to fit the experience. Some theists have found their drug-enabled mystical experiences to be more intense than “natural” ones (Doblin 1991, 14), but drug-enabled experiences, especially those occurring outside of mystical training, apparently are not as full in content as cultivated mystical experiences.

Nevertheless, many among the religious are enthusiastic about the results of these drug experiments, claiming that drugs induce the same experiences facilitated by other means and that this proves mystical experiences are veridical. However, theologians who do not attach importance to mystical experiences are inclined to dismiss drug experiences as delusions, as with LSD distortions of perceptions and a sense of time, and not the mystical “intoxication with God” through a direct encounter with a personal transcendent reality that is given by God’s “grace.” Theists may insist that the phenomenology of mystical experiences will in fact differ if God infuses the experiencer rather than if an experiencer simply has natural phenomena in his or her mind during the experience—the content of the experiences will differ. But it is hard to see how theists could establish this: we obviously cannot get inside the mind of anyone else to see the experience from their point of view. Nor can we tell anything specific from canned cultural conceptions like “I was united to God” (hence the need for detailed questionnaires in psychological surveys). Theists will have to rely on establishing differences in the brain states associated with theistic and nontheistic experiences. But until theists can present actual evidence that the phenomenology of drug-facilitated experiences differs from that

occurring in meditation or spontaneously from “grace,” we must accept that the experiences are neutral with regard to the type of trigger associated with them, not that the neural basis of theistic introvertive mystical experiences must differ when drug-facilitated or God-given. In short, whatever is the source of the differentiations in differentiated mystical experiences, there is no reason at present to suspect that they would not cause the same effect. And the depth-mystical experience would remain empty of differentiated content regardless of the trigger.

An important subsidiary issue is whether the experiences occasioned by the drugs administered to people in scientific settings have the same type of content as natural mystical experiences. Does a laboratory setting or knowing that one is involved in a drug experiment by itself affect the felt content of the experience since set and setting matter? As noted above, “expectancy bias” and even using the term “entheogen” or “hallucinogen” may affect what experience a subject has. Nevertheless, even if a scientific setting affects some of the content of those experiences, the experiments indicate that at least some of the experiences share the phenomenology of natural mystical experiences.

In fact, there is no empirical evidence to date suggesting that the base conditions in the brain are different when a drug or other artificial trigger is applied as opposed to meditative preparation or experiences occurring spontaneously through “grace” or natural triggers. Nor have theists presented a nontheological reason to suspect that the base conditions are different. All involved in the dispute also agree that the psychological disposition and beliefs of the subject and the environment (the set and setting) and proper dosages are important in all drug-enabled experiences and that differences in these at least partially account for the great variation in the experiences. Believers, seekers with no religious affiliation, and nonbelievers may all have different experiences, but differences in the set and setting would account for any differences in the phenomenology of drug-facilitated experiences. That is, differences in the type of experiences and their intensity when enabled by drugs can be accounted for by purely natural reasons. Without another adequate explanation, there is no reason to think that the ASCs of theists are different in fundamental nature. If so, drug experiences are not in a separate class but involve only another trigger disrupting our baseline brain conditions in the same way as other triggers. It may be that there are no inherently theistic mystical experiences, but the differentiated content is neutral between theistic and nontheistic understandings of the experiences—it is a matter of attribution by the experiencer. As things stand today, theists only have theological reasons to doubt the authenticity of psychedelic-assisted mystical experiences or their content. Without more, it appears that genuine mystical experiences are as possible when drug-facilitated as when other means are employed.

ATTRIBUTION THEORY

A position just touched upon needs further consideration: the bearing of scientific findings on the claim that there are in fact no unique “mystical experiences”—that alleged mystical experiences are only quite ordinary experiences with no unique neural base. That is, some experiencers merely see some highly emotional experiences as “mystical.” Thus, attribution theorists in religious studies note the experiential nature of “mystical experiences,” but they deny that the mystical overlay contributes anything cognitive—in particular, there is no cognition of transcendent realities. “Mystical” experiences are merely a matter of *emotion*, not *cognition*. Any theistic or nontheistic attribution is only subjective.³² John Bowker (1973, 144–57) presented this theory, not to discredit the notion of genuine mystical experiences, but to discredit the theory that the idea of God originated in psychedelic drug experiences. He argued that LSD does not induce experiences of a transcendent reality but only initiates a state of excitation that is labeled and interpreted from the available cues as “religious” by some experiencers, due to the setting and the experiencers’ background. No drug introduces anything new into the mind but only accentuates or inhibits what is already there—that is, psychedelics do not generate new ideas in an experiencer’s mind but merely reinforce or confirm the conceptions that were already formed or were in the process of being formed (1973, 153). The warrant for a particular label thus does not lie in the experience itself but in the conceptual background of the experiencer that created specific expectations and supplied the symbols to the structuring.

However, this idea can also be used to discredit any claim to knowledge of transcendent realities given in any mystical experiences. Wayne Proudfoot (1985) offers this “cognitive labeling” approach to deny the possibility of any transcendent input in any religious experiences: Experiencers unconsciously attribute religious significance to otherwise ordinary experiences. Religious experiences are simply general and diffuse patterns of agitation in states of our nervous system to which the religious give a label based on their prior religious beliefs in order to understand and explain the agitation. Any emotional state can be labeled “a religious experience” when an experiencer believes that the cause is a transcendent reality, but in fact all that is present are only cognitively empty feelings—bodily states agitated in purely natural ways. For Proudfoot, a transcendent reality is not even indirectly involved as the source of the agitation (1985, 154). He rules that out *a priori*: a transcendent reality, if any exist, by definition cannot be experienced. Ann Taves (2009) also groups all types of religious experiences together and concludes that no experience is “inherently religious.” Rather, ordinary experiences are merely “deemed religious” by some people. Religious experiences are in fact only cognitively empty feelings structured by prior religious beliefs. That is, religious value or significance is given

to unusual but otherwise ordinary experiences. “Religious experiences” are constituted solely by this-worldly elements and thus are exhaustively explainable in the same manner as any other experience. This approach allows scholars to discount any role for “mystical experience” in the formation of religious doctrines or practices and instead to focus exclusively on religious texts to understand mystical beliefs—any religious significance seen in these experiences arises from preexisting religious beliefs. Robin Carhart-Harris’s group seems to agree: While conceding that some subjects of their psilocybin experiments were “profoundly affected by such experiences (and often seemingly for the better),” they add “some people celebrate and romanticize the psychedelic experience and even consider it ‘sacred’” (Carhart-Harris et al. 2014a, 12–13).

