

MYSTICAL EXPERIENCES, NEUROSCIENCE, AND THE NATURE OF REALITY

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ABSTRACT

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Research by neuroscientists has begun to clarify some of the types of brain activity associated with mystical experiences. Neuroscientists disagree about the implications of their research for mystics' beliefs about the nature of reality, however. Persinger, Alper, and other scientific materialists believe that their research effectively disproves mystics' interpretations of their experiences, while Newberg, Hood, and others believe that scientific models of mystical experiences leave room for God or some other transcendent reality. I argue that Persinger and Alper are correct in dismissing mystics' interpretations of their experiences, but that they are incorrect in asserting mystical experiences are pathological or otherwise undesirable.

To Betty, who knows from experience.

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CHAPTER I. WHAT ARE MYSTICAL EXPERIENCES?

1.1 Introduction: Mystical Experiences and the Nature of Reality

At the heart of mysticism is a particular kind of altered state of consciousness, which is often referred to as a “mystical experience” (Bartocci & Dein, 2005; Griffiths, Richards, McCann, & Jesse, 2006; Hood, 1975). Mystical experiences have been called by many different names, by scientific researchers and mystics alike. Some of the names they have been given by researchers include “religious experience” (James, 1902), “religious/spiritual/mystical experience” (Beauregard & Paquette, 2006), “unitary state” (d’Aquili & Newberg, 1999, Newberg, d’Aquili, & Rause, 2002), “unitive experience” (Bartocci & Dein, 2005), and the experience of a “soulful self” (Hood, 2002). The names given to mystical experiences by mystics themselves have likewise varied widely; they include such terms as “*unio mystica*” (Catholic Christianity), “*shamatha*” (Hinduism), “absorption” (Buddhism), “Revelation” (Emerson, 1841/1992), “cosmic consciousness” (Bucke, 1901), and many others. All these names seem to refer to either a single type of experience, or to an array of related experiences, which have played a central role in the practice of mysticism the world over (James, 1902; Underhill, 1911/1999; White, 1995).

Mystical experiences, under their various names, have several distinctive characteristics. The first may be referred to as the “transcendence of the self.” This is the weakening or elimination of the usual sense one has that one is a distinct being separate from the world. When one experiences self-transcendence, one either feels a sense of union with a larger reality, or one simply loses the sense of a clear boundary between oneself and the world. In addition to the transcendence of the self, mystical experiences can have several other characteristics. Citing the philosopher W. T. Stace (1960), the

neuroscientists Mario Beauregard and Vincent Paquette (2006) describe the other characteristics of mystical experiences as follows: “the sense of having touched the ultimate ground of reality, the experience of timelessness and spacelessness, the sense of union with humankind and the universe, as well as feelings of positive affect, peace, joy and unconditional love” (p. 187).

Some of the qualities mentioned by Stace seem conceptually related to the experience of self-transcendence, while others seem conceptually distinct. Specifically, the sense of union with humankind and the universe, and possibly the sense of timelessness and spacelessness, seem to stem from the feeling of self-transcendence—the former because one has lost the sense of one’s separation from the world, the latter because one has lost one’s sense of orientation in the world as a distinct entity. The other qualities mentioned by Stace—the sense of insight into reality, positive affect, and unconditional love—seem relatively more conceptually distinct from the notion of self-transcendence, even though they typically accompany mystical experiences.

As indicated by Stace’s description, people who have mystical experiences typically believe that they give them special access to (or insight about) the nature of reality. Mystics’ belief that mystical experiences give them special insight is often referred to as the “noetic” quality of mystical experiences, following the pioneer researcher on the psychology of religion William James (1902). The precise interpretation of the higher (or deeper) reality experienced in mystical experiences varies considerably in different religious and philosophical traditions, however, as will be discussed below.

An interesting question thus arises: do mystical experiences constitute occasions of insight into the fundamental nature of reality, or do they amount to nothing more than illusions or mistaken perceptions—analogous, perhaps, to hallucinations, optical illusions, or errors of memory, such as *deja vu*? The scientific study of mysticism, which seems to show that mystical experiences occur as a result of a particular kind of brain activity, may have implications for mystics' beliefs about the meaning of mystical experiences. If mystical experiences can be explained scientifically, it may be possible to show that the traditional interpretations of them are all false or misleading (on the one hand), or that there is some truth to the mystics' claims to have contacted a deeper reality (on the other).

There is disagreement among researchers who study mysticism, however, about the religious or philosophical implications, if any, of the scientific study of mystical experiences. The various parties to the dispute can be divided into two main camps: the scientific materialists (often referred to—somewhat misleadingly—as “reductionists”) and everybody else. The scientific materialists argue that the scientific study of mysticism shows that mystical experiences can be completely explained scientifically, and that they do not give one special insight into the nature of reality; instead, they are best understood as cases of abnormal or pathological functioning of the brain (Alper, 2001; Persinger, 1987, 2001).

Several alternatives to the scientific materialist view have been put forth, only a few of which will be discussed here. The neuroscientist R. Joseph (2001), despite his belief that mystical experiences can be explained in terms of changes in the temporal lobe of the brain, argues that mystical experiences are experiences of the Judeo-Christian God.

Ralph Hood, the psychologist who developed a well-known measure of mystical experiences (the Hood mysticism scale [Hood, 1975]), argues that mystical experiences are experiences of a transcendent reality that he calls the “soulful self” or the “transcendent self” (Hood, 2002). The neuroscientists Eugene d’Aquili and Andrew Newberg claim that the way things appear in mystical experiences is at least as real as the way they appear in ordinary waking consciousness, and possibly more real (d’Aquili, 1982; d’Aquili & Newberg, 1993; 1998; 1999; 2000; Newberg, 2001; Newberg, d’Aquili, & Rause, 2002). The writer on religion Jonathon Scott Feit (2003), meanwhile, claims that the scientific materialist view of mystical experiences is flawed because such experiences are not fully accessible to scientific inquiry.

The remainder of this chapter attempts to give a clearer picture of mystical experiences. We begin with a discussion of some of the common methods for attaining mystical experiences (1.2), followed by a discussion of their general characteristics (1.3). We then look at whether all mystical experiences are religious (1.4), and at the usual kinds of religious and philosophical interpretations that are given to mystical experiences (1.5). Chapter 2 discusses mystics’ own descriptions of their experiences, in order to show that there seems to be a single kind of altered state of consciousness, or perhaps an array of related states, which answer to the name “mystical experience,” and which have been reported by mystics from different religious and philosophical traditions. Chapter 3 contains a summary of some of the results of the scientific study of mystical experiences, including models of mystical experiences proposed by Persinger (2001), Joseph (2001), and d’Aquili and Newberg (1999; Newberg, d’Aquili, & Rause, 2002; Newberg & Iversen, 2003; Newberg & Newberg, 2005). Finally, chapter 4 provides an explanation

and evaluation of Persinger's scientific materialist view of mystical experiences, and the views of Joseph, Hood, d'Aquili and Newberg, and Feit. Chapter 4 concludes with the proposal of a novel interpretation of mystical experiences, according to which mystical experiences can be completely explained scientifically, but are not necessarily pathological, and even seem to be able to contribute to the value and sense of meaning in a person's life.

1.2 Methods for Obtaining Mystical Experiences

In order to better understand mystical experiences, it may be helpful to have an understanding of the ways in which they can be generated. Some mystical experiences happen spontaneously, or as the result of seizures in the temporal lobe of the brain (Persinger, 1987, 2001). There are also several ways to deliberately induce mystical experiences. Such methods are sometimes divided into two principal groups, "apophatic" mystical practices and "kataphatic" mystical practices (Johnston, 1997 [cited in Bartocci & Dein, 2005]). Apophatic mystical practices involve the reduction of sensory and kinesthetic stimulation, while kataphatic mystical practices involve the enhancement of kinesthetic and sensory stimulation. Examples of apophatic mystical practices include controlled breathing, fasting, isolation, meditation, and sleep deprivation, while examples of kataphatic mystical practices include various kinds of ecstatic dances and other rituals (Bartocci & Dein, 2005). It should be noted, however, that classifying meditation as an apophatic practice may be problematic, since a wide variety of practices are included under the term, and some of these involve an enhancement of stimulation. In addition, there is a third way in which mystical experiences can be induced, namely, through the

ingestion of certain psychoactive drugs, such as LSD, MDMA, and psilocybin (Griffiths, Richards, McCann, & Jesse, 2006; Horgan, 2003; Tart, 1972).

Because of the sheer number of methods for inducing mystical experiences, it is not possible here to give a thorough description of them all. What follows is rather a discussion of two of the most widespread methods for attaining mystical experiences: meditation, which is commonly practiced, widely studied, and typically apophatic in nature; and ritual, which is the principal kind of kataphatic mystical practice. Discussing these two methods for inducing mystical experiences may be particularly helpful, because of the many misconceptions surrounding meditation, and because of the often incomplete or unsystematic views of the nature of ritual.

Meditation is a set of methods for increasing one's ability to focus for extended periods (see, for example, Andresen, 2000). Meditation comes in many different forms, but they all involve the deliberate focusing of one's attention on some object or another of consciousness. There is a long-standing, traditional distinction, at least in Buddhism, between concentration and mindfulness meditation (Bodhi, 2000; Buddhaghosa, 1999; Nanamoli & Bodhi, 2001; Nhat Hanh, 1998; Nyanaponika & Bodhi, 1999; Rahula, 1974; Walshe, 1995). Concentration meditation involves actively focusing one's mind on a particular object, while mindfulness meditation involves being passively receptive to and aware of certain contents of consciousness. Concentration meditation can involve focusing on such objects as prayers (or mantras), mental images, or objects in the environment, such as a candle or icon. Mindfulness meditation, on the other hand, can involve being aware of such objects as the flow of the breath, the movement of the limbs

in walking, or the flow of thoughts, feelings, or perceptions (Goldstein & Kornfield, 1987; Gunaratana, 2002; Kabat-Zinn, 2005; Nyanaponika, 1996).

The traditional distinction between concentration and mindfulness meditation is also recognized in the modern scientific literature on meditation (Dunn, Hartigan, & Mikulas, 1999; Germer, Siegel, & Fulton, 2005). The distinction has been made using different terms, however, including “active” versus “passive” meditation (d’Aquili & Newberg, 1993; 1999; Newberg, d’Aquili, & Rause, 2002), “concentrative” versus “receptive” meditation (Austin, 1998), and “concentration” versus “wide open” meditation (Vaitl et al., 2005).

In addition to the traditional distinction between concentration and mindfulness meditation, Newberg and Iversen (2003) have introduced a distinction between volitional and guided meditation. Volitional meditation, which includes both active and passive (that is, concentration and mindfulness) meditation, is directed by the meditating subject himself. Guided meditation, on the other hand, is directed by the vocal commands or prompts of someone else who serves as a guide for the meditating subject. Newberg and Iversen introduce this distinction because they believe guided meditation and volitional meditation involve different sorts of brain activity (as will be discussed in section 3.4 below).

Despite the increasing attention which has been paid to meditation by scientists in recent decades, there are several widespread misconceptions about the nature and function of meditation in both Eastern and Western religious and philosophical traditions. First, there is a tendency to view meditation as a solely or predominantly Eastern phenomenon. Westerners commonly associate meditation with the Hindu and Buddhist

meditation techniques, such as yoga, tantra, Vipassana, and zazen, which were made popular in the West in the second half of the 20th century (Kapleau, 1967; Nyanaponika, 1996; Suzuki, 1934/1964; Suzuki, 1970; Watts, 1957; Yeshe, 2001). This is so despite the fact that meditation has been practiced in all of the major Western religions, and in several important Western philosophical traditions as well (Hadot, 1995; 2001; 2002). An example of the practice of meditation in Western religion is the contemplative prayer practiced by Catholic monks and nuns (Petry, 1957; Spearing, 2001), while examples of meditation in Western philosophy include the Neoplatonists' contemplative practices (Plotinus, 1986) and the examination of the conscience practiced by Stoics (Epictetus, 1983; Hadot, 1995; 2001; 2002; Marcus Aurelius, 2002; Seneca, 1997) and other ancient philosophers (Galen, 1963).

A second common misunderstanding is that there is a fundamental qualitative difference between Eastern and Western meditation. Hadot (1995), for example, claims that ancient Greek meditation differs from Eastern meditation, in that it does not use the body as the object of focus. However, Eastern religions and philosophies use a wide variety of meditation objects, not all of them associated with the body (Bodhi, 2000; Buddhaghosa, 1999; Goldstein & Kornfield, 2001; Gunaratana, 2002; Kornfield, 1993; Nanamoli & Bodhi, 2001; Nyanaponika, 1996; Nyanaponika & Bodhi, 1999; Walshe, 1995). This misunderstanding probably stems from the fact that, in the West, the most-well known Eastern meditation techniques use the breath as their object of focus.

Similarly, d'Aquili and Newberg (2002) attempt to associate passive meditation exclusively or primarily with Eastern religion, and active meditation with Western religion. While Buddhist meditation (for example) does include techniques corresponding

to d'Aquili and Newberg's concept of passive meditation, it also includes many techniques which correspond to their concept of active meditation, such as focusing on mantras or on images of bodhisattvas (Yeshe, 1998, 2001). (Indeed, as mentioned above, the distinction between concentration and mindfulness originated in Buddhism.)

Conversely, Christianity seems to incorporate both concentration techniques, such as uninterrupted prayer (Petry, 1957; Spearing, 2001), and mindfulness techniques, such as the examination of the conscience (Hadot, 2002; Spearing, 2001), which resembles the Buddhist meditations of mindfulness of thoughts and mindfulness of feelings.

D'Aquili and Newberg are also eager to associate passive meditation with an experience that can be interpreted in terms of union with an impersonal entity, and active meditation with an experience that can be interpreted in terms of union with God (Newberg, d'Aquili, & Rause, 2002). Unfortunately, as already noted, Buddhism, which is essentially a non-theistic religion (most traditional Buddhists believe in gods, but worshipping them is not usually conceived of as being either necessary or sufficient for attaining enlightenment), incorporates both concentration and mindfulness meditation, as does Christianity, which is a theistic religion.

After meditation, another common way of attaining mystical experiences is through rituals. Like meditation, rituals can involve intense concentration for sustained periods, but unlike meditation, they are also characterized by stereotyped rhythmic motor activity (d'Aquili, 1986; d'Aquili & Laughlin, 1975). This rhythmic behavior is capable of synchronizing an organism's thoughts, feelings, and motions (d'Aquili, 1983).

There are many different kinds of rituals, however, and not all of them are related to mystical experiences. Rituals can be differentiated along at least three main

dimensions. The first dimension involves a distinction between religious and non-religious rituals, the second involves a distinction between rituals performed by individuals and rituals performed by groups, and the third involves a distinction between so-called “fast” and “slow” rituals.

Religious rituals include any ritual given a religious interpretation by the participants. (Religious interpretations typically appeal to supernatural agents, that is, to human-like beings who have supernatural abilities, as will be explained in section 1.4, below). Non-religious rituals include any ritual given an interpretation by the participants that does not involve supernatural agents. Religious and non-religious rituals can be performed either by groups or by individuals, and they can be either fast or slow. Examples will first be given of individual and group religious and non-religious rituals, followed by examples of fast and slow religious and non-religious rituals.

Individual religious rituals include petitions to gods or spirits, spells, and prayers involving rhythmic motor activity. The functions of individual religious rituals can include securing prosperity or fortune, averting contagion or misfortune, bringing contagion or misfortune on others, making oneself feel better, and making oneself a better person.

Individual non-religious rituals do not seem to be as common as either individual religious or group non-religious rituals, but they can include such behaviors as superstitious ritual activity performed by individuals for the sake of “good luck” (so long as they are not given an explicitly religious interpretation), as well as rituals performed by mystics for the sake of mental cultivation or self-transcendence which are given a philosophical or scientific (and not a religious) interpretation.

Group religious rituals include two main varieties: one-shot religious rituals and serial religious rituals (Boyer, 2001). One-shot religious rituals are generally only experienced once in a lifetime by the focal participants of the ritual. Examples of one-shot religious rituals include birth or naming ceremonies, coming of age rituals, conversion or confirmation rituals, marriage rituals, and funereal rituals. The function of one-shot religious rituals is different for the person who is the focus of the ritual and for the other participants. For the focal participant, one-shot rituals signal life-stage changes and help the individual adjust to his new social status. For the non-focal participants, one-shot religious rituals make them publicly acknowledge and support the new social status of the focal participant (Boyer, 2001).

Examples of serial religious rituals include communion rituals, divination rituals, healing rituals, exorcism rituals, and trance-inducing or ecstatic rituals. The function of serial religious rituals varies considerably by type. Communion rituals are often performed for the altered states of consciousness that can be experienced as a result of them (d'Aquili, 1986; d'Aquili & Laughlin, 1975), but they can also be performed for the sake of social solidarity (Boyer, 2001), or for religious or supernatural benefits, such as improving the state of one's soul, or the quality of one's future lives. Divination rituals are performed to receive guidance about the future, or to reveal information which would otherwise be unavailable. Healing rituals are aimed at averting illness or supernatural contagion. Exorcism rituals are performed to thwart evil spirits who are believed to be responsible for disease, misfortune, or for religious or supernatural harms, such as harming one's soul. Trance-inducing ecstatic rituals are usually performed for the sake of

the altered states of consciousness which can be produced as a result (d'Aquili, 1986; d'Aquili & Laughlin, 1975).

Interestingly, the alleged role of supernatural agents tends to vary systematically between one-shot religious rituals and serial religious rituals (Boyer, 2001). In one-shot religious rituals, gods or spirits are usually invoked to serve as witnesses or as enforcers of the result of the ritual, but are not conceived of as active participants in the ritual itself. In serial rituals, on the other hand, gods or spirits are usually conceived of as active participants in the performance of the ritual.

Group non-religious rituals can also be divided into one-shot and serial varieties. Examples of one-shot non-religious rituals include initiation rituals and oaths of office in academic, business, professional, and patriotic associations. The function of one-shot non-religious rituals is typically to make the focal participant express his commitment to a changed set of duties, or his loyalty to the association in question; for the non-focal participants, the function is to publicly acknowledge and support the changed status of the focal participant. Examples of serial non-religious rituals, meanwhile, include saluting a flag or singing an anthem; the function is typically for the members of the relevant association to express commitment to a common cause or loyalty to the association.

Rituals can also be distinguished on the basis of whether they are fast or slow (d'Aquili & Newberg, 1999; Newberg, d'Aquili, & Rause, 2002). Fast rituals involve rapid rhythmic movement, while slow rituals involve more deliberate, symbolic movement. Examples of fast religious rituals include Sufi whirling, African drum circles, and the rituals performed by Siberian shamans; examples of slow religious rituals include

Christian communion, the rituals performed by Shinto priests, and the Zen tea ceremony. An example of a fast non-religious ritual is a folk dance performed for the sake of social solidarity; examples of slow non-religious rituals include initiations and the singing of national anthems.

D'Aquili and Newberg's distinction between fast and slow rituals is also recognized by Vaitl et al. (2005), but they use a different classification scheme. Vaitl et al. (ibid.) distinguish between meditation and rhythm-induced trance on the one hand, and between movement-based and silent meditation on the other. Their concept of rhythm-induced trance seems to correspond to d'Aquili and Newberg's concept of fast rituals, their concept of movement-based meditation seems to correspond to d'Aquili and Newberg's concept of slow rituals, and their concept of silent meditation seems to correspond to d'Aquili and Newberg's conception of meditation *per se*.

Not all kinds of ritual are associated with mysticism, and there are no particular kinds that are always associated with mysticism. Mystical rituals can be either religious or non-religious (depending on the interpretation given them by the participants), they can be performed either individually or in groups, and they can be either fast or slow. Similarly, meditation is not always practiced for the sake of mystical experiences. To take just one example, mindfulness meditation is increasingly used for the sake of its apparent benefits with respect to psychological health and emotional well-being (Germer, Siegel, & Fulton, 2005; Kabat-Zinn, 1990; McQuaid & Carmona, 2004). The various types of meditation and ritual are thus not always practiced for the sake of attaining mystical experiences. Meditation and ritual can lead to mystical experiences in some

cases, however, and this is at least one of the reasons why they have been used by mystics in different religious and philosophical traditions.

1.3 General Characteristics of Mystical Experiences

As stated above, the principal characteristic of mystical experiences is the transcendence of the self, which is the weakening or elimination of the usual sense one has that one's self is a separately existing entity. In experiences of self-transcendence, there is typically a sense that all things are united, and there is a lack of differentiation between oneself and the external world.

The "sense" of the self must be distinguished, however, from a "belief" about the self. The sense of the self is the way the self appears subjectively, in terms of a qualitative experience (that is, the way it appears phenomenologically). A belief about the self, on the other hand, implies (or can imply) a cognitive construct about the nature of the self, and does not necessarily imply a subjective experience of the self. One's beliefs about the way things are need not be the same as the way things appear to one phenomenologically. There are many cases in everyday life when one's beliefs about things are different in nontrivial ways from the way they appear, as with optical illusions and the like. It is thus possible that the alteration in the usual sense of the self experienced in mystical experiences has no implications for one's beliefs about the nature of the self.

The usual sense of the self is difficult to characterize, perhaps because it is so familiar. A helpful (if somewhat metaphorical) characterization is provided by the neuroscientist James Austin (1998, 2000), who describes the usual sense of the self as an "I-Me-Mine" complex, involving three principal components. The self as "I" is an executive decision maker, or forceful subject, which is associated with feelings of pride

(or self-assertion). The self as “Me” is an object which is vulnerable to external circumstance, and is associated with feelings of fear. The self as “Mine,” meanwhile, is a possessive entity which desires control over people and opinions. Austin contends that this is the self which is weakened or eliminated in mystical experiences. During a mystical experience, the dissolution of the “I” leads to “freedom from compulsive doing, from ‘shoulds and oughts’” and to a sense of timelessness; the dissolution of the “Me” leads to fearlessness and to a sense of deep peace; and the dissolution of the “Mine” leads to experiencing “the world as *it* really is, without self-referrent attachments,” and “the world’s original diversity, coherence and Unity” (Austin, 2000, p. 228).

Hood (2002) also attempts to describe the transformation of the usual sense of the self that occurs during mystical experiences. He characterizes mystical experiences as involving the replacement of the usual sense of the self, which he calls the “reflexive self,” with another kind of self, which he calls the “transcendent self.” In other words, the usual sense of the self is lost, but another kind of self is gained. Hood believes that both the reflexive self and the transcendent self are characterized by a kind of unity, but that the unity of the reflexive self is different from that of the transcendent self. The unity of the reflexive self is the unity of the person—the sense one has of being identical with oneself over time, with goals, memories, and other psychological states and traits that are relatively stable and causally interconnected. The unity of the transcendent self is of a fundamentally different kind—the sense of one’s identity as a separate person passes away, and one feels united with some transcendent reality that is external to the limited, finite person. Hood (2002) describes the transcendent self phenomenologically as an experience of the self “devoid of all attributes” (p. 3). In other words, during a mystical

experience one's consciousness persists, but without all of the goals, memories, and other psychological properties that make up one's personal identity. Hood attempts to provide an account of mystical experiences that is valid for mystics from many different traditions, but it should be noted that Buddhists in particular would object to his contention that a new kind of self is experienced during mystical experiences, on account of their doctrine of *anatta*, or "no-self," which is the belief that there is no such thing as a substantial self or soul (the *anatta* doctrine will be explained in a little more detail below, in sections 1.5 and 2.5).

Stace (1960), meanwhile, distinguishes between two kinds of mystical experiences, which differ subtly in their phenomenology. "Introvertive" mystical experiences are characterized by a sense of the loss of self or boundlessness (that is, a sense that one does not exist as an entity separate from external reality), while "extrovertive" mystical experiences are characterized by a sense of unity in the world (that is, a sense of unity which includes things outside of oneself). Stace's distinction is recognized by several researchers (e.g. Hood, 1975), and it seems to have some empirical support (as will be discussed in section 4.7, below).

The preceding descriptions of the transcendence of the self during mystical experiences might give one the impression that such experiences are all of a piece, and that they are all absolutely distinct from ordinary waking consciousness. This is misleading, however, for there appears to be a continuum of mystical experiences, with varying degrees of intensity. D'Aquili (1986) refers to this continuum of mystical experiences as the "aesthetic-religious continuum." At one end of the spectrum is the most intense mystical experience possible, which he refers to as "Absolute Unitary

Being” (AUB) (d’Aquili, 1986; d’Aquili & Newberg, 1998, 1999; Newberg, d’Aquili, & Rause, 2002). At the other end of the spectrum is the least intense kind of mystical experience, which he characterizes as an “evanescent aesthetic sense” (d’Aquili, 1986). Lesser mystical experiences, which involve some weakening of the usual sense of the self, but not as much as in greater mystical experiences, are experienced by many people outside of a religious context (Newberg, d’Aquili, & Rause, 2002). Lesser mystical experiences include such states as intense aesthetic experiences, in which the self seems to be absorbed in the object of its aesthetic contemplation or appreciation.

While d’Aquili and Newberg’s concept of a spectrum of mystical experiences of increasing intensity seems plausible, some of their terminology in describing this spectrum is problematic. Specifically, whether a mystical experience is best characterized as aesthetic or religious does not seem to depend solely on its intensity, but rather on the cognitive interpretation which is given to it by the person who has the experience. A lesser mystical experience can be religious if it occurs in a religious context (such as during a religious ritual) or is otherwise subsequently interpreted in religious terms. Similarly, a greater mystical experience can be interpreted in aesthetic or otherwise non-religious terms. Mystics from philosophical traditions, for example, seem to have had experiences that d’Aquili and Newberg would classify as AUB, but they do not give them a religious interpretation (Plotinus, 1986).

Mystical experiences often involve other characteristics in addition to the transcendence of the self. For one thing, the transcendence of the self is often experienced in terms of a lack of orientation in space and time, that is, a feeling of timelessness or spacelessness. The sense of timelessness or spacelessness seems conceptually related to

the notion of self-transcendence, because when the usual sense of the self goes away, one loses as well one's usual sense of orientation in space and time. In addition, there are at least four other common characteristics of mystical experiences. After the transcendence of the self, the second common characteristic of mystical experiences is the sense that the experience is ineffable, that is, that it cannot be communicated or conceived of in words. The third is an increase in positive affect, such as feelings of peace, happiness, or joy. The fourth is increased empathy for one's fellow human beings (and sometimes for other creatures as well). The fifth is the so-called "noetic" quality of mystical experiences—that is, the sense that the experience imparts knowledge, specifically knowledge about the fundamental nature of reality. The discussion of mystical experiences in chapter 2 will contain examples of the first four characteristics. The noetic quality of mystical experiences, meanwhile, is revealed by the fact that mystics from all traditions interpret their experiences in terms of insight into some deeper reality (even though they disagree as to the nature of this reality, as will be discussed below).

1.4 Are All Mystical Experiences Religious?

Some of the mystical experiences discussed in chapter 2 occur within a religious context, but others do not. This may seem odd, for it is often assumed that all mystical experiences are religious, or that all religious experiences are mystical. In fact, however, religion consists of a great deal more than mysticism, and not all mystical experiences are given a religious interpretation. Instead, religious beliefs seem to arise independently of mystical experiences, and are then co-opted to explain them.

But what is "religion"? The definition of religion has been debated by researchers in the psychology of religion (see, for example, Emmons & Crumpler, 1999; Pargament,

1999a, 1999b; Spilka, Hood, Hunsberger, & Gorsuch, 2003; Stifoss-Hansen, 1999; Zinnbauer & Pargament, 2005). There may be no fixed set of necessary and sufficient conditions that identify something as religious. Nevertheless, for the purpose of this discussion we will adopt the cultural anthropologist Pascal Boyer's (2001) definition of religion. Boyer argues that the use of supernatural agents is an essential component of religious beliefs and practices (cf. Atran, 2004; Guthrie, 1995). Supernatural agents (gods and spirits) resemble humans in their thinking and in their values, but they are usually superior in terms of their power or access to information—especially “strategic information,” which is information about the moral behavior and social status of other people. Religion does not consist solely in the belief in supernatural agents, but religious beliefs and practices typically involve appeals to the existence of such agents. (Even Buddhism, which is often regarded as a non-theistic religion, appeals to the existence of beings with supernatural powers, including enlightened beings such as the Buddha, who can perform various *siddhis* or supernatural feats, to *bodhisattvas* or “future Buddhas” who can answer the prayers of the faithful; most traditional Buddhists also believe in various gods, such as the gods of ancient Brahmanism, or the gods traditionally worshipped in Tibet's indigenous Bon religion.) This definition of religion may be too broad, though, because it includes other forms of superstition, such as belief in magic or aliens, which are not always regarded as religious. The use of supernatural agents in explaining or justifying phenomena may be a necessary condition for identifying a belief or practice as religious, however, even if it is not quite a sufficient condition.

The close association between mysticism and religion is probably due to the fact that most religions have associated mystic traditions, and that many well-known mystics

have practiced mysticism within the context of a religious tradition (James, 1902; Smith, 1991; Underhill, 1911/1999). Not all mysticism is religious, however. Many schools of philosophy also have associated mystic traditions, for example, such as Neoplatonism (Plotinus, 1986), philosophical Taoism (Cleary, 2000), and Transcendentalism (Emerson, 1841/1992; 1843/1992). Psychologists of religion have discovered that people who identify themselves as “spiritual, but not religious” actually have higher rates of spiritual experiences than the general population (Hood, 2005). In addition, at least some advocates of a scientific worldview have advocated the practice of mysticism; examples include the neuroscientist James Austin (1998) and the popular writer on religion and skepticism Sam Harris (2004), among others. In addition, according to Bartocci and Dein (2005), the “peak experiences” studied by Maslow (1964) and others are the same as mystical experiences, but they are referred to under a different name, in order to distance them from the religious interpretations that are often given to the latter. The psychologist Charles N. Alexander interprets Maslow’s peak experiences in a similar way, comparing them to the transcendental experiences advocated by Alexander’s own school of mystic philosophy, Transcendental Meditation (Alexander, Rainforth, & Gelderloos, 1991). If these interpretations of peak experiences are accurate, then Maslow and others have effectively advocated the attainment of mystical experiences, while interpreting them in a scientific fashion.

Religion itself is concerned with more than just mysticism. For example, most religions also place great emphasis on the correct performance of religious rituals, and on adherence to divinely-sanctioned codes of morality. While most religions have associated mystic traditions, many of them treat mysticism as an esoteric practice, which should be

reserved for a select few, and which should be of little interest to the typical adherent of the faith. Indeed, some Westerners are either entirely unaware of, or else but ill-informed about, the mystic traditions associated with their own religions. Similarly, while mysticism often has a higher public profile in Hinduism and Buddhism than in Western religions, most practicing Hindus and Buddhists focus on the devotional or exoteric side of the religion, and not on the mystical or esoteric side. (As a consequence, the commonly held view that mysticism plays a more significant role in Eastern religions than in Western religions [see, for example, d'Aquili & Newberg, 1999, p. 7; p. 11] may well be mistaken.)

Thus, while mysticism is associated with religion because it is often given a religious interpretation, and while many mystics practice mysticism within the context of a religious tradition, mysticism is not an intrinsically religious affair. Not all mystics are religious, and religions are concerned with more than just mysticism. The actual relationship between mysticism and religion instead seems to be analogous to the relationship between religion and morality. Many people do as a matter of fact believe that morality is to be understood and justified on religious grounds, but there are also philosophical and scientific interpretations and justifications of morality, such that it cannot be regarded as intrinsically religious. Similarly, the supernatural agents characteristic of religious belief systems are often used to explain mystical experiences, but mystical experiences do not seem to be the *sine qua non* of religious belief systems, and mystical experiences can also be given other, non-religious explanations.

1.5 Religious and Philosophical Interpretations of Mystical Experiences

Historically, most mystics have adopted unscientific (religious or philosophical) interpretations of mystical experiences. Such interpretations can be “unscientific” in at least two ways. First, interpretations of mystical experiences themselves can be unscientific if they appeal to supernatural forces or agents in order to explain the generation or aftermath of such states. A Christian’s belief that a mystical experience is caused by union with God is an example of an explanation that is unscientific in this sense. Second, interpretations of mystical experiences can be unscientific in that they interpret the causes or consequences of such experiences within the context of a wider religious or philosophical theory, in a way that does not accord with the current best scientific explanation of the world. A Buddhist’s expectation that mystical experiences reached through meditation will have an effect on the number or quality of his future lives, or a Christian’s expectation that mystical experiences will improve the state of his immortal soul, are examples of interpretations that are unscientific in this second sense. The following discussion will focus on interpretations of mystical experiences that are unscientific in the former sense, because these interpretations are focused on the nature of the experiences themselves.

Despite the great diversity in religious and philosophical interpretations of mystical experiences, most of these interpretations can be placed within a handful of general categories. When a mystic experiences the transcendence of the self, the way he interprets this experience will often depend on the religious or philosophical ideology to which he has previously subscribed (or at least been exposed to). With respect to the interpretation of mystical experiences, these ideologies can be divided into four principal

categories: union (or communion) with a god or spirit; union (or communion) with an impersonal force or being; experiencing one's own true nature; and experiencing the fact that the self does not exist at all (or ever) as a separate entity.