Attribution theory may well explain many alleged mystical experiences: in many instances, people may be simply attributing greater significance to ordinary highly emotional situations. What one person sees as religious, another may see in secular terms. But the issue here is different from matters of religious attribution: is there a set of *inherently mystical experiences*, regardless of whether the understanding that a particular experiencer gives it is religious or naturalistic? And as noted above, there is growing neuroscientific support for the claim that there are genuine mystical experiences—that is, they have unique patterns of neural activity associated with them.³³ In sum, the data suggest that some experiences or ASCs are inherently mystical even if the experiences are understood nonreligiously by the experiencer.³⁴ That is, today mystical experiences are increasingly being accepted as being connected to unique observable neural events: whether mystical experiences occasion insights into reality or not, they are “real” in that they are distinct from other types of mental phenomena and are not merely products of imagination (Newberg et al. 2001, 7, 143). So too, neuroscientists are finding evidence that mystical experiences are not all of one type. Drugs do touch off ASCs in many users, not merely ordinary emotional states. Perhaps the religious can give a religious interpretation to virtually any experience, but there appears to be a class of a neurologically distinctive events or configurations of brain activity connected to mystical experiences. Mystical experiences are a matter of the ASCs associated with these unique patterns of neural firing regardless of whether they are seen as religious or not. If so, there is an experiential basis to mysticism that cannot be explained away as merely a mystical varnish given to ordinary sense experiences or emotions. In short, religious experiences do not accompany unique brain-states but mystical experiences apparently do.

Another level of “attribution” should also be noted: the metaphysical and epistemological *significance* that one attaches to the psychedelic experience. This usually depends upon one’s beliefs, although the experience

can alter such beliefs. For example, Frances Vaughan said of her experience: “The perennial philosophy and the esoteric teaching of all time suddenly made sense. . . . My understanding of mystical teaching, both Eastern and Western, Hindu, Buddhist, Christian, Sufi alike, took a quantum leap. I became aware of all great religions, and understood for the first time the meaning of ecstatic states” (quoted in Shipley 2015, 10). Huston Smith also saw his drug experiences as a direct experience of the perennial philosophy that he had believed in for decades. He too believed that in his first drug experience in 1961 he was “experiencing the metaphysical theory known as emanationism” that was part of the perennial philosophy he had been advocating; he was now *seeing* what previously had only been conceptual theories for him; his experience “supported the truth of emanationists of the past” (2000, 11). He had an “experience that for the previous 15 or 20 years I had been trying to get by other means”—“it experientially validated my worldview that was already in place” (2005, 227), and he felt “incomparably fortunate to have that validation” (2005, 234).³⁵

Drug-enabled experiences are indeed typically seen in light of religious frameworks. But this can also be dangerous. First, the experiences can be taken as confirming whatever beliefs one already holds even though mystics of different traditions have the same confidence that their beliefs despite the fact that knowledge-claims from different mystical traditions often genuinely conflict. For example, before Huxley’s mescaline trip, he wanted to “to know, and constantly be, in the state of love,” and after his experience he (somewhat later) concluded that his experience confirmed that love is “the primary and fundamental cosmic fact” (1970, 769).³⁶ Huston Smith can say “I had no doubt that my experience was valid, because it was retracing exactly what I was convinced was the nature of reality” (2005, 227)—“the substances simply poured experience into the molds of my existing world-view” (2005, 235). There is a “looping effect”: We take the experiences as objectively establishing a theory when the result was in fact precisely what was hoped for and indeed expected all along. Because of the power of these experiences, this in effect may be greater than the possible confirmation bias in science. (But Smith adds that he knew people, including positivists, for whom the experiences “just exploded their view of reality and gave them a totally different world-view to live in.” He does not say if they adopted perennial philosophy or another worldview.) However, classical mystics in different traditions typically adhere to the beliefs of their own religious tradition, not to an abstract “perennial philosophy.” Second, there are different types of mystical experiences—simply because you have had one of them (or a vision) does not mean that you have experienced what all mystics have experienced or gained all the insights that mystics are alleged to have gained. For example, a differentiated introvertive experience is not the depth-mystical experience of Eckhart’s or Advaita Vedantins’ discussions. (Smith conceded that he had only experienced

the penultimate level, not “the infinite, the Absolute” [2005, 227].) Nor does an introvertive mystical experience convey the Buddha’s enlightening insight into the ultimate impermanent nature of the natural realm.

Thus, one may be misled by one’s own experiences into *distorting* other mystical traditions—for example, into believing that all mystics endorse perennial philosophy or that one’s own philosophy supplies the understanding of all mystics’ teachings. Indeed, one may even distort one’s own tradition’s doctrines. Just because you see your experience as bringing your own beliefs to life, it does not mean that any other mystics—let alone all of them—hold your beliefs or had that particular type of mystical experience. That is, any type of mystical experience may give you the sense that there is more to reality than you previously believed, but you cannot assume that all mystics must have had that particular variety of mystical experience or would endorse your particular understanding of the experience. Nor does your experience grant you instant understanding of all other mystics’ specific teachings.