The first type of interpretation of mystical experiences views them as experiences of union or communion with a god or spirit. The god or spirit is not thought of as being numerically identical with his or her worshippers, but through mystical experiences they can experience him or her more directly. The subject of the mystical experience interprets it either as an occasion of communion with the god (in which they have a shared experience), or as temporary union with him or her (where the separation between the worshipper and the god is temporarily annihilated). This type of interpretation of mystical experiences is usually associated with mystics from theistic religions, such as Jews, Christians, Muslims, and Hindus.

The second type of interpretation views mystical experiences as moments of union or communion with an impersonal force or being. This force or being is often thought of as a transcendent being which is above or beyond the world perceived through the senses (such as the Tao or Plotinus' One). As with the first category of interpretation, it is possible for mystics who adopt the second type of interpretation to say either that they have temporarily united with the impersonal being in question (union), or that they have simply briefly experienced the impersonal being without literally uniting with it (communion).

The third type of interpretation given to mystical experiences is that they are an experience of a higher or truer self (which may be a god or spirit). On this interpretation, the person having a mystical experience becomes aware of the true nature he has had all

along, or he participates in the experience of a god or spirit with whom he believes he is numerically identical. This type of interpretation does not view mystical experiences as events of communion or temporary union between two non-identical beings, but as events in which a person transcends a false or deceptive understanding of his true nature. Advaita Vedanta Hindus (Radhakrishnan, 1992; Vivekenanda, 1990) and Buddhists who are adherents of the *Tathagatagarba* or “Buddha Nature” school (see, for example, Lai, 1982) adopt this interpretation of mystical experiences.

The fourth type of interpretation given to mystical experiences is that they are experiences of the absence of a separate or independently existing self (called *anatta* or “no-self” in Buddhism). On this interpretation, the person having the mystical experience does not really exist at all, at least not in the way he usually thinks of or appears to himself as existing. Unlike in the previous type of interpretation, the mystical experience is not interpreted as being an experience of a higher or truer self. Instead, the person having the mystical experience transcends or lets go of a false view of his self, which is not replaced by any other positive conception. Most Buddhists adopt this fourth type of metaphysical interpretation of mystical experiences (Austin, 1998; Nhat Hanh, 1998; Rahula, 1974; Yeshe, 2001).

D’Aquili and Newberg claim that, while mystical experiences are essentially the same for mystics of all traditions, the interpretations given of them are subjective and made after the fact of the experiences themselves (Newberg, d’Aquili, & Rause, 2002). According to d’Aquili and Newberg, the brain contains “cognitive operators” which habitually interpret experiences in terms of previously conditioned conceptual categories. Mystics from different religious and philosophical traditions have already been

conditioned to interpret novel phenomena through different conceptual filters, and this diversity is supposed by d'Aquili and Newberg to explain the differences in their post-facto interpretations of mystical experiences.

However, when discussing the different interpretations given by mystics to their experiences, D'Aquili and Newberg (1999) err in their description of Hinduism, which they characterize as a basically impersonal or non-theistic religion. The Advaita Vedanta school of Hinduism does indeed have a relatively impersonal view of absolute reality, according to which Brahman can be conceived of as having the characteristics of a personal god (*saguna Brahman*), but is most accurately conceived of without such characteristics (*nirguna Brahman*). Advaita Vedanta is a minority view within Hinduism, however. It happens to be well-known in the West, mainly because of the popularity here of the treatises and commentaries of Shankara (c. 788-820 CE), the founder of Advaita Vedanta. Knowledge of Advaita Vedanta became relatively widespread in the West in the late 19th century, as a result of the work of the ecumenical Hindu reformers (and Advaita Vedantists) Ramakrishna and Vivekenanda (1990), and continuing into the 20th century, in part through the editions of Indian religious and philosophical works translated and edited by Sarvepalli Radhakrishnan (Radhakrishnan, 1992; Radhakrishnan & Moore, 1989), an adherent of Advaita Vedanta. Most Hindus, however, place a great deal of emphasis on devotion to a personal god or gods, unlike adherents of the Advaita Vedanta school. Many Westerners thus have a misleading or skewed view of Hinduism as a whole.

D'Aquili and Newberg (1998, 1999) also claim that the interpretation of mystical experiences varies as a function of the affect that is experienced along with them (which,

they claim, can be either positive or neutral). According to d'Aquili and Newberg, if mystical experiences are accompanied by positive affect, then they are given a personalized (theistic) interpretation. If accompanied by neutral affect, then they are given an impersonal (non-theistic) interpretation. This theory is problematic, however, because mystics from both theistic and non-theistic religious traditions seem to have experienced mystical experiences with neutral or positive affect. In Buddhism, for example, in addition to the final goal of *nirvana*, it is believed that a series of “lesser” states called the *jhanas* (“absorptions”) can be reached through concentration meditation (Buddhaghosa, 1999; Nanamoli & Bodhi, 2001; Walshe, 1995). The lower *jhanas* are accompanied by positive affect, while the higher *jhanas* are accompanied by neutral affect. Yet Buddhists do not interpret any of the *jhanas* in terms of union with a personal deity. Similarly, Christian mystics’ descriptions of mystical experiences contain a wide variety of associated affective valences and emotions, from fear and awe on the one hand to bliss and ecstasy on the other. But mystical experiences accompanied by negative or neutral affect are still interpreted as experiences of the soul’s contact with the personal God of Christianity. (This raises the further issue that some mystical experiences may actually be accompanied by negative affect, and not neutral or positive affect. Indeed, there is some empirical evidence that certain kinds of mystical experiences, or at least “quasi-mystical experiences” which resemble “genuine” mystical experiences in several respects, can be associated with an increase in negative affect, as will be discussed in section 4.7, below.)

1.6 Epilogue

Mystical experiences have been reported by members of many different religious and philosophical traditions. While some mystical experiences are spontaneous or the products of temporal lobe epilepsy, there are also many methods for deliberately attaining mystical experiences, such as meditation and ritual. Mystical experiences themselves involve the transcendence of the self, often accompanied by feelings of timelessness and spacelessness, as well as a sense of ineffability, positive affect, and increased empathy. Despite the close association that is often made between mysticism and religion, not all mystical experiences are religious. The variety of interpretations given to mystical experiences occasionally obscures their similarities, because the language used by mystics from different traditions is inevitably affected by their ideological or conceptual filters. Nevertheless, there are also extensive commonalities among the descriptions given to mystical experiences by mystics in different traditions, as will be made clear in the following chapter.

CHAPTER II. MANY PATHS, ONE SUMMIT

2.1 Introduction: Perennialism and Anti-Perennialism

Researchers who study mystical experiences often assume that there is a single type of altered state of consciousness which is experienced by mystics in different traditions. In order to help justify this assumption, the writings of mystics of several different traditions will be examined, to indicate where they seem to reflect the characteristic features of mystical experiences mentioned in chapter 1.

The principal feature of mystical experiences is self-transcendence, the weakening or elimination of the usual sense of a separately existing self. A second characteristic of mystical experiences is a sense of the ineffability of the experience; a third is feelings of positive affect; and a fourth is a sense of increased empathy for other beings (always including other humans, and sometimes including other living beings). A fifth characteristic of mystical experiences, their noetic quality, is reflected below in the conviction of mystics in different traditions that they have experienced ultimate reality, even though they interpret this reality in different ways.

There is a debate among scholars of mysticism, however, as to whether mystics from different traditions can really be said to have the same type of experience. “Perennialists”—so called after Aldous Huxley’s *The Perennial Philosophy*—argue that mystics the world over do indeed have the same type of experience (Huxley, 1944; James, 1902; Smith, 1987, 1991; Underhill, 1911/1999; White, 1995). “Anti-perennialists” (or “contextualists”), on the other hand, believe that mystics in different religious and philosophical communities of discourse cannot be seen as having the same experiences, since their religious or philosophical ideologies show that they conceive of

the experiences in different ways (Katz, 1978, 1983, 1992; Marzanski & Bratton, 2002a, 2002b; Proudfoot, 1985; Zaehner, 1957).

While it is true that mystics from different traditions interpret their experiences in terms of substantially different religious and philosophical ideologies, this doesn't necessarily mean that the actual phenomenology of their experiences differs (Bartocci & Dein, 2005; Hood, 2002). They will of course describe the experience in different ways on account of their differing interpretations of it, and these interpretations may subtly influence the experience itself, but this does not mean that each mystic's experience is *sui generis*. As Hood (2002) puts it, "experience need not be socially constructed even though knowledge *about* it is" (p. 10). Analogously, an Aristotelian physicist, a Newtonian physicist, and a General Relativity physicist will describe an apple falling from a tree using a different conceptual language and relying on different assumptions, but this does not mean that the phenomenology of their seeing the apple fall is essentially different.

On the other hand, there is also anecdotal evidence for the existence of more than one kind of mystical experience, which does not rely on the hypothesis that different interpretations make for different experiences. Within Buddhism, there are at least two spiritually significant altered states of consciousness, which are held to be fundamentally distinct, despite the fact that they both resemble in certain ways the conception of mystical experiences adopted by psychologists of religion. The first state is the aforementioned *jhana* or "absorption," which is an intense focusing or concentration of the mind. The second state is called *anatta* or "no-self," which is interpreted as insight into the true nature of the human self, which, according to Buddhism, is contingent, not

self-standing, and inherently bound up with the rest of existence. Buddhists also distinguish between several levels of *jhana* or absorption, based on how refined or deep one's concentration is, there being alternatively four or eight *jhanas* in all, depending on the passage of the Pali Canon one is looking at (see section 2.5, below).

In addition to the variety of states recognized within the Buddhist tradition, there is also at least one testimony by a Christian mystic which includes a distinction between two kinds of mystical states or experiences. Bernadette Roberts (1993), in her spiritual autobiography *The Experience of No-Self*, distinguishes between experiences of union between the individual soul and God, which are transient, and the experience of no-self, which is lasting, and which is not conceived of or experienced as a fellowship with the divine.

Nevertheless, the mystical experiences reported by mystics from different traditions do seem to have several features in common, which gives some support to the perennialist position (though it is of course possible that, at the end of the day, careful analysis will reveal that there is a diversity of types of mystical experiences). The following tour through the history of mysticism will be necessarily brief, but will include mystics from both religious and philosophical traditions, mystics from both Eastern and Western traditions, and mystics whose interpretations of their experiences fall into each of the four main categories of interpretation discussed in chapter 1. The discussion will begin with the mysticism of ancient Greek philosophers, in particular the Neoplatonists, whose interpretation of mystical experiences falls under the category of union with an impersonal being, "The One" (section 2.2). It will then turn to Christian mystics, whose interpretation falls under the category of union or communion with God (2.3). The next

section (2.4) includes descriptions of mystical experiences from some of the canonical scriptures of Hinduism, which have been interpreted in different ways by different Hindu sects and schools. The fourth tradition to be examined is Buddhism, which interprets mystical experiences as the experience of no-self (2.5). The fifth tradition is Taoism, which interprets mystical experiences as experiences of union or harmony with an impersonal principle, the Tao (2.6). The sixth and last to be examined is Ralph Waldo Emerson's Transcendentalism, an example of modern mysticism which seems to interpret mystical experiences variously as experiences of union with an impersonal being or with a personal God (2.7).

2.2 Ancient Greek Mysticism

The oldest records of mysticism in the West seem to come from Neoplatonism, one of the later schools of ancient Greek philosophy. There may have been both religious and philosophical antecedents to the Neoplatonic mysticism, however. Mysticism may have been practiced by ancient Greek seers and oracles, who entered trance states for the purpose of divination. In addition, members of mystery religions, which emphasized the attainment of occult knowledge through esoteric rituals, may also have practiced mysticism. Among early Greek philosophers, Pythagoras and his followers are the most likely candidates for having practiced mysticism. The Pythagoreans lived in quasi-religious communities, performed secret rituals, followed an elaborate set of rules for living, and cultivated esoteric knowledge.

The earliest relatively clear evidence of mystical experiences, however, comes from Plotinus (204-270 CE) and his followers, who are referred to by modern scholars as Neoplatonists. Plotinus regarded himself as a follower of Plato, but he in fact created a

new school of philosophy, which was influenced by Plato and other sources. Unlike Plato, Plotinus placed greater emphasis on mystical experiences than on philosophical discourse. Plotinus' mysticism had antecedents in Plato and Socrates, however, and forms of mysticism seem to have been practiced by other schools of ancient Greek philosophy, such as the Stoics. Some of these antecedents and parallels to Neoplatonic mysticism will therefore be briefly discussed, before returning to Plotinus himself.

Given Plotinus's acknowledged debt to Plato, it is perhaps not surprising that there are precursors of the disciple's mysticism in the works of the master. This tendency may have started with Plato's own mentor, Socrates, who would stand for long periods of time in reflective self-absorption (Hadot, 2002), and who claimed to receive divine signs from the god Apollo (Plato, 1997, p. 35 [*Apology*, 40a-c]). But a clearer precursor of Plotinus's mysticism emerges in Plato's theory of the forms. For Plato, the world of ordinary waking consciousness, which consists of the objects of perception (phenomena), is less real than the world of forms, which are invisible to the organs of sense, but perceivable to the intellect. The phenomenal world is, according to Plato, but an imperfect reflection of the world of forms. The forms are the ideal types from which all particular phenomena receive their being and essence.

The theory of forms began as a theory of knowledge, as an attempt to answer Socrates' probing queries into how human knowledge is possible. For Socrates, the properties of a particular substance—that is, of a particular existing thing—can only be known if one first has a clear and distinct understanding of the properties that one would attribute to it. One cannot know whether a given action is just, for example, unless one already has a clear and distinct understanding of justice itself. Plato's theory of forms

provides a solution to the problem of knowledge posed by Socrates, by postulating the existence of entities which have definite and unchanging properties, which can be known by the mind, and by means of which the properties of the objects of the phenomenal world can be subsequently determined.

The theory, once in place, lent itself to mystical interpretation. For Plato, the forms are accessible only through a process of rational intuition, which transcends not only sensory experience, but even the process of rational discourse or dialectic itself. Dialectic has the power of evoking or giving birth to the intuitive grasping of a form, but it cannot lead to it directly, as an argument leads to its conclusion. Knowledge of the forms rather transcends both perception and ordinary cognition, in a way that resembles the esoteric knowledge often claimed by mystics.

A second way in which Plato's theory of forms is reminiscent of mysticism is in his notion of the form of the Good. Despite the diversity of forms, which are in essence distinct and autonomous atoms of thought, there is for Plato an underlying unity in which the forms participate—analogous to the way in which several objects of perception can participate in a single form. This highest of the forms (or meta-form, if you will) Plato calls the Good. In his Allegory of the Cave, Plato compares the Good to the sun, without which the world of phenomena could be neither seen nor known by humans (Plato, 1997, pp. 1132 ff. [*Republic*, 514a ff.]). The Good is thus the final end of the philosopher's quest, for in knowing it he knows all the other forms which it illuminates, and thus the natures of the several substances of the world of phenomena. (Symbolizing the Good as the sun also recalls Socrates' devotion to Apollo, who as Phoebus was god of the sun, for

Socrates' devotion could then be interpreted as symbolizing his desire to know the form of forms, and thus to discover the key to all knowledge.)

Plato's theory of forms stops short of showing that he ever had a mystical experience, however. The theory comes close, though, even in the details of its exposition, such as Plato's depiction of the philosopher who seeks the Good as being blinded by this intelligible Sun, much as mystics have reported seeing light and being intellectually blinded or otherwise overwhelmed as a result of mystical experiences.

In addition to Plato, there are mystical elements in some of the other schools of Greek philosophy of the Hellenistic (post-Classical) period. The Epicureans, for example, engaged in ascetic practices, such as abstaining from all but the simplest food, drink, and shelter, and from sexual activity altogether (Epicurus, 1964, pp. 56-57 [130b-131a]). They also practiced careful introspection of the passions, in accordance with their belief that only "natural and necessary" desires should be satisfied, to bring about that peace of mind and absence of negative feeling which they regarded as the only sort of "pleasure" worth having (Epicurus, 1964, pp. 55 ff. [127b ff.]).

The situation is similar with respect to the Stoics. Several elements of their practice resemble techniques used by members of other religious and philosophical traditions to attain mystical experiences. The Stoics used such techniques as the examination of the conscience in order to cleanse the soul of its passions (Epictetus, 1983; Hadot, 2002; Marcus Aurelius, 2002; Seneca, 1997). It is through the rule of reason in the soul that the passions are extinguished, and the soul achieves a state of *apatheia*, or of peace and tranquility (and not "apathy" in the modern sense of the term). For the Stoics, the rule of reason in the soul is an image of the rule of reason in the cosmos, so

the attainment of *apatheia* is achieved only when the self transcends its own particular passions and in some sense unites or achieves harmony with the cosmic order. This view resembles Plotinus' account of the soul's union with The One in its outline and aim, but as with Epicureanism there is no written account of a mystical experience by a Stoic philosopher.