This type of attribution becomes the issue of post-experiential understandings of the significance and nature of mystical experiences, but it does not affect the point that there are neurological data suggesting that mystical experiences are unique and not merely more ordinary events seen mystically. Overall, attribution theory may be applicable to whether an experience is deemed *religious*, but it is not applicable to the issue of whether mystical experiences involve *altered states of consciousness*.

DO THE DRUG STUDIES INVALIDATE OR VALIDATE MYSTICAL CLAIMS?

Arguing that drug-enabled mystical experiences are phenomenologically indistinguishable from those facilitated by other means or can be interpreted differently does rule out the possibility that the drug-enabled experiences are cognitive, that is, involve the experience of something real that produces some type of knowledge. A scientific finding that psychedelics can often occasion mystical experiences does not require the naturalistic reduction of these experiences to merely being caused by brain events: all the science shows is that the chemicals merely set up the conditions for a mystical experience—it cannot show whether or not a transcendent reality may still be involved in introvertive mystical experiences. The drug experiences may only be brain-generated events, or the drugs may “cleanse the doors of perception” and permit more reality to enter the mind. Advocates of mystical claims must accept that some grounding in the body is necessary for even an experience of a transcendent reality, and so they can accept neuroscientific findings as readily as naturalists who reduce the experience to nothing by the subjective product of brain activity. Thus, the basic philosophical issue remains: psychedelics disrupt the state of the

brain underlying our baseline state of consciousness that has evolved for our survival in the world, but does this disruption merely *set up* the brain conditions that *permit* various psychedelic states of consciousness and experiences (including various mystical ones) to occur in some instances, or does the brain totally *cause* the specific states of consciousness and types of experiences? Do the drugs in sufficient dosages *enable* a transcendent reality to enter the mind (or in the case of extrovertive mystical experiences an ASC perception), or is that mystical sense a delusion *caused* only by the brain?

However, the study of the measurable objective features of the brain activity occurring while the mystical experience is occurring cannot answer the basic question—science is addressing something external to the subjective felt experience.³⁷ In short, the neuroscience itself is *neutral* on the point of whether mystical experiences are cognitive of a reality beyond the individual's mind or are only brain-generated subject events. Neuroscience cannot establish or refute the epistemic validity of mystical experiences because all neuroscience can show is the *association* of particular types of mystical experiences with particular brain states, not the cause of this association or anything substantive about the nature of the experience itself. This eliminates the science as a means by itself of either confirming or disconfirming any mystical claims concerning the cause of mystical experiences or what is actually known in mystical experiences. And, it should be added, even if science validated mystical experiences as *veridical*, it cannot *confirm one metaphysical explanation* of what is experienced in an introvertive mystical experience as valid or superior to alternative mystical explanations.

Thus, the disputants will turn to the experiences themselves. For example, critics of mystical experiences will point to “bad trips” to conclude that all psychedelic experiences, including mystical experiences, are only delusions, like the LSD distortions of sensory input, or involve only personal subconscious material welling up into consciousness when the ego-driven baseline consciousness is disrupted. Why should there be any bad trips and visions of hell at all if psychedelics open us up to an all-loving God or some benign transcendent reality? Why should we think pleasurable trips are any more insightful than the bad trips? Aren't all chemically enabled experiences, whether of heaven or hell, rapturous or horrifying, as Arthur Koestler put it “confidence tricks played on one's own nervous system” (1968, 209–10)? Advocates of mystical claims assert that the chemistry is not the whole story and respond that the positive experiences feel “real” to the experiencers in the way that once we wake up last night's dreams no longer seem real, and that this effect often lasts a long time. So too, experiencers distinguish the basic insight that there is more to reality than meets the naturalistic eye from aspects that clearly conflict with what is established by ordinary experiences—experiencers can differentiate some

obviously wrong beliefs (e.g., “The entire universe is pervaded by a strong odor of turpentine”) that seemed certain at the time of the drug-enabled experience from other certainties (Smith 2000, 65).³⁸ Experiencers often believe that what they experienced was as real or more real than ordinary reality (Newberg and Waldman 2016, 61–62) and that they had a clarity and attention not experienced in ordinary perceptions.

On pragmatic grounds, proponents will also point out that many experiencers enjoy a general enhancement of our sense of well-being (i.e., a sense of satisfaction with life or a purpose or meaning to life).³⁹ Critics will reply that drug-enabled experiences are not uniformly beneficial—some lead to a mental breakdown—nor do the experiences always have a lasting positive effect once the initial glow has subsided.⁴⁰ So too, psychedelic experiences can make hard-core materialists, positivists, skeptics, cynics, uncompromising atheists, and crusading antireligious Marxist philosophers suddenly become interested in a spiritual quest (Grof 2009, 97–98), but they can cause believers to abandon their faith (Newberg and Waldman 2016, 60). For skeptics, the experiences may be enjoyable but have no cognitive significance; the ASCs may come as a surprise and be interesting but not lead them to change their beliefs. The sense of joy and happiness in itself is not indicative of a cognition or insight: one can be “blissed out” regardless of whether transcendent realities or delusions are involved in the introvertive experiences—the depth-mystical experience and the sense of bliss may only be the subjective result of the mind spinning its gears when it has no content to work with. So too, mystical experiences may have positive effects on our happiness even if no transcendent realities are involved, just as LSD therapy has helped to break the hold of depression and addictions and helped to comfort the dying by lessening their fear of death. Nor are the actions of those who have had mystical experiences uniformly moral or beneficial to others—one’s actions appear to depend on factors outside of mystical experiences (see Jones 2004, chap. 13). And “secular mysticism” must be noted again: today not all mystical experiences are seen by the experiencers as cognitive of a reality or as having religious significance. William Richards tells of a successful business leader who had a spontaneous experience that met all the criteria of mystical consciousness—his reaction was “That was nice. What is it good for?” (2016, 124). And a “vivid” subjective sense that what is experienced is real is not the only criterion for what is objectively real, especially when there are other types of experiences open to possible third-person checking.

The dispute may come down to a conflict of basic metaphysics—that is, one’s intuitions of what is real. Part of this is another philosophical issue: the nature of the mind. Naturalist critics will invoke a naturalistic view of the mind. Theological critics of mysticism may agree. Advocates of

mystical claims may present a non-naturalist theory of the mind. Theories in consciousness studies concerning the effect of psychedelics range from the theory that chemicals merely produce states of the brain that produce states of consciousness that distort what is real to theories, going back to William James, Henri Bergson, and Charles D. Broad, that the brain is a “reducing valve” that only lets in some of the “mind at large” to allow us to function in the world without being overwhelmed and confused and that the drugs loosen this valve a little thereby allowing more reality to pour into the brain (see Goodman 2002) to theories that human consciousness originally arose as what we now consider “altered states” of consciousness and that our “normal” state of consciousness evolved out of them to aid in our survival.

CONCLUSION

In 2000, Huston Smith reflected back over the questions of drugs that had occupied him for 40 years and concluded that he was no closer to answering the central question: “given what we know about brain chemistry, can entheogenic visions be validated as true?” (2000, 127).⁴¹ The conclusions here do not offer encouragement that neuroscience will ever be able to answer that question. These conclusions are as follows: (1) Neuroscience shows that mystical experiences are distinct from other types of experience. (2) Neuroscience also shows that psychedelics in proper dosages can touch off genuine mystical experiences in a high percentage of the participants, especially when the set and setting are supportive. (3) The variety of subjective experiences and the role of “set and setting” strongly suggest that the drugs do not produce an ASC but merely allow new states and experiences by dislodging the ordinary state of consciousness. (4) There is to date no nontheological reason to suspect that drug-enabled mystical experiences are any different in nature from those occasioned by meditation or those occurring spontaneously. (5) However, science as currently constituted cannot answer the central questions of philosophical importance: there are limitations about what studying the effects of psychedelics on our neural circuitry can tell us about the nature, significance, and veridicality of mystical experiences.

Scientists studying psychedelics usually believe that they are studying *mystical experiences* by studying the *brain states* associated with them. For example, Frederick Barrett and Roland Griffiths state: “The use of classic hallucinogens makes the study of mystical experiences more tractable because hallucinogens can be administered under double-blind conditions and can occasion mystical experiences with high probability” (2018, 395). But merely being able to produce or predict the occurrence of an experience is not studying the experience itself or its content. And whether studying neural conditions or anything else material is studying *experiences* is open to

question in general (see Jones 2018). Barrett and Griffiths rightly note that scientific explanations of the content of consciousness do not completely explain consciousness itself, and similarly “explanations of the individual neural elements of mystical experiences may not provide a complete account of a mystical experience” (2018, 413). But it is not merely not a “complete account” of the experience—it is only an account of the neural bases, and unless reductionists are correct, there is more to account for: the subjective “felt” side of the experience is not touched at all. Neuroscience at present remains a matter of studying the states of the brain, not the accompanying states of mind or their relation to states of the brain. However, as Barrett and Griffiths add, identifying and understanding the neural and psychological processes that relate to mystical experiences is still valuable for the study of the brain: “the study of the neural correlates of mystical experiences may lead to a better understanding of the possible brain mechanisms underlying self-referential, spatial, and temporal processing, as well as complex emotions such as reverence and sacredness” (2018, 413–14). More is being learned about the neural mechanics of the effects of psychedelics on the brain every year. Neuroimaging studies of the neurobiological mechanisms of psychedelics have broadened our understanding of the brain, the serotonin system, and the neurobiological bases underlying consciousness (Johnson et al. 2019, 3).

But studying the brain states existing during any experience tells us virtually nothing about the nature of that experience—the subjectivity of any experience remains a distinct matter. That is also the case with meditative mystical experiences (see Jones 2018). Neuroscientists may be able to determine that mystical experiences are not necessarily the product of a damaged brain but can occur to people in whom healthy brains are functioning properly, that unique configurations of neural activity are involved, and that drugs duplicate those configurations for mystical experiences occurring in other situations. However, neuroscientists at present are studying only the neural bases and mechanisms connected to consciousness, and psychedelics remain part of the chemistry operating in the brain during these experiences, not part of the “felt” mystical experiences. Studying the neurological effects of psychedelics is not like studying an unobservable physical object indirectly through its effects on other objects—experiences have a subjective element that is not addressed at all by studying the activity of physical objects.

That limits the ability of these studies to tell us anything substantive about the nature of these experiences or their relation to the brain. Most basically, current neuroscience cannot establish whether the chemicals merely *enable* these experiences or substantively *create* them. The effect of drugs on our state of consciousness does establish that the brain and the mind are associated, but one’s answer to the question of whether the brain causes mental events or whether mental events remain distinct and are received by

the brain rests on a matter of metaphysics.⁴² Nor, as discussed, do the scientific findings *per se* dictate what the significance of mystical experiences must be, including the truth or falsity of any mystical cognitive claims or a philosophical reduction of mystical experiences, let alone the specific doctrines of any mystical tradition. Such questions must be answered on other grounds. Overall, as currently constituted, neuroscientists may be able to use drugs to generate and even control what types of experiences occur (within the limitations of set and setting), but until neuroscience can delve into the subjective aspects of experiences, it will be limited in what it can tell us about the experiences themselves. Until then, the “neurobiology of consciousness” (Carhart et al. 2014b, 664) remains the science of something consciousness-adjacent and not a science of mystical experiences.