Though Plotinus regarded himself as an orthodox follower of Plato, his philosophy was indebted to other sources as well, and he synthesized these in a way uniquely his own. From Plato he received the doctrine of the forms, the existence of a form of forms, and the general outline of the theory of levels of reality. But there are at least two additional influences on Plotinus apart from his acknowledged debt to Plato. The first is Philo Judaeus (30 BCE-40 CE), from whom Plotinus seems to have derived his doctrine of "The One" (which is analogous to Plato's form of the Good). The second is the later Stoics, from whom Plotinus seems to have derived his conception of the individual self or soul.

In Plotinus, the unifying element implicit in Plato's conception of the Good takes center stage, and the plurality of the several forms and of the objects of perception recedes to the philosophical hinterland. Plotinus' conception of The One strongly resembles that of Philo, a Greek-speaking Jew well-versed in pagan philosophy, who sought to forge a synthesis between his faith and the philosophy of the Pythagoreans, Plato, and the Stoics. In this regard, Philo prefigures such later attempts to harmonize revealed religion with philosophy as those by the Muslim scholar Averroes, the Jewish scholar Moses Maimonides, and the Catholic scholar St. Thomas Aquinas (Wolfson, 1947).

Philo conceives of the God of the Hebrew Bible as The One, a pure being who transcends all attributes, even beauty, knowledge, or goodness. God's essence is thus ultimately unknowable (unlike Plato's form of the Good), and this is how Plotinus conceives of The One. Humans can experience The One when their souls unite with it through contemplation, but they can never know The One, because it is beyond all forms and is thus not accessible to the human intellect.

The second principal non-Platonic influence on Plotinus seems to have been the later Stoics, with respect to their conception of the individual self or soul. There are at least two ways in which Plotinus' conception of the soul resembles that of the later Stoa. First, for Plotinus as for the Stoics, the soul has freedom of the will, and this freedom is conceived of primarily as a choice to be ruled by reason, which leads to wisdom, virtue, and tranquility (the aim of human life), or to be ruled by the passions, which lead to suffering and vice. Second, the individual soul is thought to contain in it an image or reflection of the cosmic order, which is made manifest to the extent that it chooses to be ruled by impersonal and impartial reason, and not by the irrational passions particular to it. For Plotinus, the individual soul is able to unite with The One just because it resembles or reflects The One in the center of its being. (The individual soul is thus in some sense the image of The One, a notion that would be taken up by later Christians who regarded the soul as created in the image of God, and as being able to reunite with Him precisely because of this presence of the divine spark in every human breast.)

Though borrowing from these several sources, Plotinus emphasizes the philosophical and psychological significance of the soul's experience of The One much more than either Plato of the Good or Philo of God. For Plotinus, philosophy is first and

foremost a practice by which the soul achieves its ultimate aim, and not merely a theoretical understanding of the nature of the soul or of the world. Plotinus interprets mystical experiences in terms of the soul's union with The One. He compares the absorption of the soul in mystical experiences to the experience of being absorbed into one's reading (Plotinus, 1986, p. 30 [*Enneads*, I, 4, 10]). He says that when a soul is absorbed into The One, a person "ceases to be himself," because "he is one with it" (i.e., The One):

The man who obtains the vision becomes, as it were, another being. He ceases to be himself, retains nothing of himself. Absorbed in the beyond he is one with it, like a center coincident with another center. When the centers coincide, they are one. They become two only when they separate. (Plotinus, 1986, p. 87 [*Enneads*, VI, 9, 10])

For Plotinus, the ineffability of mystical experiences is partially a consequence of the soul's union with The One, because, he thinks, a soul cannot perceive The One as an object when it is united with The One:

What then is The One? What is its nature?

It is not surprising that it is difficult to say what it is when it is difficult to say even what being is or what form is, although there knowledge has some sort of approach through the forms. As the soul advances towards the formless, unable to grasp what is without contour or to receive the imprint of reality so diffuse, it fears it will encounter nothingness, and it slips away. Its state is distressing. It seeks solace in retreating down to the sense realm, there to rest as upon a sure and firm-set earth, just as the eye, wearied with looking at small objects, gladly turns to large ones. But when the soul seeks to know in its own way—by coalescence and unification—it is prevented by that very unification from recognizing it has found The One, for it is unable to distinguish knower and known. (Plotinus, 1986, p. 76 [*Enneads*, VI, 9, 3])

Plotinus also says that The One is beyond knowledge because knowledge presupposes multiplicity:

The chief difficulty is this: awareness of The One comes to us neither by knowing nor by the pure thought that discovers the other intelligible things, but by a presence transcending knowledge. When the soul knows something, it loses its unity; it cannot remain simply one because knowledge implies discursive reason and discursive reason implies multiplicity. . . .

Therefore we must go beyond knowledge and hold to unity. We must renounce knowing and knowable, every object of thought, even Beauty, because Beauty, too, is posterior to The One and is derived from it as, from the sun, daylight. That is why Plato says of The One, "It can neither be spoken nor written about." If nevertheless we speak of it and write about it, we do so only to give direction, to urge towards that vision beyond discourse, to point out the road to one desirous of seeing. (Plotinus, 1986, p. 78 [*Enneads*, VI, 9, 4])

Not only does Plotinus insist on the ineffability of mystical experiences, his view of the role of language in describing such states is reminiscent of the saying in Buddhist circles that the teaching of the Buddha is like “a finger pointing to the moon” and should not be taken for the moon itself (which symbolizes enlightenment).

There are several passages where Plotinus seems to associate the experience of The One with positive or peaceful affect. He says that in mystical experiences “my gaze has met a beauty wondrous and great” (Plotinus, 1986, p. 62 [*Enneads*, IV, 8, 1]). Since beauty is a positive aesthetic experience, this suggests that he associates positive feelings with experiencing union with The One. He also describes the union of the soul with The One as “ecstasy” (Plotinus, 1986, p. 32) and says that the “rational soul” (which is a soul that has risen above the body through union with The One) is “free of all passion” and therefore tranquil or apathetic in the Stoic sense.

Unlike most other mystics, however, Plotinus does not have much to say about an increase in empathy from the experience of mystical experiences. This may be because his writings focus mainly on how to attain union with The One and on the metaphysical and epistemological implications of this process, rather than on ethics or interpersonal relations.

Plotinus’s mysticism is often overlooked by modern students of mystical experiences, perhaps because his works are no longer widely studied by philosophers themselves. They provide a good example, however, of a relatively secular, “philosophical” mysticism from within the Western tradition. More familiar to most are Western mystics from religious traditions, including Judaism, Christianity, and Islam. It is to accounts of mystical experiences by Christian contemplatives that we now turn.

2.3 Christian Mysticism

The development of Christian mysticism was greatly influenced by Greek philosophy, including and especially that of Philo Judaeus and Plotinus. Philo in particular provided an example of the use of Greek philosophy to articulate a metaphysics and theology consistent with belief in the Judeo-Christian God, and also a theory of the soul's ascent to God through the practice of (mystical) contemplation. Christian contemplatives could also find much of use in Philo's theory of the mediating agencies between God and man. Influenced perhaps by Plato's theory of forms, Philo interpreted the angels or messengers of God (which had been part of Jewish belief at least since the Babylonian captivity) as thoughts or words (*logoi*) in the mind of God, through which the individual soul could contact him, on account of the reason common to them both. Connected with this doctrine is Philo's belief in a supreme *Logos*, which is the word and image of God, and which assists the rise of the contemplative's soul to the divine (Petrey, 1957). Christians interpreted Philo's supreme *Logos* as Jesus Christ, whose identity as the Word of God had been established in the Gospel of John (1:1; 1:14), and whose role as spiritual mediator between fallen humanity and divine perfection was fundamental to the doctrines of Christianity.

Plotinus, too, proved highly influential on Christian contemplatives' doctrines and practices. Whereas Plotinus had borrowed from Philo's conception of God in working out his own conception of The One, early Christian contemplatives, most notably Pseudo-Dionysius the Areopagite (2004), author of the *Mystical Theology* and the *Divine Names*, borrowed in turn from Plotinus' One in order to work out their conception of the God of the New Testament. Plotinus' conception of multiple levels of reality proved uniquely

suitable to Christian adaptation, because it could be assimilated into the doctrine of the Holy Trinity and of the fallen state of the created world. For Plotinus, existence is a series of emanations from The One towards pure non-being (or pure matter). Beneath The One is the world of forms, which are the discrete unchanging bases of all thought and knowledge. Beneath the world of forms is the soul, which is the source of life and movement in the world. These three levels of being were interpreted by Christians as corresponding to the three persons of the Holy Trinity—The One to God the Father, the world of forms to Christ (as *Logos* or Word of God), and the soul to the Holy Spirit (through which God created the world [Genesis 1:2] and through which he continues to manifest in it). For Plotinus, beneath the soul is the phenomenal world, the world of objects perceivable through the senses, which are but imperfect reflections or images of the forms, and which are essentially impermanent and indeterminate—and thus less real than the higher levels of existence. Christians for their part regarded the material world as the passive object of God's creation, and as inherently corrupt on account of the Temptation and Fall of man. In both systems, however, the corrupt nature of man is redeemable through the soul's progressive movement toward its source and end, The One or God.

The following discussion of the experiences of Christian mystics will focus on some of the most influential ones from the ancient and early medieval periods, since these writers helped form many later Christians' conceptions of mysticism. Specifically, the discussion will cover some of the works of John Cassian (ca. 360-435), Pseudo-Dionysius the Areopagite (flourished late 5th c.), Gregory the Great (ca. 540-604),

Bernard of Clairvaux (1090-1153), Bonaventure (1221-1274), and the anonymous author of *The Cloud of Unknowing* (an English work of the 14th century).

John Cassian practiced asceticism among the early Christian hermits of the Egyptian desert, who are often referred to as the “Desert Fathers” (and the most famous of whom is St. Anthony the Great). Cassian later moved to Provence (which was at that time part of Roman Gaul), where he introduced Christian monasticism to Europe. Cassian proposed two principal goals of contemplation: *apatheia* or “purity of heart” (evidently derived from the Stoic conception of tranquility of soul), and “pure, perpetual prayer,” which is steady communion of the soul with God (Petry, 1957, p. 31). Cassian describes pure, perpetual prayer as a “prayer of fire,” in which the individual soul is consumed by God. This description of mystical experience was echoed by many later Christian mystics. The notion of the soul’s being consumed by divine fire is suggestive of the essential features of mystical experiences; the individual’s finite, particular thoughts and passions are temporarily burned away in the throws of mystic ecstasy, and it is by means of this destruction of the self as it is usually experienced that the sense of unity with the divine is achieved.

Pseudo-Dionysius the Areopagite (also referred to as St. Denis) was perhaps the most influential of the early Christian mystics. His unwieldy name comes from the fact that his works used to be attributed to the early Christian convert referred to in the New Testament as Dionysius the Areopagite (Acts 17:34), but his works are now believed to have been written by another, unknown, author, sometime in the late 5th century CE (hence the “Pseudo-“). Dionysius directly influenced many later Christian contemplatives, including the author of *The Cloud of Unknowing*.

Together with St. Augustine of Hippo (who had studied Greek philosophy extensively before his conversion to Christianity), Dionysius was one of the principal streams through which Neoplatonic philosophy flowed into subsequent Christian theology and mysticism. Dionysius's writings echo the Neoplatonic theme that the soul's union with God involves a transcendence of intellect as well as of sensible form; God is experienced through an absence of sensation and knowledge, just as Plotinus' One is above both the intelligible and phenomenal worlds. When the soul unites with God, all conventional oppositions are transcended, and the soul experiences a "darkness clearer than light" (Petry, 1957, p. 34). This paradoxical description evokes the sense that, in experiencing God, the soul experiences a clarity and a sort of knowing, even though this knowing is "dark" in the sense that it is not intellectually conceivable and thus not communicable.

Gregory the Great was an early pope who also pursued an interest in contemplation. Gregory's life provided an early and compelling example of combining an active (i.e., socially and politically engaged) life with a contemplative (i.e., mystic) life, which inspired and informed many later Christian mystics. The works of Gregory the Great provide instances of at least two of the essential features of mystical experiences, self-transcendence and ineffability. With respect to the former, Gregory says that in contemplation one is raised by God above one's own nature (Petry, 1957, p. 31), and that the soul is elevated above itself through its love for God (*ibid.*, p. 39). With respect to the latter, Gregory says that when the soul is elevated above itself, it is raised above the intellect, and thus it cannot comprehend God (Petry, 1957, p. 39). He also says that the experience of God is an experience of light without limit, and that the soul is dazzled by

God's light (Petry, 1957, pp. 39-40). This description implies that the intellect is overwhelmed by God and cannot generate a positive conception of his nature.

For Gregory, the self is transcended through the love of God, and it is only through this experience of love that God can be known by the soul in contemplation. Gregory's use of the language of love to describe the experience of union with a personal God was adopted by many later Christian mystics; it is one of the chief differences which can be observed between the language used by those mystics who adopt an impersonal, non-theistic interpretation of mystical experiences, and those who adopt a personal, theistic interpretation of mystical experiences. The use of the language of love to describe mystical experiences is adopted by Christian, Muslim, and Hindu mystics, for example, while it is largely absent from the writings of Neoplatonic and Taoist mystics.

Bernard of Clairvaux followed Gregory's lead in using the language of love and human relationships to describe the soul's mystical union with God. Bernard was a Benedictine monk who was active in politics and society in addition to his contemplative practice. His worldly works include founding the monastery at Clairvaux in 1115, helping the Order of Templars gain official recognition by the Catholic Church in 1128, frequently intervening in papal and conciliar politics, and preaching on behalf of the Second Crusade in 1146.

With regards to his contemplative practice, Bernard distinguishes between four types or degrees of human love—the fourth and highest of which seems to represent to a mystical experience. He calls the first degree of love “the Love of Self for Self” (Petry, 1957, p. 60), which refers to the natural human tendency to care for one's own interests. The other three kinds of love have to do with the love of God. Bernard does not belittle

the need for one to love other people, but insists that the love of others must be rooted in the love of God:

But for our love of others to be wholly right, God must be at its root. No one can love his neighbor perfectly, unless it is *in God* he holds him dear. And nobody can love his fellow men in God who loves not God himself. We must begin by loving God; and then we shall be able, *in him*, to love our neighbor too. (Petry, 1957, p. 61)

Bernard thus conceives of the three degrees of loving God as steps toward self-transcendence. The second degree of love is “the Love of God for What He Gives” (Petry, 1957, p. 62), the third degree is “the Love of God for What He Is” (ibid.), and the fourth degree is “the Love Even of Self Only for God’s Sake” (ibid., p. 63). The fourth degree is the level of contemplation, in which the soul is married with God (ibid., pp. 47-48; 51). In this mystical marriage, the soul is “alienated” from itself (*abalienatio*) and is “ravished” (*raptus*), in which its private identity is destroyed through union with God (ibid., p. 48; pp. 51-52).

In addition to describing the loss of a sense of a separate self, Bernard uses the language of positive affect and of empathy for other humans in his descriptions of contemplation. In the fourth degree of love, the soul experiences “ecstasy” (*excessus*), and it is free from desire and fear (Petry, 1957, pp. 51-52); the joy that is experienced in the fourth degree of love is greater than any happiness that can be deliberately chosen (ibid., p. 64). And, as already mentioned, for Bernard the love of God is both a necessary and sufficient condition for the love of one’s fellow human beings.

St. Francis of Assisi is one of the most famous Christian mystics, in part because of the degree to which he personally embodied the Christian virtues of charity and humility. Francis had many intense mystical experiences, including an episode late in life in which he allegedly received the stigmata (the first Christian mystic ever to have done

so). However, Francis' writings do not contain very detailed descriptions of his contemplative practices. There is such an account from a member of the order of friars Francis founded, however. Bonaventure was a Franciscan friar, who wrote the *Life of Francis*, and who eventually became the minister general of the Franciscan order. He was greatly influenced by Francis's approach to spirituality, but he developed a more systematic philosophical exposition and interpretation of Francis's ideas.

Bonaventure divided the path of the mystic into six steps, which he symbolized by the six wings of a seraph (a type of angel described in the Old Testament [Isaiah 6:2-6]). The sixth and highest step leads to mystic rest (*requies mystica*). In this sixth stage of the path, man and God are united in ecstasy; the humanity of the mystic becomes ineffably united with God (Boas, 1953, pp. 41-42). Bonaventure describes this experience as the death of the soul (Boas, 1953, p. 45). He also says that the soul rises above itself in this experience:

In this immeasurable and absolute elevation of soul, forgetting all created things and liberated from them, thou shalt rise above thyself and beyond all creation to find thyself within the shaft of light that flashes out from the divine, mysterious darkness. (Petry, 1957, p. 141)

The language of union, death, and rising above oneself suggest the notion of self-transcendence.