One further point should be noted. Drug enthusiasts want to integrate psychedelics into the religious life or otherwise view psychedelic experiences from a religious point of view (e.g., Richards 2016), but they tend to make religion only about attaining ASC experiences and not about a full way of life. For example, for Thomas Roberts (2013) religion is only about cultivating mystical experiences: rituals and beliefs are no more than ways to induce mystical experiences, not ways to incorporate mystical insights into one’s life—“word-based” religion is only a recipe, while mystical experiences are actually tasting the food. However, as Huston Smith said, “religion is more than a string of experiences” (2000, 30). The goal of religion “is not religious experiences but a religious life” (Smith 2000, 80). Drugs are effective in inducing the former but not the latter—indeed, “chemically occasioned ‘theophanies’ can abort a quest as readily as they can further it” (Smith 2000, 80). To quote Smith once again: “Drugs appear able to induce religious experiences; it is less evident that they can produce religious lives” (2000, 30).

Smith’s point also holds for mysticism: the goal is mystical lives, not a string of mystical experiences—the objective is not altered states of consciousness *per se* but sustained altered personality traits of a person (Smith 2000, 153). Mystical experiences are the way to gain insight into the nature of reality, but a mystical experience only gives a glimpse of the reality that mystics want to incorporate into their lives in order to align their life with “reality as it truly is” (as defined by their tradition)—the final objective is to transform the flash of light into an abiding light. The aim of classical mystical ways of life is not to attain exotic experiences but to live in conformity with God’s will or otherwise to align one’s life with reality as it truly is. Smith rightly pointed out the difference between merely having a mystical experience and the difficulty of attaining an enlightened mystical way of life. Enlightenment involves incorporating the sense of selflessness from a mystical experience into one’s continuing state of consciousness after the experience is over—most drug users (and meditators) return to our

ordinary baseline state of consciousness after their mystical experiences, not to a state altered by the loss of the sense of a self. And as Smith adds, enlightenment is not easy but requires hard work. Nor are the experiences always pleasurable—as Smith notes, “ecstasy” is not fun (2000, 27, 130).⁴³

Even if drugs can occasion glimpses of alleged transcendent realities in introvertive mystical experiences and can break the cycle of attachments at least momentarily, they are not as effective in integrating these insights into a person’s life. If one had already been devoting all of one’s life to the cultivation of a mystical way of life, a drug-enabled mystical experience is more likely to initiate a truly selfless enlightened life. These experiences can show us that we are not identical to a phenomenal ego, but the ego can return quickly. Breaking attachments and addictions may lead to a life of mystical detachment, or one may return to a life in which these attachments resurface and new ones may be formed. Thus, any short-term effects of psychedelics should not be confused with this lasting change of a person. And Smith also appears correct when he adds: “it is indeed possible for chemicals to enhance the religious life, but only when they are set within the context of faith (conviction that what they disclose is true) and discipline (exercise of the will toward fulfilling what the disclosures ask of us)” (2000, 31).

NOTES

1. The definition of “mystical experience” employed here in terms of altered states of consciousness reflects the new scientific interest in such experiences, but no definition of “mystical experience” is dictated by science unless all ASCs have the same neurological states underlying them, which currently appears not to be the case. Thus, scholars have to decide what range of ASCs to include in their definition and what range to exclude. The designated range is not arbitrary if there is a legitimate reason for it. Overall, scholars will probably never reach a consensus on the issue. All a scholar can do is specify his or her usage—here, mystical experiences in terms of ASC experiences emptying the mind of conceptualizations and a sense of self and mysticism in terms of aligning one’s life with reality—to indicate what phenomena are being included.

2. The distinction of two classes of mystical experiences—extrovertive and introvertive—appears to be supported empirically by differences in their neurophysiological effects (Dunn et al. 1999; Hood 2001, 32-47). There are also different types of experiences within each class, and how the brain functions during the different experiences may well differ. Scientists can distinguish concentrative and mindfulness meditation (Valentine and Sweet 1999). If the neural bases associated with different types of mystical experiences differ, there is no reason in advance of study to presume that the effect of psychedelics on the brain would enable only one generic “mystical experience.” Thus, if, for example, some drug can stimulate some part of the brain and enable introvertive mystical experiences with content to occur, this does not mean that that drug can enable mindfulness or that the same areas of the brain become more active (or less active) in both types of experiences. Or, as will be discussed, it may be that these drugs simply disrupt the ego-driven baseline state of consciousness and what type of mystical or other experience occurs depends on other factors.

3. Today there are people who have mystical experiences but see no *religious significance* in them. Thus, “mystical” and “religious” must be distinguished. This will be discussed below under “attribution theory.”

4. Neo-animists in anthropology see drug-enabled shamanic practices as the origin of religion, not social or material needs, and as the religion from which all historical religions

evolved (see Forte 1997; Roberts 2001). But religion involves much more than cultivating ASC experiences—it has social and other dimensions. Thus, advocates of psychedelics may want to revise their historical claim to the claim that drug-enabled shamanic ASC experiences were either the source or a major reinforcement of the ideas of a soul independent of the body, life after death, spirits, heaven and hell, grace, and forces behind nature. However, such experiences do suggest that these religious beliefs formed in conjunction with these experiences and not from some prehistoric metaphysical speculation alone. At a minimum, shamanic practices constitute one of the oldest surviving forms of religiosity, and shamanic ASC experiences reinforced the idea of transcendent realities. As discussed below, setting and beliefs matter for drug-enabled mystical experiences, and religious beliefs may have preceded the experiences in early religion, but in the mix of religious beliefs and experiences, it may be difficult to determine which came first.

5. Later Leary gave a physicalist interpretation of drug-enabled mystical experiences: in the drug experiences one returns consciousness to the genetic code, DNA (2001). Mystical experiences take us “beyond the senses into the world of cellular awareness” (1968, 114; also see Narby 1998). Under this theory, the gods that people tend to project exist only in their own psyches.

6. Drug users often believe that they have attained the enlightening knowledge of all mystics, but three things must be pointed out. First, there are different types of mystical experiences—what an extrovertive experience allegedly involves is not the same as what different types of introvertive experiences allegedly do. Second, mystics have different understandings of what is allegedly experienced in mystical experiences—there is not one generic mystical enlightenment doctrine. Third, there may be degrees or stages of enlightening knowledge after the initial cracking of the phenomenal ego.

7. Many in the field of the study of psychedelics are drawn to perennial philosophy (e.g., Richards, Hood [2013, 301], and Grof). It is not surprising that empirical psychologists are not interested in matters of different doctrinal interpretations of mystical experiences but instead focus only on the experiences themselves since they want to advance “a scientific basis for exploring the immediate causes and consequences” of mystical experiences (Barrett and Griffiths 2018, 398). For their interests, mystical doctrines are not important. Saying “God (or whatever your favorite noun for ultimate reality may be)” is easier than studying the details of different doctrines in different mystical traditions. So, too, they may merely mean only that all introvertive mystics have the same experiences or experience the same reality and not intend the full metaphysics of perennial philosophy. Thus, the claim may not actually be about perennialism proper. Nevertheless, “perennial philosophy” is not simply shorthand for “All mystics have the same experiences and experience the same reality” but has a full emanationist metaphysics. It must also be remembered that classical mystics lived according to their tradition’s specific doctrines—including their understanding of what transcendent reality was experienced in mystical experiences—not according to “whatever you want to call it.” In sum, the scientists may be too busy to read anything more than the snippets of mystics’ doctrines in Walter Stace and William James, but they should realize that, while mystics who have had introvertive mystical experiences may well all have experienced *the same reality* or had *similar experiences* (within different types), their full *understanding* of what is real is what guides their lives.

8. In the 1960s, some communes such as Stephen Gaskin’s “The Farm” in Tennessee used psychedelics as sacraments. But most communes did not last—psychedelic experiences do not, as many thought, lead to a sense of community.

9. There is now *ayahuasca* tourism in the Amazon basin. Because of the role of the mental set in psychedelic experiences, it is doubtful that the Western tourists’ experiences are the same as those of the indigenous peoples. For example, the Amazon people use *ayahuasca* as a medicine in shamanic rituals to invoke spirits in order to cure people of diseases caused by curses and so on—they do not have mystical experiences.

10. Ralph Hood (2013, 301) found that persons rate prayer-occasioned mystical experiences as more legitimate or “real” than drug-enabled ones, more so to the extent that persons are religiously dogmatic. Among persons reporting mystical experiences, he also found that the more “spiritual” report drugs as a trigger, whereas the more “religious” do not.

11. Since no mystical experience can be forced by any actions or triggers, all mystical experiences are “spontaneous” and “unexpected” in one sense. But the label “spontaneous” will be reserved here for those mystical experiences that are not sought but occur out of the blue to

persons with no meditative or other spiritual preparation and without ingesting drugs. Scientists must explain what enables such experiences and determine if the neural base is the same as for experiences occurring in the lab.

12. Ecstasy is a party-goer's drug of choice in "raves." I have never been to a rave, but I doubt whether the setting of such affairs and the mental set of those participating are conducive to mystical experiences. Instead, other types of psychedelic experiences may occur. MDMA has also been found to have negative effects: serious impairment to memory, sleep, cognition, problem-solving, emotional balance, and social intelligence (Newberg and Waldman 2016, 77).

13. For more on the possible chemical effect of psychedelics on the brain, see Nichols and Chemel (2006), Winkelman (2013), Carhart-Harris et al. (2014a), and Barrett and Griffiths (2018, 415–21).

14. The criteria used by Pahnke (1966), Ralph Hood for his M-Scale, and Griffiths are based on Walter Stace's features of a mystical experience (1960, chap. 2). There are seven elements: unity (internally as a pure awareness or a merging with ultimate reality, and externally as the unity of all things or sense of "all is one"), transcendence of time and space (both a sense of timelessness and that concepts of space and time do not apply to transcendent realities), ineffability (difficulty in describing in words both the experience itself and what is experienced), paradoxicality (related to ineffability), a sense of sacredness or awe, a noetic quality (claims of knowing what is ultimately real), and a deeply felt positive mood (joy, peace, and love).

15. One problem with drug testing is that scientists cannot administer a psychotropic drug to people without their consent because of the danger of very negative effects. But this means that most participants in these studies are usually volunteers already seeking spiritual experiences; people with little interest in the subject are less likely to volunteer. This in turn means that scientists are not getting a true cross-section of the population as a whole but mostly self-selected participants who are inclined toward having spiritual experiences, and thus these participants would have the mental set conducive to having drug-enabled mystical experiences. These persons would have a religious purpose and goal for volunteering. And even those who are uninterested in spiritual experiences are aware of the nature of the study, and this may dispose them toward having such experiences. Thus, these studies are weighted toward producing mystical experiences. Doctors who are advocates of entheogens or drug therapies and skeptical doctors can also unintentionally skew the results of drug studies one way or the other.

16. The long-lasting effects on one's character are more likely the result of the immediate impact of the psychedelic experience on one's already existing mental set of beliefs and values than any lingering chemical effects of the drugs on the brain. That would also explain why some positive effects increased over time.

17. Merely being in a drug-enabled ASC does not mean that a person must be compassionate or can perform only moral actions. The English word "berserk" comes from the Norse word for the Viking "Berserkers" who ingested psychedelic drugs before going on rampages. This suggests that basic values do not come from altered mental states but from other aspects of a way of life.

18. The effects of psilocybin and a classic hallucinogen (dextromethorphan) have been compared and found to have differences in the experiences occasioned and in their effects (Barrett et al. 2018; Carbonaro et al. 2018).

19. The "setting" includes not only the physical environment and decorations, but such things as lighting (Carhart-Harris et al. 2018, 726). The music chosen to be part of the setting may play a vital role (Leary et al. 1964, 11; Kaelen et al. 2018).

20. One's beliefs need not be tied to any particular religious tradition. Any religious or nonreligious beliefs will do as long as they permit the experimenter to be open to mystical experiences.

21. Set and setting is now becoming seen as of essential importance in the use of psychedelics in psychotherapy (Carhart-Harris et al. 2018).