Bonaventure's description of the soul's union with God also makes clear its ineffability and its association with positive affect:

Since, therefore, to arrive at this rapturous state of soul nature is of no avail and human industry of comparatively little value, little heed must be paid to inquiry but much to unctio, little account must be taken of human language but much of internal experience of joy, attention must be weaned away from words and writing so as to concentrate on God's gift to man, his Holy Spirit. (Petry, 1957, p. 140)

Bonaventure's conception of the mystic union with God as a "shaft of light that flashes out from the divine" to reach a human soul was used by other Christian mystics,

including the author of *The Cloud of Unknowing*. This metaphor fits well with Christian theology, for it maintains the notion of God's fundamental separateness from individual human souls, even as it allows for the possibility of their communion when God "extends" part of his being towards the subject of a mystical experience. The Christian mystic can thus interpret the experience as one of feeling the presence of part of God, without having to say that he literally becomes God for the duration of the experience. As the author of *The Cloud* puts it:

Then perhaps he will at times send out a beam of spiritual light, piercing this cloud of unknowing that is between you and him, and show you some of his mysteries, of which human beings are not permitted or able to speak. (Spearing, 2001, p. 52)

While the author of *The Cloud* does not speak directly of the soul's union with God, he uses language which suggests the elimination of the sense of a separate self during contemplation. He says that the only way to experience God is to "break down all knowledge and feeling" of oneself, because these stand in the way of "perfect contemplation":

So break down all knowledge and feeling of every kind of created being, but most forcibly of yourself. For knowledge and feeling of all other created beings depends on knowledge and feeling of yourself, since, in comparison with yourself, all other created beings are easily forgotten. If you are eager to set about testing this, you will find, when you have forgotten all other created beings and all that they do, yes, and also all that you yourself do, that there will still remain, between you and your God, a naked knowledge and feeling of your own existence; and that knowledge and feeling always need to be destroyed, before it comes about that you can truly experience perfect contemplation. (Spearing, 2001, p. 66)

As the title of his work suggests, the author of *The Cloud of Unknowing* places great emphasis on the ineffability of the experience of contemplation:

Do not suppose, because I call it a darkness or a cloud, that it is a cloud condensed out of the vapours that float in the air, or a darkness like that in your house at night when your candle is out . . . For when I say 'darkness' I mean an absence of knowing, in the sense that everything you do not know, or have forgotten, is dark to you, because you cannot see it with your mind's eye. And for this reason it is not called a cloud in the air but a cloud of unknowing that is between you and your God. (Spearing, 2001, p. 26)

But now you ask me, 'How am I to think of God himself, and what is he?' And to this I can only answer, 'I do not know'.

For with your question you have brought me into that very darkness and that very cloud of unknowing that I want you to be in yourself. By grace it is possible to have full knowledge of created things and their works, and indeed of the works of God himself, and to think clearly about them, but of God himself no one can think. (Spearing, 2001, p. 27)

The degree of emphasis that the author of *The Cloud* places on the ineffability of God resembles that of Pseudo-Dionysius the Areopagite (also known as “St. Denis”), and indeed he makes this debt clear by quoting directly from Dionysius when he is explaining the soul’s inability to know God:

However much spiritual understanding a person may have in knowing about all created spiritual beings, still by the work of his understanding he can never gain knowledge of an uncreated spiritual being—which is God alone. By the failure of understanding he can do so, because the one thing in which it fails is nothing but God alone. It was for this reason that St Denis said, ‘The godliest knowledge of God is that which is known through ignorance’. (Spearing, 2001, p. 96)

While the author of *The Cloud* focuses on the ineffability of the experience of communion with God, he also says things which indicate the positive affect and increased empathy associated with the experience. With regard to the former, he describes the experience of contemplation as akin to the ravishment or ecstasy of sexual intercourse (Spearing, 2001, p. 42; n. 42). With regards to the latter, he says that contemplation is associated with “charity” or love both for God and for one’s fellow creatures:

What has been said of humility—how it is subtly and completely contained within this little blind thrust of love when it is beating upon the dark cloud of unknowing, with everything else thrust down and forgotten—should also be understood of all other virtues, and especially of charity. For you should understand that charity means nothing but to love God for himself above all created beings, and to love other human beings equally with yourself for God’s sake. . . .

And it appears from this experience that in this way the second and lower branch of charity, towards your fellow Christians, is truly and completely fulfilled. A perfect worker in contemplation has no regard to any specific person for his own sake, whether kin or stranger, friend or foe; for all alike seem kin to him, and none seem a stranger. (Spearing, 2001, p. 49)

2.4 Hindu Mysticism

It is somewhat misleading to speak of Hinduism as if it were a single religious tradition, because of the diversity of theologies and philosophies which it incorporates. There is of course considerable diversity in any religious tradition, but this is particularly

the case with Hinduism; the term was invented to designate the various religions native to India, primarily to distinguish them from the foreign religions of Christianity and Islam. There are thus many different Hindu sects and philosophical schools; different gods are worshipped in different places, the same gods are worshipped differently in different places and by different sects, and different philosophical and theological interpretations are given to the same scriptures by different schools and sects.

Some of the religions and philosophical schools and sects native to India are sufficiently beyond the pale to be considered “heterodox,” and thus non-Hindu, however. What distinguishes them from the various “orthodox” schools and sects is their rejection of the authority of the Vedas (the most ancient Hindu scriptures), and of the special religious authority of the hereditary caste of Brahmins or priests. Among the principal (orthodox) Hindu sects are those devoted to the worship of one god above the others, such as Vishnu (whose devotees are referred to as “Vaishnavites”), Shiva (“Shivites”), or one of the many Hindu goddesses (“Shaktas”). Among the principal schools of Hindu philosophy are those who interpret the nature of Brahman or absolute reality in different ways, such as the non-dualistic or Advaita Vedanta school, the qualified dualists or Vishnishta Advaita Vedanta school, and the dualistic or Sankhya school. The principal heterodox sects, meanwhile, include Jains (followers of the prophet Mahavira), Buddhists, and (historically) the advocates of the skeptical and materialistic school of philosophy known as Carvaka.

The following discussion of Hindu mysticism will focus on descriptions of mystical experiences found in scriptures that are regarded as canonical by all of the orthodox sects and schools. While the Vedas do not seem to include descriptions of

mystical experiences, such descriptions can be found in the *Upanishads* and in the *Bhagavad Gita*. The *Upanishads* are a group of texts which were evidently composed to impart esoteric knowledge from a religious teacher to a select group of disciples (their name literally means “sitting down near,” which has been interpreted as referring to pupils sitting down to hear the sacred teachings at the feet of their master). Their esoteric nature contrasts with the Vedas’ emphasis on the correct performance of rituals, with the emphasis on caste duty of the group of scriptures known as the *Dharmashastras*, and with the emphasis on devotion to a god found in the group of scriptures known as the *Puranas*.

The *Bhagavad Gita* is a part of a long epic called the *Mahabharata*, which is about the struggle between two rival factions of an ancient royal house in northern India. The *Mahabharata*, together with the *Ramayana* epic, is one of the two most important works of Hindu literature, occupying a position similar to that of the *Iliad* and *Odyssey* in ancient Greece. The *Gita* is often considered an *Upanishad*, however, because of the esoteric nature of its subject matter.

The *Upanishads* serve as the basis for most subsequent Hindu mysticism. Passages from some of the more well-known *Upanishads* will be examined below, to show that they portray three of the characteristics associated with mystical experiences—self-transcendence, ineffability, and positive affect. (The *Upanishads* do not have much to say about an increase in empathy associated with mystical experiences, but many other Hindu works do, including the *Bhagavad Gita*.)

The *Upanishads* characterize mystical experiences in terms of the union of the individual self or soul (*jiva atman*) with either a universal Self (Atman) or with a

transcendent reality, Brahman. Atman and Brahman should not be conceived of as two separate or competing transcendent realities, however, as they are equated with one another in the *Upanishads* themselves (Radhakrishnan & Moore, 1989, pp. 52-53 [*Mundaka Upanishad*, II.i.1-10]).

The union of the individual soul with Atman or Brahman is also sometimes described as the individual soul's beholding, apprehending, or knowing the ultimate reality:

One who is without the active will beholds Him, and becomes freed from sorrow—
When through the grace of the Creator he beholds the greatness of the Self. (Radhakrishnan & Moore, 1989, p. 46 [*Kena Upanishad*, II.20])

There are two knowledges to be known—as indeed the knowers of *Brahman* are wont to say: a higher (*para*) and a lower (*apara*). . . .
Now, the higher is that whereby that Imperishable is apprehended. . . .
That which is invisible, ungraspable, without family, without caste—
Without sight or hearing is It, without hand or foot,
Eternal, all-pervading, omnipresent, exceedingly subtle;
That is the Imperishable, which the wise perceive as the source of beings. (ibid., p. 51 [*Mundaka Upanishad*, I.i.4-6])

Other passages make it clear that when a person “knows” or “apprehends” Atman or Brahman, then his individual soul is united with it (and he thus ceases to exist as a separate being):

Attaining Him, the seers who are satisfied with knowledge,
Who are perfected selves, from passion free, tranquil—
Attaining Him who is the universally omnipresent, those wise,
Devout selves into the All itself do enter. . . .
As the flowing rivers in the ocean
Disappear, quitting name and form,
So the knower, being liberated from name and form,
Goes into the Heavenly Person, higher than the high.
He, verily, who knows that supreme *Brahman*, becomes very *Brahman*. . . . (Radhakrishnan & Moore, 1989, p. 55 [*Mundaka Upanishad*, III.ii.5-9])

The *Upanishads* say that Brahman cannot be understood or comprehended, which represents the ineffability of mystical experiences:

There the eyes go not;
Speech goes not, nor the mind.
We know not, we understand not

How one would teach It [*Brahman*].
 Other, indeed, is It than the known,
 And moreover above the unknown. (Radhakrishnan & Moore, 1989, p. 42 [*Kena Upanishad*, I.3])

It is conceived of by him whom It is not conceived of.
 He by whom It is conceived of, knows It not. (ibid. [*Kena Upanishad*, II.3])

Not by speech, not by mind,
 Not by sight can He be apprehended.
 How can He be comprehended
 Otherwise than by saying “He is”? (ibid., p. 49 [*Katha Upanishad*, VI.12])

The experience of Brahman is associated with bliss, freedom from passion, and tranquility, which represent the positive affect associated with mystical experiences:

Attaining Him, the seers who are satisfied with knowledge,
 Who are perfected selves, from passion free, tranquil—
 Attaining Him who is the universally omnipresent, those wise,
 Devout selves into the All itself do enter. (Radhakrishnan & Moore, 1989, p. 55 [*Mundaka Upanishad*, III.ii.5])

He performed austerity. Having performed austerity, he understood that *Brahman* is bliss.
 (ibid., p. 63 [*Taittiriya Upanishad*, III.5-6])

“An ocean, a seer alone without duality, becomes he whose world is *Brahman* . . . This is a man’s highest path. This is his highest achievement. This is his highest world. This is his highest bliss. . . .” (ibid., p. 87 [*Brihadaranyaka Upanishad*, IV.iii.32])

The *Bhagavad Gita* is often counted among the *Upanishads*, but it was written after the ones cited here, and differs from the earlier *Upanishads* in at least two respects. First, the *Gita* places emphasis on devotion to or worship of the god Vishnu, whose avatar (incarnation), Krishna, is portrayed as an embodiment of the transcendent Brahman. In this respect the *Bhagavad Gita* resembles the *Puranas*, which are directed at the worship of a particular deity. Second, the *Gita* places more emphasis than the other *Upanishads* on the forms of external activity that are associated with the realization of Brahman, instead of focusing on the internal activities and states of mind associated with Brahman (which is the main focus of the other *Upanishads*). Among these external aspects is the correct performance of one’s caste duty, but also the experience and

practice of empathy for one's fellow creatures, which is portrayed as a consequence of the realization of the ultimate reality.

Like the other *Upanishads*, the *Bhagavad Gita* portrays the realization of Brahman as involving the union of the individual soul or self with a transcendent reality:

The man who sees Brahman abides in Brahman: his reason is steady, gone is his delusion. When pleasure comes he is not shaken, and when pain comes he trembles not.

He is not bound by things without, and within he finds inner gladness. His soul is one in Brahman and he attains everlasting joy.

For the pleasures that come from the world bear in them sorrows to come. They come and they go, they are transient: not in them do the wise find joy.

But he who on this earth, before his departure, can endure the storms of desire and wrath, this man is a Yogi, this man has joy.

He has inner joy, he has inner gladness, and he has found inner Light. This Yogi attains the Nirvana of Brahman: he is one with God and goes unto God.

Holy men reach the Nirvana of Brahman: their sins are no more, their doubts are gone, their soul is in harmony, their joy is in the good of all. (Mascaro, 1962, p. 29 [5.20-25])

This passage also makes clear that the realization of Brahman is associated with positive affect ("joy" and "gladness"). Furthermore, the reference to taking joy "in the good of all" reflects the theme of increased love for one's fellow creatures, which is, as in Christian mysticism, seen as intertwined with the love of God (Krishna-Vishnu-Brahman):

The Yogi who pure from sin ever prays in this harmony of soul soon feels the joy of Eternity, the infinite joy of union with God.

He sees himself in the heart of all beings and he sees all beings in his heart. This is the vision of the Yogi of harmony, a vision which is ever one.

And when he sees me in all and he sees all in me, then I never leave him and he never leaves me.

He who in this oneness of love, loves me in whatever he sees, wherever his man may live, in truth this man lives in me.

And he is the greatest Yogi he whose vision is ever one: when the pleasure and pain of others is his own pleasure and pain. (Mascaro, 1962, pp. 33-34 [6.28-32])

2.5 Buddhist Mysticism

Most Buddhists interpret mystical experiences in terms of an experience of *anatta* or no-self, which is the view that there is no such thing (ever) as a separately existing self, and that the usual view one has of oneself as being inherently separate from other beings is illusory. There are many kinds of Buddhism, however, and they have different interpretations of the no-self doctrine, as well as different views about the nature and role of meditation in realizing the truth of no-self. The three main kinds of Buddhism are Theravada, Mahayana, and Vajrayana (also known as Tantric Buddhism or Lamaism). Theravada (“Way of the Elders”), called Hinayana (“Lesser Vehicle”) by Mahayanists, is the oldest surviving branch of Buddhism, and its scriptures (the Pali Canon) are the oldest extant Buddhist texts. Theravadins view the realization of *nirvana* as being essentially different from *samsara* (the world of suffering and delusion), they tend to place a greater emphasis on personal effort rather than on prayer to Buddhas or *bodhisattvas* (future Buddhas), and they usually regard entry into the *sangha* (community of monks) as being a necessary condition for the attainment of *nirvana*. Mahayana (“Greater Vehicle”) Buddhists view *nirvana* as not essentially different from *samsara*, they tend to place a greater emphasis on the intervention of *bodhisattvas* to aid the faithful, and they place less of an absolute distinction between the spiritual prospects of the clergy and the laity. Vajrayana, which is sometimes regarded as a branch of Mahayana, emphasizes devotion to a personal guru or teacher (whether a god, *bodhisattva*, or human master) to enable a practitioner to make progress towards enlightenment.

The Buddhist concept of *jhana* or “absorption” (also called *samadhi*, and *satori* in Japanese Zen) seems to be an example of a mystical experience. The Pali Canon

describes concentration meditation (*samadhi*) as leading to a series of *jhanas* of increasing refinement, which can eventually result in insight into the truth of no-self. Some sutras (“discourses”) of the Pali Canon list a series of four *jhanas*, while others describe eight *jhanas* (consisting of the previous four plus a series of four additional “formless” *jhanas*). The first four *jhanas* are characterized by various kinds of positive or peaceful affect. The first *jhana* is characterized by positive affect (“delight and happiness”), but is also accompanied by “a true but subtle perception” (that is, by discursive thought, which is elsewhere referred to as “thinking and pondering”):

Having reached the first jhana, he remains in it. And whatever sensations of lust that he previously had disappear. At that time there is present a true but subtle perception of delight and happiness, born of detachment, and he becomes one who is conscious of this delight and happiness. (Walshe, 1995, p. 161 [*Digha Nikaya*, 9.9-10])

The second *jhana* retains both the delight and happiness of the first, but the discursive thought goes away:

Again, a monk, with the subsiding of thinking and pondering, by gaining inner tranquility of mind, reaches and remains in the second jhana, which is free from thinking and pondering, born of concentration, filled with delight and happiness. (Walshe, 1995, p. 161 [*Digha Nikaya*, 9.11])

When someone reaches the third *jhana*, the feeling of delight goes away, and a feeling of equanimity joins the feeling of happiness. This seems to mean that the person feels peace or calm instead of a more visceral joy:

Again, after the fading away of delight he dwells in equanimity, mindful and clearly aware, and he experiences in his body that pleasant feeling of which the Noble Ones say: “Happy dwells the man of equanimity and mindfulness”, and he reaches and remains in the third jhana. His former true but subtle sense of delight and happiness born of concentration vanishes, and there arises at that time a true but subtle sense of equanimity and happiness. . . (Walshe, 1995, p. 161 [*Digha Nikaya*, 9.12])

In the fourth *jhana*, happiness vanishes, to be replaced by pure equanimity or peace of mind:

Again, with the abandonment of pleasure and pain, and with the disappearance of previous joy and grief, he reaches and remains in the fourth jhana, a state beyond pleasure and pain, purified by equanimity and mindfulness. His former true but subtle sense of equanimity and happiness

vanishes, and there arises a true but subtle sense of neither happiness nor unhappiness. . . (Walshe, 1995, p. 162 [*Digha Nikaya*, 9.13])

The fifth *jhana* seems to be characterized by a sense of spacelessness (which was associated above with the transcendence of the self):

Again, by passing entirely beyond bodily sensations, by the disappearance of all sense of resistance and by non-attraction to the perception of diversity, seeing that space is infinite, he reaches and remains in the Sphere of Infinite Space. (Walshe, 1995, p. 162 [*Digha Nikaya*, 9.16])

The sixth *jhana* is called the “Sphere of Infinite Consciousness,” and is likewise suggestive of the experience of self-transcendence, since the latter is characterized both by conscious awareness and also by the sense that this awareness has no spatial limits or location. The seventh *jhana*, meanwhile, which is called the “Sphere of No-Thingness,” suggests the ineffability of mystical experiences, as does the eight *jhana*, which is called the “Sphere of Neither-Perception-Nor-Non-Perception.”

In addition to the scriptures, practitioners of Buddhist meditation report experiences that seem to share the characteristics of mystical experiences. Walpola Rahula, for example, in his *What the Buddha Taught* (an introduction to Buddhism), provides a brief description of the kind of experience which can be reached through practicing mindfulness meditation:

After a certain period, you will experience just that split second when your mind is fully concentrated on your breathing, when you will not hear sounds nearby, when no external world exists for you. This slight moment is such a tremendous experience for you, full of joy, happiness and tranquility, that you would like to continue it. But still you cannot. Yet if you go on practicing this regularly, you may repeat the experience again and again for longer and longer periods. That is the moment when you lose yourself completely in your mindfulness of breathing. (Rahula, 1974, p. 70)

The experience of self-loss described by Rahula seems similar to the positive affect, tranquility, and sense of spacelessness and limitless awareness that characterize the *ghanas*. Buddhists thus seem to associate both concentration and mindfulness meditation with states of consciousness suggestive of mystical experiences.

2.6 Taoist Mysticism

In the West, Taoism is chiefly known through the *Tao Te Ching*, a philosophical work attributed to the legendary figure Lao Tzu. Lao Tzu is traditionally conceived of as having been an older contemporary of Confucius (551-479 BCE), but he is probably a literary creation corresponding to no actual historical personage (Lau, 1963, pp. xi-xii). The *Tao Te Ching* has many mystical elements, particularly its notion of the Tao or “Way,” which is conceived of as an impersonal force or principle underlying all of existence, and which individual human beings can somehow contact or form a harmonious relationship with. The *Tao Te Ching* is also a work of political philosophy, however, giving practical advice to rulers, like many other philosophical works composed in China during the chaotic Warring States period (475-221 BCE).

While the *Tao Te Ching* is usually considered the first “Taoist” work, it must be understood that, when it was written, Taoism did not exist as a distinct religion or school of thought. Centuries later, a group of independently-composed works, including the *Tao Te Ching* (also referred to as the *Lao Tzu*, after its supposed author) and the *Chuang Tzu*, were retrospectively grouped together as belonging to a single “school” of thought, because of the perception that they had certain fundamental conceptions or assumptions in common. These include a (similar) conception of the Tao or Way of nature, and an emphasis on naturalness and spontaneity as the keys to a happy or successful life (in contrast to the Confucians’ emphasis on custom and propriety, for example). New works of self-consciously “Taoist” philosophy were subsequently composed, including (but not limited to) influential commentaries on the earlier Taoist classics.

While Taoism began as a school of philosophy, with its own characteristic political, ethical, metaphysical, and even epistemological views, and works of Taoist philosophy continued to be written for many centuries, a distinctively Taoist religion also developed out of (and in tandem with) philosophical Taoism. While the distinction between Taoism as a philosophy and Taoism as a religion is not absolute, it has long been recognized in China and by Taoists themselves. Taoist religion incorporates works of Taoist philosophy as sacred texts, but also includes worship of gods, and such distinctively religious features as organized doctrinal sects, temples and shrines, and orders of monks.

Mysticism seems to have been practiced both by philosophical and religious Taoists. The texts which will be discussed below are probably most accurately associated with philosophical Taoism, but mysticism is also an essential part of religious Taoism (where it is practiced by Taoist monks, for example). (Indeed, the distinction between philosophical and religious Taoism is perhaps least clear or compelling in the realm of mysticism, since their shared interpretation of mystical experiences and concepts seems to be one of the principal common features between the two approaches to or aspects of the Taoist tradition.)

Taoist mysticism also bears a special relationship to Buddhism, having both influenced and been influenced by it in turn. The Zen (Chan) sect of Buddhism, for example, which originated in China, was greatly influenced by philosophical Taoism, particularly in its emphasis on naturalness, spontaneity (*wei wu wei* or “doing not-doing”), and its conception of the Tao as a single order or principle underlying all of nature, and connecting the individual to the wider world. The notion of the Tao was

partially assimilated to the Mahayana notion of the “Buddha Nature,” which supposedly underlies all existence, including individual human beings. However, Taoists also borrowed from various branches of Chinese Buddhism, such as in the adoption of some apparently Buddhist methods of meditation, and in the creation of organized monastic orders (which did not exist in China prior to the introduction of Buddhism).

Despite the great popularity in the West of a few Taoist works (especially the *Tao Te Ching* and the *Chuang Tzu*), much of the Taoist canon has still not been translated into Western languages. This is unfortunate, because it tends to reinforce a rather limited interpretation of Taoism, especially one which downplays the significance of religious Taoism, Taoist alchemy, and Taoist meditation techniques. The selections from the writings of Taoist mystics discussed below are from an anthology on Taoist meditation prepared by the contemporary scholar Thomas Cleary (2000). This anthology contains works from several different periods of Chinese history, including the Tang (618-907), Song (960-1279), Ming (1368-1644), and Qing (1644-1911) dynasties. While the various works in the anthology come from different periods and also represent different schools of thought or doctrinal tendencies within Taoism, they share a distinctively Taoist conception of meditation and mystical experience.

The first work in Cleary’s anthology is an anonymous Ming dynasty text referred to as the *Anthology on the Cultivation of Realization*. The *Anthology*’s description of mysticism displays three of the essential features of mystical experiences, including the transcendence of the self, ineffability, and positive affect. Like most Taoist works, the *Anthology* conceives of the elimination of the sense of a separate self in terms of the union or merging of this self with the Tao or Way of nature:

The work of learning the Way requires greater intimacy with each passing day, greater intimacy with each passing hour. Eventually you develop spontaneous familiarity and unite with the Way. (Cleary, 2000, p. 68)

The ineffability of the Tao is a major theme in Taoism, beginning with the opening lines of the *Tao Te Ching*:

The way that can be spoken of
Is not the constant way;
The name that can be named
Is not the constant name. (Lau, 1963, p. 5 [I, 1])

Similarly, the *Anthology* says that one will experience “subtleties beyond the power of words to express” if one engages in meditation correctly:

If you look inwardly for a long time, not only will your mind be present, your mind will ultimately stabilize.

Spirit and energy united and stabilized, in ecstasy you first awaken. The heaven and earth of reality commune, with subtleties beyond the power of words to express. (Cleary, 2000, p. 65)

The experience of “ecstasy” or positive affect as a result of union with the Way is echoed in other passages of the *Anthology*, where it is described variously as joy, calmness, or happiness:

Thinking about the Way is correct; thinking about things is error. The Way is inherent in us; when you think about the Way inherent within us, thinking itself is the Way. When thought reaches the realm of subtlety, the comprehending mind, clear and clean, is buoyant and joyful. (Cleary, 2000, p. 28)

A proverb says that sages accomplish the ultimate human attainment based on calmness. The ultimate attainment is great balance as a human being. Sages are based in calmness, not because they think calmness is good and so they focus on it, but because nothing disturbs their minds. They are naturally calm without seeking calmness. (ibid., p. 75)

No happiness is greater than attaining the Way. A day learning the Way is a day of happiness; every day learning the Way is everyday happiness; a lifetime learning the way is lifetime happiness. Learning the Way is basically a method of peace and happiness; that is why sages study it tirelessly. (ibid., p. 76)

Another work in Cleary’s anthology is the *Treatise on Sitting Forgetting*, which was composed in the Tang dynasty (618-907) by Sima Chengzhen. Like the *Anthology on the Cultivation of Realization*, the *Treatise on Sitting Forgetting* displays three of the

essential characteristics of mystical experiences. The first is the union of an individual with the Tao as a result of the practice of meditation (“sitting forgetting”):

When sitting forgetting, what is not forgotten? Inwardly you do not notice your own body; outwardly you are not aware of the universe. As you mystically unite with the Way, myriad cogitations all disappear. (Cleary, 2000, p. 82)

When you clear away the defilement of mind and open up the conscious spirit, that is called cultivating the Way. When you no longer flow in waves, and you merge with the Way and rest in the Way, this is called returning to the root. (ibid., p. 85)

The Tao is also portrayed as being ineffable, in that it “transcends form and flavor” and it “cannot be fathomed”:

Now seeing as how the ultimate Way transcends form and flavor, and true essence is apart from objects of desire, how then could one hear of the rarefied and subtle and believe in it, or hear of the imageless and not be confused? (Cleary, 2000, p. 82)

The Way is something miraculous. It is effective and has an essence, yet it is immaterial and has no form. It cannot be fathomed retrospectively or prospectively, cannot be sought by reflections or echoes. No one knows why it is so, yet it is so. (ibid., p. 98)

Finally, merging with the Tao produces tranquility and calmness (peaceful affect), which is referred to as “tranquil stabilization”:

Stabilization is the final stage of escape from the profane, the foundation of attaining the Way, the accomplishment of cultivated stillness, the consummation of maintaining calm.

When the body is like a withered tree, the mind like dead ashes, without reactivity, without seeking anything, this is the epitome of tranquility. There is no mindfulness of stabilization, yet there is no instability. Thus it is called tranquil stabilization. (Cleary, 2000, p. 95)

2.7 Transcendentalism

Transcendentalism was a literary and philosophical movement which flourished briefly in America in the first half of the 19th century. Its chief figures were Ralph Waldo Emerson and Margaret Fuller, and the other members of their literary and artistic circle. Emerson defined Transcendentalism as the form of “Idealism” then prevalent in the New England of his time (Emerson, 1843/1992, p. 81). He contrasts idealism with materialism, associating materialism both with the belief that only matter exists and that only material (as opposed to mental) things are important. Transcendentalism was influenced by the

Romantic movement in the arts and letters, which was then in vogue in Europe, and in particular by the interpretation of the philosophy of Immanuel Kant adopted by the German Idealists of the early 19th century. The German Idealists believed that the material world is known only through sense experience, which is within and conditioned by the contours of human consciousness, and must therefore be regarded as a product of the human mind. Emerson and the other New England Transcendentalists took this metaphysical view and associated it with what can only be described as a form of mysticism, which he most fully explores in an essay entitled “The Over-Soul” (Emerson, 1841/1992).

Emerson interprets mystical experiences in terms of the union of an individual human being with the “Over-Soul,” which is his name for transcendent reality. He occasionally uses theological language to describe the Over-Soul—words such as “God” and “divine”—but he also describes it as “impersonal” (Emerson, 1841/1992, p. 241), and in general avoids ascribing human-like qualities to it, in contrast to the language usually used by Christians. (Emerson was himself a Unitarian minister, until leaving the church due to a doctrinal dispute over the rite of communion.) It is possible that Emerson’s use of theistic language to describe the Over-Soul is purely vestigial, a mere hold-over or reflexive way of speaking left over from his days as a Christian; it is also possible, however, that Emerson indeed conceived of the Over-Soul in quasi-theistic terms, and thus attempted to chart a middle course between the straightforward theism of Christian mystics and a straightforwardly non-theistic or philosophical mysticism.

Regardless of the details of Emerson’s interpretation of mystical experiences, his description of the experiences themselves displays the essential features of mystical

experiences. With regards to the loss of the sense of a separately existing self, Emerson describes mystical experiences, which he refers to as “Revelations,” in terms of a communication to the individual mind from the Over-Soul or “Divine mind”:

We distinguish the announcements of the soul, its manifestations of its own nature, by the term *Revelation*. These are always attended by the emotion of the sublime. For this communication is an influx of the Divine mind into our mind. It is an ebb of the individual rivulet before the flowing surges of the sea of life. Every distinct apprehension of this central commandment agitates men with awe and delight. A thrill passes through all men at the reception of new truth, or at the performance of a great action, which comes out of the heart of nature. In these communications the power to see is not separated from the will to do, but the insight proceeds from obedience, and the obedience proceeds from a joyful perception. Every moment when the individual feels himself invaded by it is memorable. By the necessity of our constitution a certain enthusiasm attends the individual’s consciousness of that divine presence. The character and duration of this enthusiasm vary with the state of the individual, from an ecstasy and trance and prophetic inspiration—which is its rarer appearance—to the faintest glow of virtuous emotion, in which form it warms, like our household fires, all the families and associations of men, and makes society possible. (Emerson, 1841/1992, p. 243)

There is also in this description of Revelations language suggesting that the experiences are accompanied by positive affect—“joyful perception,” “enthusiasm,” “ecstasy,” and “glow.”

Like d’Aquili and Newberg, Emerson believes that mystical experiences can come in more or less intense forms. According to Emerson, even the lesser forms of mystical experiences are useful means for enabling cooperation among human beings. The role of Revelations in making “society possible” suggests the association between mystical experiences and increased empathy, as do several other remarks by Emerson about the Over-Soul:

[T]hat Unity, that Over-Soul, within which every man’s particular being is contained and made one with all other; that common heart of which all sincere conversation is worship, to which all right action is submission . . . (Emerson, 1841/1992, p. 237)

[T]he heart in thee is the heart of all; not a valve, not a wall, not an intersection is there anywhere in nature, but one blood rolls uninterruptedly an endless circulation through all men, as the water of the globe is all one sea, and, truly seen, its tide is one. (ibid., p. 249)

Finally, Emerson insists on the ineffability of experiences of the Over-Soul:

Of this pure nature every man is at some time sensible. Language cannot paint it with his colors. It is too subtle. It is undefinable, unmeasurable; but we know that it pervades and contains us. (Emerson, 1841/1992, p. 238)

Ineffable is the union of man and God in every act of the soul. The simplest person who in his integrity worships God, becomes God; yet for ever and ever the influx of this better and universal self is new and unsearchable. (ibid., p. 248)

Emerson provides an example of a mystic whose interpretation of mystical experiences was not determined solely or mainly by his membership in a particular religious or philosophical tradition. He attempted to come up with a relatively novel philosophical interpretation of mystical experiences, influenced to be sure by his familiarity with the writings of mystics of many different religions (including but by no means limited to mystics from the various branches of Christianity), but also reflecting his own philosophical ideas (such as his interpretation of Kantian idealism).

2.8 Epilogue

The preceding discussion provides some evidence that mystics from different philosophical and religious traditions have experienced similar altered states of consciousness. Previous discussions of mysticism have often relied primarily on such textual analysis in order to demonstrate that a single type of psychological process underlies mystical experiences (James, 1902; Underhill, 1911/1999). The scientific study of mystical experiences may prove helpful in this regard, however, if it is able to show that there is a common biological substrate to the altered states of consciousness experienced by mystics. On the other hand, mystics themselves often resist the notion that science can completely explain the nature of mystical experiences. It is to the scientific study of mystical experiences that we now turn.

CHAPTER III. SCIENTIFIC MODELS OF MYSTICAL EXPERIENCES

3.1 Introduction: “Effing” the Ineffable

People who have mystical experiences are apt to regard them as being not fully accessible to scientific understanding. There are at least two reasons for this. The first is that the phenomenology of mystical experiences includes a sense of ineffability, which may make it seem as if they cannot be fully measured or understood using the methods of modern science. The second is that many people who have mystical experiences adopt unscientific (religious or philosophical) interpretations of them, which often appeal to a supernatural agent or a transcendent reality that is inaccessible in principle to empirical observation or measurement. This skeptical attitude has not deterred scientists, who have made some progress in studying what happens in the brain during mystical experiences. What follows is a summary of three models which have been constructed on the basis of the currently existing research. Persinger claims that mystical experiences, as well as several other sorts of unusual experiences that are often given a supernatural interpretation, can be explained by changes in the functioning of the temporal lobe of the brain (section 3.2). Joseph presents a model similar to that of Persinger, with changes in the limbic system and other parts of the temporal lobe (section 3.3). D’Aquili and Newberg, meanwhile, propose a model of mystical experiences which involves changes in the prefrontal cortex and parietal lobe, in addition to changes in the limbic system and other parts of the temporal lobe (3.4).