22. Newberg found that if one had a foundation of mindfulness and the ability to remain deeply relaxed when one enters and exits ASCs, one can more quickly alter one's consciousness and is less likely to have bad experiences; he thus advises relaxation before and after ingesting drugs (Newberg and Waldman 2016, 210).

23. The potential danger of psychedelics was played up in the 1960s and most of the substances were declared illegal. But contemporary researchers have shown that with proper psychological screening and supervision during drug sessions, the risks are greatly reduced (see, e.g., Griffiths et al. 2006, 2008; Barrett and Griffiths 2018; Carhart-Harris et al. 2018).

24. Drugs are only one type of “trigger.” Different triggers with different degrees of effectiveness in inducing mystical experiences include meditation, listening to music, contemplating the beauty of nature, dancing, illness, stress, despair, silence or chanting, sex or celibacy, sensory deprivations or sensory overload, giving birth—all can sometimes enable extrovertive or introvertive mystical experiences. The question for scientists is whether all triggers create the same brain conditions or whether different triggers create different brain conditions.

25. Psilocybin appears more effective in inducing mystical experiences than the relatively low doses of LSD used in therapy sessions (Liechti et al. 2017). Higher dosages enable a higher percentage of mystical experiences in an orderly manner. One study noted that even a relatively high dose of LSD was not as effective in producing mystical experiences as psilocybin. That psilocybin and LSD have different pharmacodynamic effects on the brain is one possible explanation, but researchers have wondered whether the difference in effects was a matter of dosage or differences in “set and setting” or both; the subjects’ expectancy was also an issue (Griffiths et al. 2018, 67, Johnson et al. 2019, 46–47).

26. Mystical experiences do not occur every time a drug is ingested because other elements are necessary. Thus, drugs do not *cause* mystical experiences, and hence no terms related directly or indirectly to causation are appropriate. For example, “produce,” “occasion,” “facilitate,” “catalyze,” “stimulate,” “trigger,” and “induce” all carry connotations of causation. But there is no term in English that captures what drugs do. “Enable,” “occasion,” and “facilitate” have been used here to convey the idea that drugs are one way to set up the necessary conditions in the brain for mystical experiences to occur but are not sufficient to produce those experiences. So too, the terms are intended here to be neutral between the possibilities that mystical experiences are merely brain-generated subjective experiences or are genuine insights into the nature of reality. The word “trigger” is used to mean drug-induced neural conditions that may occasion mystical experiences.

27. This variety of states of consciousness connected to one state of brain conditions produced by the drug presents the inverse of the “multiple realization” problem in philosophy of mind—that is, more than one state of consciousness is associated with the same brain state (see Jones 2018, 998–99). Brain activity may be altered by the drugs; whether consciousness is altered or what state of consciousness arises depends on other factors. If so, brain activity alone does not shape the full phenomenology of mystical experiences—indeed, perhaps brain activity does not shape any of the felt phenomenological content of these experiences at all. Even if we are all neurologically the same vis-à-vis mystical experiences and receive the same stimulants, we may have different experiences. Set and setting figure into this, but the diversity of psychedelic states connected to the same brain state remains. Even if mystical experiences are totally subjective, with material merely coming from our subconscious, this issue persists. Current techniques scan the entire brain, but perhaps scanning for other features with some as yet undeveloped technology will establish a one-to-one correlation of brain states and different mystical experiences. Even without such a correlation, science still establishes that mystical experiences are different from other experiences to the extent that it establishes that mystical experiences occur in ASCs, whether the brain causes the experiences or merely enables them to occur.

28. Drug-enabled depth-mystical experiences are relatively rare. Why don’t psychedelics set up the chemical base in the brain for the tranquility of these experiences as readily as other mystical and visionary experiences? Do drugs stimulate portions of the brain that interfere with an experience empty of differentiated content while inhibiting metabolism in other portions? Do depth-mystical experiences emerge from a deeper part of the brain that psychedelics do not affect? Are depth-mystical experiences not connected to the brain in the way visions and differentiated mystical experiences are? Do they require more training? Do different drugs each adjust our brain chemistry in a unique way to produce only a specific type of ASC experience? Or do all ASCs have the same neural base? Or do psychedelics do no more than merely disrupt our baseline state of consciousness, thereby permitting different types of ASC experiences to occur in the mind, and the exact type of mystical experience that does occur depends on other factors, with more people expecting differentiated content in mystical experiences?

29. “Genuine” has two senses in discussions of mystical experiences that are not usually distinguished clearly: establishing that mystical experiences are unique, genuine experiences distinct from other experiences, versus establishing that the experiences convey a genuine insight. As discussed below, neuroscience can do the former but not the latter. Here “genuine” will be used only in the first sense. Thus, the question here is whether experiences occur in the laboratory

are the same in nature as those cultivated through mystical practices or occurring from “grace of God” or otherwise spontaneously.

30. Stace invokes what he calls the “principle of causal indifference”: if two experiences are phenomenologically indistinguishable, then one cannot be called a “genuine” mystical experience and the other not merely because they arise from dissimilar causal conditions (1960, 29–31).

31. In one study comparing the experiences of psilocybin users and non-users (Cummins and Lyke 2013), the researchers found that the “peak experiences” of psilocybin users showed much higher occurrences of mystical experiences (“oceanic boundlessness”) and visual distortions (“visionary restructuralization”) than among the peak experiences of those who never used the drug—this was so even when the psilocybin users were *not using* the drug at the time of these experiences. This suggests that the peak experiences of psilocybin users involved greater alterations of consciousness than the state of consciousness during the peak experiences of those who had never used it. It also raises the issue of whether the psilocybin had a longer lasting effect in modifying the users’ brains. More studies on the phenomenology of the experiences of subjects who have had *both* drug-enabled and nondrug mystical experiences may be valuable.