3.2 Persinger

Persinger believes that many kinds of “paranormal” experiences, including mystical experiences, can be explained by certain alterations in the temporal lobe of the brain. Paranormal experiences are phenomenologically unusual experiences that are often given a supernatural explanation, and that are widely believed to resist naturalistic explanation. According to Persinger, temporal lobe seizures are similar to paranormal experiences both in terms of their characteristic brain activity and in terms of their characteristic phenomenology. He also claims that the relevant sorts of temporal lobe activity, and the corresponding paranormal phenomenology, can be induced experimentally by manipulating electromagnetic fields around the brains of subjects.

The outer portion of the brain is called the cortex, and is divided into two hemispheres (right and left). Each hemisphere of the cortex is divided into four lobes: frontal, occipital, parietal, and temporal. The frontal lobes are responsible for higher order cognitive functions, such as maintaining attention, initiating deliberate motor activity, and anticipating future events and planning future courses of action. The occipital lobes are located towards the rear of the brain, and are responsible for processing visual signals received from the optic nerve. The parietal lobes occupy the upper portion of the cortex, and are responsible for creating the sense of the orientation of one’s body and for coordinating the body’s activity with objects in space. The temporal lobes occupy the lower portion of the cortex, and are responsible for the conceptual categorization of objects and abstract reasoning. While there is specialization within different lobes of the brain, and in more localized functional areas within each lobe, many human activities are based on the coordinated interaction of several different areas of the

brain. It would be a mistake, therefore, to assume that every kind of human behavior or experience can be localized within a particular part of the brain.

Persinger (2001) claims that an established body of research shows that people who have seizures with foci in the temporal lobe of the brain, particularly in the amygdala and hippocampus, report more frequent paranormal experiences. The amygdala and hippocampus are located in the inner part of the temporal lobe, and are parts of the limbic system, which is responsible for the generation of emotions. Persinger (ibid.) names four kinds of paranormal experiences that he claims are often experienced by people with temporal lobe epilepsy: distortions in subjective time, sensed presence, out-of-body experiences, and religious reveries. Distortions in subjective time are changes in one's perception of the duration of events. Sensed presence is the sensation one has that someone else is nearby. Out-of-body experiences are experiences in which one feels spatially removed from one's body (such as the sensation that one is floating above one's body). A religious reverie, meanwhile, refers to the ecstatic, emotionally charged experience that has often been reported by mystics during alleged moments of contact with a transcendent reality.

Paranormal experiences are also reported by people who do not have temporal lobe epilepsy, however. Persinger (2001) claims that non-epileptic individuals who have a higher degree of what he calls "temporal lobe sensitivity" (p. 515) report more types of and more frequent paranormal experiences. According to Persinger (2001), temporal lobe sensitivity can be measured by Persinger and Makarec's (1993) Personal Philosophy Inventory, and also by Roberts' (1992) inventory for Epileptic Spectrum Disorder. Persinger claims that people who score higher on these inventories also have more

prominent alpha rhythms over the temporal lobes (Makarec & Persinger, 1990), which he regards as evidence that they have “more electrically labile amygdaloid functions” (Persinger, 2001, p. 515). The amygdala is a structure in the temporal lobe which is involved in associating emotional resonances with particular experiences. In addition to reporting more paranormal experiences, individuals with greater temporal lobe sensitivity have a “propensity to infuse sensory experience with enhanced meaning,” which “results in more frequent experiences of deep and even cosmic personal significance in response to infrequent or odd events” (ibid.). These characteristics are also found in individuals with temporal lobe epilepsy (Bear, 1979 [cited in Persinger, 2001]).

The brain is an electrochemical organ, so it is not surprising that ambient electromagnetic fields might affect its operation, including those areas which seem to be involved in paranormal experiences. Persinger (1988) claims that an increase in the earth’s geomagnetic activity is associated with an increase in reported bereavement apparitions, that is, with alleged encounters with persons who have recently died. Bereavement apparitions are presumably cases of sensed presence interpreted in terms of the presence of a recently deceased loved one. Persinger (ibid.) hypothesizes that they occur as a result of microseizures in the temporal lobe, which can be induced by geomagnetic activity, as well as by other factors. Indirect support for Persinger’s hypothesis is provided by studies which show an increased occurrence of epileptic seizures when geomagnetic activity has risen above a certain level (Long et al., 1996; Rajaram & Mitra, 1981 [cited in Persinger, 2001]).

There is also evidence that sensed presence can be induced in subjects experimentally. According to Persinger (2001), surgical stimulation of certain structures

in the temporal lobes, especially in the right hemisphere, has caused experiences similar to those reported by temporal lobe epileptics. In addition, when normal subjects (i.e., those not scoring high on inventories which measure temporal lobe sensitivity) were exposed to particular kinds of magnetic fields over the right hemispheres of their brains, most of them experienced sensed presence as a result (Persinger, 2000). According to Persinger, it was not the intensity of the fields, but rather the geometric pattern of the fields, and the way they crossed and interacted with the temporal and parietal lobes of the brain, which seem to have been responsible for inducing the experiences of sensed presence. Persinger (1993) hypothesizes that sensed presence is a creation of the right hemisphere of the brain. In support of Persinger's view of the role of temporal lobe sensitivity, the experience of sensed presence was found to be more prominent in subjects who scored higher on the inventories which have been associated with temporal lobe sensitivity (Cook & Persinger, 2001).

In addition to sensed presence, subjects exposed to a particular kind of magnetic field over the right hemisphere also reported several other kinds of experiences, including distortions in subjective time, experiences of "blackness" and "imaginal spaces," and feelings of "quiescence and resolute harmony" (Persinger, 2001, p. 520). These three kinds of experiences resemble the descriptions by mystics of their alleged experiences of contact with God or other transcendent realities.

3.3 Joseph

Joseph (2001) claims that mystical experiences, and a variety of other related states, such as religious visions and out-of-body experiences, are caused by the hyperactivation of the amygdala, hippocampus, and the inferior temporal lobe. According

to Joseph, religious imagery and religious hallucinations are caused by the hyperactivation of the amygdala and the inferior temporal lobe. Both of these areas are responsible for humans' ability to recognize faces and shapes, and they are also involved in the generation of emotion, and the association of emotions with particular faces and shapes. The amygdala and hippocampus are also involved in the generation of emotion-laden imagery in REM (rapid eye movement) sleep. The right amygdala and the right hippocampus in particular, as well as the right hemisphere in general, appear to be responsible for dream imagery, LSD-induced hallucinations, and religious imagery (Joseph, 2001).

Joseph also associates out-of-body experiences with the hyperactivation of the limbic system. Feelings of extreme fear are often accompanied by perceptual distortions, including dissociation, depersonalization, and the sense that one has separated from one's body (Joseph, 2001). According to Joseph, the hippocampus is responsible for orienting a person and his movements in space (Joseph, 1996, 1998; Nadel, 1991; Wilson & McNaughton, 1993 [cited in Joseph, 2001]). The hyperactivation of the hippocampus, which can occur during episodes of extreme fear, can cause one to experience a hallucination of this spatial map, such that one feels one is observing oneself and one's surroundings from outside one's body. This sensation has also been reported by temporal lobe epileptics (Penfield & Perot, 1963; Williams, 1956 [cited in Joseph, 2001]).

Joseph provides evidence from religious scriptures (including the Bible and the Qur'an) of the association between religious beliefs and intense emotions such as fear, rage, and sexual desire. He regards this association as evidence of the role of the limbic system in the production of religious experiences, and he claims that many historical

religious figures (including Abraham, Moses, Jesus, and Muhammad) showed signs of hyperactivation of the limbic system and/or temporal lobe epilepsy.

Finally, Joseph gives evidence that mystical practices, including both apophatic and kataphatic varieties, can lead to hyperactivation of the limbic system. Kataphatic mystical practices lead to hyperactivation of the limbic system through increased sensory and kinesthetic stimulation, while apophatic practices, which involve sensory deprivation, can (paradoxically) lead to hyperactivation of the limbic system, because the lack of a normal level of sensory stimulation can actually increase the limbic system's acuity (Joseph, 1982, 1988, 1992 [cited in Joseph, 2001]).

3.4 D'Aquili and Newberg

Like Persinger and Joseph, D'Aquili and Newberg believe that the limbic system plays a role in the generation of mystical experiences, but they also assign important roles to the prefrontal cortex and parietal lobes. D'Aquili and Newberg's model is derived in part from an earlier model of mystical experiences proposed by Gellhorn and Kiely (1972). Gellhorn and Kiely proposed that hyperarousal of the ergotropic and trophotropic systems can lead to an experience of the transcendence of the self (that is, to a blurring of the distinction between the self and the external world). The distinction between the ergotropic and trophotropic systems is related to the more familiar distinction made by psychologists between the sympathetic and parasympathetic nervous systems. The sympathetic and parasympathetic nervous systems are divisions of the autonomic nervous system, which controls the autonomous (non-consciously-directed) functions of the body. The sympathetic nervous system is responsible for inducing arousal in the body, while the parasympathetic system is responsible for inducing relaxation and maintaining

homeostatic activities. The ergotropic and trophotropic systems are extensions of the sympathetic and parasympathetic systems, respectively. The ergotropic system includes the sympathetic nervous system and the structures in the brain (such as the adrenal gland) which are responsible for activating it; the trophotropic system includes the parasympathetic nervous system and the structures in the brain responsible for activating it. Gellhorn and Kiely (1972) proposed two alternate pathways to attaining mystical experiences, one through hyperarousal of the ergotropic system (through kataphatic mystical practices such as ecstatic dancing), the other through hyperarousal of the trophotropic system (through apophatic practices such as meditation).

D'Aquili and Newberg adopt Gellhorn and Kiely's contention that the hyperarousal of either system can lead to mystical experiences, but they adopt a more detailed model of how mystical practices can generate such hyperarousal, and they contend that the hyperarousal of one system can lead to "spillover" into the other. Their basic view is that both kataphatic and apophatic mystical methods can lead to the hyperactivation of the prefrontal cortex of the brain, which can in turn activate the hippocampus, causing it to inhibit neural signals into certain parts of the parietal lobe. It is this inhibition of neural signals into the relevant parts of the parietal lobe which they believe leads to the hyperarousal of the ergotropic and trophotropic systems, and which causes the characteristic phenomenology of mystical experiences (d'Aquili & Newberg, 1999).

The particular regions of the parietal lobes that d'Aquili and Newberg believe are involved in mystical experiences are called the posterior superior parietal lobules (PSPLs). These structures are believed to be responsible for maintaining certain aspects

of the usual sense of the self (Austin, 1998, 2000; Joseph, 1990 [cited in d'Aquili & Newberg, 1993]), and when the neural input to them is cut off, the usual sense of the self alters.

The elimination of neural input to a part of the brain is referred to as “deafferentation.” Deafferentation can be partial or total, and it can be physical or functional. A part of the brain is partially deafferented when it no longer receives neural signals from some (but not all) of the other parts of the brain it is normally in communication with. A part of the brain is totally deafferented when it no longer receives neural signals from any of the parts of the brain it is normally in communication with. A part of the brain is physically deafferented when its neurons are no longer physically connected to those of the other parts of the brain that they are normally connected to (i.e., in a healthy human brain). A part of the brain is functionally deafferented when its neurons are still physically connected to those in other parts of the brain, but when signals are no longer being sent along the neural connections. D'Aquili and Newberg propose that mystical experiences involve either the partial or the total functional deafferentation of the PSPLs of both the right and left hemispheres of the brain. Partial deafferentation of the PSPLs leads to lesser mystical experiences, while total deafferentation of the PSPLs leads to the experience of the complete transcendence of the self, which d'Aquili and Newberg (1999) refer to as “Absolute Unitary Being.”

D'Aquili and Newberg (1999) characterize the PSPLs as “orientation association areas,” because they are responsible for orienting the usual sense of the self, on the basis of neural input from other areas of the brain. The right and left PSPLs perform different functions, so the deafferentation of each is responsible for different aspects of the

phenomenology of mystical experiences. The right PSPL is responsible for generating the usual sense of one's orientation in space. Its neurons fire differently based on the spatial relationship between a person and the particular objects he perceives in his environment. When the right PSPL is totally functionally deafferented, this is experienced as a sense of spacelessness. The left PSPL is responsible for generating the usual sense of the separation between the self and the world. Its neurons fire differently based on whether or not objects in the environment are perceived to be within grasping distance. The usual sense of the separation between the self and the world is evidently based on this distinction between objects that are and are not within grasping distance (Joseph, 1990 [cited in d'Aquili & Newberg, 1993]). When the left PSPL is totally functionally deafferented, this is experienced as a lack of separation between oneself and the world (d'Aquili & Newberg, 1993, 1999).

D'Aquili and Newberg have also claimed that the state of self-transcendence differs subtly based on whether it is produced by active meditation or by passive meditation (d'Aquili and Newberg's terms for concentration and mindfulness meditation, respectively) (Newberg, d'Aquili, & Rause, 2002). They claim that passive meditation can lead to Absolute Unitary Being, while active meditation can lead to the *unio mystica*. This distinction seems to be based on their assumption (which was discussed and rejected in chapter 1) that passive meditation is associated with non-theistic interpretations of mystical experiences, and that active meditation is associated with theistic interpretations of mystic experiences.

D'Aquili and Newberg's model of mystical experiences has recently been updated in a paper on meditation by Newberg and Iversen (2003) (this updated version of the

model can also be found in Newberg & Newberg, 2005). As mentioned in chapter 1, Newberg and Iversen make a distinction between volitional meditation and guided meditation. While d'Aquili and Newberg claimed that all meditation begins with the activation of the prefrontal cortex, Newberg and Iversen claim that this may not be the case with guided meditation. There is evidence that volitional meditation begins with the activation of the prefrontal cortex (Herzog, Lele, Kuwert, et al., 1990-1991; Newberg, Alavi, Baime, Pourdehnad, & d'Aquili, 2001; Lazar, Bush, Gollub, et al., 2000 [cited in Newberg & Iversen, 2003]), which is explained by the fact that the prefrontal cortex initiates tasks involving sustained attention. In particular, a SPECT (single photon emission computed tomography) study of practitioners of Tibetan meditation showed greater activation of the right prefrontal cortex than the left prefrontal cortex. Guided meditation may not involve activation of the prefrontal cortex, however, presumably because the subject is passively following the instructions of an external guide. Indeed, one study of guided meditation showed decreased activity in the frontal cortex of meditators (Crosson, Sadels, Maron, et al., 2001 [cited in Newberg & Iversen, 2003]).

Newberg and Iversen also propose an alternative means by which activity in the prefrontal cortex may lead to the inhibition of signals into the parietal lobe. D'Aquili and Newberg proposed that activation of the prefrontal cortex during meditation could cause the hippocampus to inhibit signals to the PSPLs. Newberg and Iversen instead hypothesize that increased activity in the right prefrontal cortex may lead to increased activity in the reticular nucleus of the thalamus, which can cause decreased sensory input into the PSPLs. There is no direct evidence in support of Newberg and Iversen's hypothesis, because of limitations with respect to the resolution of brain imaging

technology (Newberg & Iversen, 2003). However, a SPECT study did show a general increase in activity in the thalamus during meditation (Newberg et al., 2001), which is consistent with Newberg and Iversen's hypothesis that it is the reticular nucleus that leads to the deafferentation of the PSPLs.

While Newberg and Iversen retain the role of the PSPLs in their model of meditation, they note that one study has seemed to show that the superior temporal lobe plays a more significant role than the PSPLs in the spatial representation of the body (Karnath, Ferber, & Himmelbach, 2001). There is also research which seems to show that the PSPLs are involved in the representation and orientation of the body in space, and in the differentiation of objects in space (Lynch, 1980; Steinmetz, Motter, Duffy, & Mountcastle, 1987 [cited in Newberg & Iversen, 2003]). What this means is that the relative contribution of the PSPLs and the superior temporal lobe to the usual sense of the relation between oneself and the world remains unclear. There is evidence, however, which seems to support d'Aquili and Newberg's and Newberg and Iversen's contention that the PSPLs are deafferented in mystical experiences. A study of Yoga meditative relaxation showed decreased activity in the PSPLs during meditation (Herzog et al., 1990-1991). A SPECT study of Buddhist monks engaged in meditation and Catholic nuns engaged in prayer found a decrease in the activity in the PSPLs and an increase in the activity in the prefrontal cortex (Newberg, Alavi, Baime, Mozley, & d'Aquili, 1997). Another SPECT study of meditators found that there was a negative correlation between the regional cerebral bloodflow in the subjects' left dorsolateral prefrontal cortexes and the regional cerebral bloodflow in their left superior parietal lobules (Newberg et al., 2001). In other words, the more activity there was in the subjects' prefrontal cortexes, as

measured by the amount of blood flowing to the area, the less activity there was in their left superior parietal lobules, which may indicate that the latter structures were partially functionally deafferented.