32. Attribution theory should be distinguished from constructivism: for constructivists, cultural phenomena structure genuine mystical experiences, while for advocates of attribution theory “mystical experiences” are actually ordinary states of mind seen mystically—for the latter, it is the *interpretation* of an ordinary experience alone that makes it mystical. Whether cultural conceptions penetrate and either partially or totally construct the cognitive content of a mystical experience will not be addressed here (see Jones 2016, chap. 2; Jones forthcoming).

33. Objections have also been raised concerning Proudfoot’s use of the psychological data (Barnard 1992; Spilka and McIntosh 1995).

34. But there is one major caveat: establishing that *the brain state is different* when ASC experiences occur than when ordinary sense-experience or other mental events occur is the most that neuroscience as currently devised can do to establish differences in mental states and experiences. Science may change in the future, but without being able to examine the subjective states themselves science cannot do more and thus is limited in definitively establishing differences in experiences. If different mystical experiences can accompany the same brain state, science is limited even more. The states enabled by classic psychedelics and meditation share phenomenological descriptions that are consistent with mystical experiences, and so, as Barrett and Griffiths state, it is “tempting” to interpret the neural correlates of psychedelic and meditation experiences as a model for the neural correlates of mystical experiences, but they did not observe “complete” mystical experiences, and so they limit their conclusions only to psychedelic experiences (2018, 422–23).

35. The effect also occurs with spontaneous and meditation-prepared mystical experiences. For example, Mark Waldman had a nature-mystical experience while sitting in his office in which the trees, fence, and weeds outside his window all seemed “perfect” and he felt a “pure bliss.” The first thing he remembered saying was “Oh! This is what those Buddhists and Hindus were writing about when they described enlightenment” (Newberg and Waldman 2016, 190). Actually, that is not what the Buddhists and Hindus claim: the Buddhist enlightenment experience is about seeing the impermanence of all phenomena, not their “perfection,” and the Hindus’ enlightenment involves something interior to our being and something transcendent to the natural world, not something seen in the phenomenal realm. (It is also worth pointing out that Waldman’s beliefs suddenly changed at the moment: he “knew” that there was *no* heaven or hell or god and that when he died that would be his end. This is not what Buddhists and Hindus conclude.) After several months, Waldman’s feeling subsided and feelings of doubt returned. Then one day, a small voice whisper to him: “Mark, you don’t know a damned thing about religion” (2016, 190–91). He started to study the writings of mystics.

36. Huxley changed his mind on the nature of his mescaline experience: he initially considered it an experience of the bare “is-ness” of reality, but in 1955 he wrote to Humphry Osmond, the psychiatrist who had supplied him with the mescaline (and who invented the word “psychedelic”), that his feeling of being “cut off from the human world” was false—“the things which had entirely occupied my attention on that first occasion I now perceived to be temptations to escape from the central reality into false, or at least imperfect and partial Nirvanas of beauty and mere knowledge” (Huxley 1970, 81). He later believed that the drug supplied a “sacramental vision of reality . . . of Love as the primary and fundamental cosmic fact,” and that its message is that one never loves enough. Morgan Shipley said that Huxley’s (1955)

interpretation, “occurring with greater distance from his first moment and supplemented by more experiences and efforts to understand the meaning of the heightened awareness made possible by psychedelics . . . is strictly religious” and connected to his belief in perennial philosophy as, in Huxley’s words, “a Highest Common Factor, present in all the major religions of the world” (Shipley 2015, 76–77).

37. For an elaboration of this point, see Jones (2016, chap. 4; Jones 2018).

38. This is not to deny that experiencers do often think that they have found the secret of the meaning of life during the experience only to realize that that was not so after the experience was over. For example, Arthur Koestler said of the “instant mysticism” of a psilocybin experience: “there is no wisdom there. I solved the secret of the universe last night, but this morning I forgot what it was” (quoted in Shipley 2015, 78). Koestler also recounted a story from his friend George Orwell: every night that a friend smoked opium he heard a single phrase that contained the whole secret of the universe, but he always forgot it in the morning; however, one night he managed to write it down: “The banana is big, but its skin is even bigger” (1968, 210–11).

39. See Hummel 2014. Without a *religious interpretative framework*, some mystical experiences may not have positive effects but lead instead to less well-being (Byrd et al. 2000). Thus, it may be that naturalists would have to work out a framework in which mystical experiences are treated positively as cognitive of natural realities if mystical experiences are not to have a negative effect on their sense of well-being.

40. One study found that psychedelics elicit psychosis-like symptoms during an immediate experience but improved psychological well-being in the mid to long term by leaving a “loosened cognition” (Carhart-Harris et al. 2016).

41. Smith’s personal belief was “that when ‘set and setting’ are rightly aligned, the basic message of the entheogens—that there is another Reality that puts this one in the shade—is true” (2000, 133).

42. For example, that disease can radically impair our thinking does not show that the mind is merely the brain. Dualists can respond that the changes in the brain merely damage our reception of the mind. Treating the mind as separate and as a cause would require a change in the prevailing materialistic worldview in neuroscience today.

43. Unlike visions, mystical experiences do not typically involve an element of fearing what was experienced—the experiences may have very negative elements, but the reality allegedly experienced is experienced as benign or loving. But Smith refers to his visionary experiences as involving fear, awe, and fascination or even terror (Smith 2000, 12–13; 2005, 227). He also said that he had had “very negative experiences” and that over time “the utility [of the experiences] seemed to go down quickly and the bummers increased” (2005, 227). He quoted Alan Watts to the effect that once one gets the message, hang up the phone and do not make any more calls. But he notes that “the Reality that trumps everything while it is in full view will fade into a memory” (2000, 131). On the other hand, the continued recreational use or abuse of psychedelics (especially LSD) can lead to a post-experiential state with continuing distortions of perceptions—hallucinogen persisting perception disorder (HPPD). HPPD is so great that some people become impaired and require treatment (see Halpern 2018).

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