In addition, like Persinger and Joseph, Newberg and Iversen propose that the limbic structures of the temporal lobe play a significant role in mystical experiences. They hypothesize that the deafferentation of the right PSPL, in addition to the increased activity of the thalamus itself, both stimulate the right hippocampus. According to Newberg and Iversen, if the right hippocampus is stimulated in this way during meditation, then it likely stimulates the right lateral amygdala as well, because of the reciprocal interaction between these two limbic structures. The intense activation of the hippocampus and amygdala could lead to the extreme emotions often reported during mystical experiences.

3.5 The Relation between the Models

Persinger and Joseph both seem to agree that mystical experiences are caused by hyperactivation of certain parts of the temporal lobe, particularly the right temporal lobe. Newberg and Iversen agree that the temporal lobe plays a crucial part in the generation of mystical experiences, but they also assign key roles to the prefrontal cortex and left and right PSPLs.

It is possible that these seemingly conflicting models are actually consistent with one another. Newberg and Iversen's model includes a key role for limbic system structures located in the right temporal lobe. Hyperactivation of the hippocampus could be induced by changes in the prefrontal cortex during meditation or rituals, as Newberg and Iversen claim, but it could also occur in temporal lobe epilepsy, or in persons with

high temporal lobe sensitivity, or in persons exposed to the right kinds of environmental stimuli. The prefrontal cortex may only be involved when mystical experiences are generated through deliberate sustained attention, as in volitional meditation, and may not be involved in spontaneous or seizure-induced mystical experiences.

Another possibility is that the different models apply to different kinds of experiences. Persinger claims that the temporal lobe is involved in paranormal type experiences, such as sensed presence and out-of-body experiences, while d'Aquili and Newberg's model is intended to apply only to mystical experiences proper, which involve self-transcendence, ineffability, and so on. Perhaps further research will show that paranormal experiences are best captured by Persinger's model, while mystical experiences proper are best captured by d'Aquili and Newberg's model (or some modified versions thereof).

3.6 Epilogue

While it is not yet known precisely what happens in the brain during mystical experiences, researchers such as Persinger, Joseph, and Newberg seem to be making progress towards developing such an understanding. What remains unclear is the implications a complete scientific theory of mystical experiences would have for mystics' own interpretations of their experience. Persinger, Joseph, and d'Aquili and Newberg come to quite different conclusions about the implications of their research for mystics' interpretations of their experiences. Persinger claims that his neuroscientific model of mystical experiences effectively disproves mystics' claims to have contacted God or some other transcendent reality. Joseph, meanwhile, claims his model implies that the human brain evolved the capacity to experience God. D'Aquili and Newberg claim that

their model is consistent with the existence of a transcendent reality that is contacted during mystical experiences. These conflicting interpretations will be discussed in chapter 4, together with the views of Hood and Feit, before a novel solution to the problem of interpretation is offered.

CHAPTER IV. SCIENTIFIC MATERIALISM AND ITS DISCONTENTS

4.1 Introduction: The Perils of “Reductionism”

The view which is labeled herein as “scientific materialism” is usually referred to in the literature on the psychology of religion as “reductionism” (see, for example: Feit, 2003; Spilka et al., 2003). The term “reductionism” is problematic, however, because it has multiple connotations, and is not used consistently in the literature. Spilka et al. (2003) state that “‘reductionism’ occurs when a topic is explained by variables independent of the topic itself” (p. 47). This is a very broad sense of the term “reductionism,” which presumably applies to many (if not most) explanations in the sciences. The term is often used with a more restricted sense in the psychology of religion, however, as is shown in the very discussion which follows the aforementioned definition. Spilka et al. (2003) claim that certain psychological theories of religion, such as that of Sigmund Freud, are reductionistic because they ignore the reasons people give for being religious, especially their religious beliefs. Spilka et al. then discuss other approaches to the psychology of religion which they claim are non-reductionistic, because they do not ignore people’s religious beliefs. The problem is that Spilka et al. seem to regard a theory’s taking people’s reasons for being religious into account as a sufficient condition for that theory’s being non-reductionistic. But this does not follow from their definition of the term “reductionism.” A theory of the psychology of religion could be reductionistic even if it took people’s reasons for being religious into account. This is because the reasons themselves might be reducible to further factors which are not distinctively religious (such as facts about a person’s brain chemistry). Spilka et al. seem

to be using the term “reductionistic” to describe theories which make religion appear irrational. A theory that is reductionistic in this sense makes religion appear less valuable—it “reduces” the value or significance of religion by “explaining away” why people are religious as being due to non-rational factors. (Unfortunately, this equivocation on the term “reductionism” seems to be rife throughout discussions of scientific theories, the scientific method, and the scientific worldview in general.)

There are additional reasons to be concerned about the term “reductionism.” In the philosophy of mind, “reductionism” refers to the view that facts about the mind are reducible to facts about matter or other physical entities. But one could be a reductionist about religion or about mystical experiences without being a reductionist in the philosophy of mind sense. For example, one could explain mystical experiences entirely in terms of non-mystical emotions, even if one thought that emotions themselves are not reducible to physical entities. Unfortunately, however, there is a strong temptation to regard all reductionists in the psychology of religion as reductionists in the philosophy of mind sense, even though the two are conceptually distinct.

There is also a danger of equating reductionism in any of the above senses with two other distinct concepts: naturalism and scientism. Naturalism in the relevant sense is the view that everything that exists is natural, that is, a part of nature, and that there are no supernatural forces or agencies. Scientism is the view that the scientific method is (everywhere and always) the best method for finding out about the nature of the world. (It should be noted in passing that the philosopher W. V. Quine (1995) seems to use the term “naturalism” to refer to the view that I have labeled “scientism.”) The term “reductionism” is often assumed to encompass both naturalism and scientism, but the

three are conceptually distinct, even if as a matter of fact many reductionists are also naturalists and perhaps even “guilty” of scientism.

It is for these reasons that the following discussion avoids the term “reductionism,” and instead labels Persinger and those of his ilk as “scientific materialists.” For the purposes of the following discussion, let “scientific materialism” (with respect to mystical experiences) refer to the view that mystical experiences can be completely explained through application of the scientific method, with the additional assumption, based on the current scientific understanding of the world, that the ultimate level of explanation will appeal exclusively to physical entities, and not to non-physical entities.

There are two points which risk being overlooked in framing the debate over mystical experiences as an opposition between scientific materialists and everyone else, however. The first is that those views opposed to scientific materialism often have as little in common with one another as they do with their shared adversary. The second point is that two issues are often confounded in the debate between scientific materialists and their opponents. The first issue is whether mystical experiences can be completely explained scientifically, or if there is some inexplicable residuum which only a religious (or some other unscientific) explanation can account for. The second issue is whether mystical experiences are valuable. De facto, scientific materialists have usually regarded mystical experiences as not being valuable, while their opponents have been more enthusiastic about the value of such experiences. This confound seems to be due to the assumption that if religion or spirituality can be completely explained scientifically then they are thereby deprived of value. However, it is possible, at least in principle, for

someone opposed to scientific materialism to regard mystical experiences as pathological or otherwise undesirable, and for scientific materialists to regard them as being of great value.

What follows is a discussion of Persinger's scientific materialist view of mystical experiences, and then a discussion of some of the common opposing perspectives.

Despite widespread opposition to scientific materialism among fans of mysticism, it is argued below that all of the proposed alternatives are extremely problematic. Persinger's scientific materialism is thus vindicated, but with a twist; contra Persinger, mystical experiences can be of great value to humans, in terms of their emotional well-being and sense of meaning or purpose in life. It is therefore unnecessary to fear scientific materialism, even if one is a believer in the value of mystical experiences.

4.2 Persinger's Scientific Materialism

As indicated above, there are two principal components to Persinger's view of mystical experiences. The first is that the research on mystical experiences has shown that they can be completely explained scientifically, and are not caused by contact with God or some other transcendent reality. The second is that mystical experiences should be regarded as pathological or otherwise undesirable. Each of these claims will be discussed in turn.

Persinger spends less time directly attacking mystics' beliefs about mystical experiences than he does developing an alternative scientific explanation for them. Nevertheless, it is clear from his work that he believes mystical experiences are caused solely by factors in the human brain and the surrounding environment, and that there is no reason to believe that God or some other supernatural entity is involved:

Both the occurrence of paranormal experiences and their rates of incidence are associated with specific types of neuronal activity within the temporal lobes. This linkage does not verify the validity of the content of the experiences but simply indicates that specific patterns of activity within the temporal lobes and related structures are associated with the experiences. The sources of the stimuli that evoke the neuroelectrical changes may range from properties intrinsic to chaotic activity, with minimal veridicality, to external information that is processed by mechanisms not known to date. (Persinger, 2001, p. 515)

In other words, the actual causes of mystical and other paranormal experiences are unrelated to their phenomenological “content.” The likely causes of the characteristic phenomenology of such experiences include both “chaotic” activity within the temporal lobes, such as seizures, and “external” sources, such as geomagnetism (and perhaps other kinds of ambient electromagnetic fields). The characteristic phenomenological properties of mystical experiences—self-transcendence, ineffability, positive affect, and empathy—are thus not properties of God or some other transcendent reality. Instead of representing the properties of an external object, they are simply illusory sensations caused by the malfunctioning of the human brain. To the extent that belief in God or other transcendent realities is based on mystical experiences, the existence of a scientific explanation for mystical experiences should call into question many religious and other supernatural beliefs.

The second principal component of the reductionist view is that mystical experiences are pathological or otherwise undesirable. In general, Persinger regards mystical experiences as either symptoms of a pathology (that is, a medically diagnosable condition, such as temporal lobe epilepsy), or as cases of brain malfunctioning which do not serve any clear existential purpose. Indeed, to the extent that mystical experiences are interpreted as evidence for religious beliefs, Persinger believes they can have severe negative consequences for humanity:

God experiences, which are often employed as proofs of god beliefs, are likely to have been responsible for more human carnage in the history of civilization than any single pestilence.

Peoples have been killed in the name of a god by others because they did not believe in the same god. (Persinger, 2001, p. 519)

Thus, even when they are not symptoms of a pathological condition, mystical experiences can contribute to religious beliefs, which Persinger regards as a danger to human civilization.

Persinger's pessimism about the value of mystical experiences seems excessive, however. Even if some mystical experiences occur as a result of temporal lobe epilepsy, this does not show that all mystical experiences are pathological. Presumably, a physical state only counts as "pathological" if it is harmful in some way to the person who has it. Mystical experiences are often valued a great deal by those who have them, which may be due in part of the positive affect with which they are associated. Maslow (1964) and others have argued that peak experiences, which resemble mystical experiences in terms of their phenomenology, and which may be the same thing under a different name, contribute to the psychological health of those who have them. It therefore seems premature to claim that mystical experiences are harmful to those who have them, at least in the absence of further evidence.

Persinger's opposition to religion also fails to provide sufficient grounds to condemn mystical experiences. Even if one agrees that religion has had a harmful impact on human society, mystical experiences are not always given a religious interpretation, and it is not known how strongly they contribute to religious beliefs in general, and to the violence associated with religion in particular.

On the other hand, one advantage of Persinger's view is that it is able to account for mystical experiences solely through an appeal to the scientific method. Opponents of scientific materialism, by contrast, often explain mystical experiences at least in part

through a reference to a transcendent reality, which opens up thorny metaphysical and epistemological issues. What is the nature of this transcendent reality? How does it interact with the entities that are studied by empirical science? And what reliable methods are there for obtaining knowledge about the transcendent reality? What follows is a discussion of the views of Joseph, Hood, d'Aquili and Newberg, and Feit, and an evaluation of their several attempts to provide an alternative to Persinger's scientific materialism.

4.3 Joseph's Theistic Theory

While Joseph's view of the neurological substrate of mystical experiences is quite similar to Persinger's, he draws diametrically opposed implications regarding their metaphysical and epistemological status. Joseph regards mystical experiences as evidence for the existence of the Judeo-Christian God. He also presents independent evidence for this hypothesis, in an apparent attempt to make his interpretation more plausible.

Joseph's interpretation of mystical experiences is based partly on an evolutionary account. He assumes that because humans have the capacity for having mystical experiences, this capacity must serve some function (that is, it must be adaptive in some manner). Joseph proposes that the capacity for mystical experiences enables humans to contact God and the spirit world, similar to the way in which human sense organs and the areas of the brain which process sensory information enable humans to perceive objects in the external world. He thus argues that at least some mystics' interpretations of their experiences in religious terms are substantially correct, notwithstanding the fact that mystical experiences are biological phenomena.

Joseph also attempts to give at least three independent arguments for the existence of the Judeo-Christian God. The first is that all of the promises and predictions God made to the Biblical patriarch Abraham came true. The second is that it is unlikely that the Judeo-Christian God is a hallucination, since so many people believe in him. The third is that other Biblical prophecies have been fulfilled, such as a prophecy about the destruction and restoration of Israel:

Likewise, when we consider how many other prophecies were fulfilled, including the destruction and then later recreation of Israel in 1948—the aftermath of a world war led by an Austrian Jew, Adolf Hitler—as well as the more than 1 billion people who worship a Jew (Jesus) as “God,” it borders on the irrational to dismiss these events as hallucinations or coincidence. Consider that more than 2,000 years ago God repeatedly warned the ancient Jews of their destruction and of those who would “swoop down like an eagle” (Deuteronomy 28:49). And the final dispersal and destruction of Israel and the Second Temple was at the hands of Roman legions, whose symbols included the eagle and the swastika. (Joseph, 2001, p. 131)

Unfortunately, Joseph’s arguments are all exceedingly problematic. Joseph’s assumption that the human capacity for having mystical experiences is an adaptation is without foundation. Not all human traits are adaptations. Some human traits, which are called “spandrels” by evolutionary theorists, are simply byproducts of other adaptive traits. Some human traits can even be harmful in terms of fitness. It is of course possible that the human capacity for mystical experiences is an adaptation, but Joseph does not present any evidence in support of this hypothesis. Consider the analogous case of the human capacity to appreciate music, which some scientists regard as an adaptation, and others regard as a spandrel. The evolutionary status of the human taste for music is not immediately clear, and will only be resolved by appeals to evidence about human nature and the environment in which humans evolved. Unfortunately, Joseph does not provide any evidence for his claim that the capacity to have mystical experiences is an adaptation. On the contrary, his emphasis on the association between mystical experiences and

extreme fear, rage, and sexual desire makes it seem as if such experiences are harmful to human beings, which if anything gives one the impression that they are maladaptive.

Furthermore, even if the capacity for mystical experiences is an adaptation, this does not prove that God or other supernatural beings are real. Suppose, for example, that mystical experiences, because of their associated positive affect, help humans cope with extreme stress, and thus improve the fitness of those who experience them. This still does not show that humans' supernatural interpretations of these experiences are accurate. Analogously, supposing that morality is an adaptation, this does not show that humans' religious interpretations of morality are accurate, either. Mystical experiences could be adaptive, even if they often give rise to or reinforce the illusion that God or other supernatural beings exist.

Joseph's independent arguments for the existence of the Judeo-Christian God are also flawed. His first claim is that Abraham was probably not hallucinating when he had his mystical experiences, because all of God's promises and predictions to Abraham came true. Joseph simply assumes that everything written in the Bible about Abraham is true. An alternate possibility is that much of what is written about in the Bible never really happened, just as with the vast bulk of human myths, legends, and religious narratives. Joseph's uncritical acceptance of the Biblical narrative would be convincing only to someone who is already a believer.

Joseph's second claim is that the widespread belief in God is evidence for his existence. If numbers alone are sufficient to make belief knowledge, however, what about the billions of other human beings who do not believe in the Judeo-Christian God? Joseph presumably does not believe in the Buddha or Vishnu despite their millions of

followers. Even if human belief were unanimous, however, this would not suffice to prove the existence of the Judeo-Christian God, in the absence of real evidence. Millions of children believe in Santa Claus, but this belief alone is not counted as evidence of any sort for his existence.

Joseph's third claim about the destruction and restoration of Israel is as idiosyncratic as it is unfounded. The passages in Deuteronomy about the destruction of Israel in fact probably refer to the conquest of Israel by Assyria, which occurred several hundred years before the Roman conquest of Judea, and which were written down after the events had transpired. These passages do not prophecy the destruction of Israel, but instead bemoan its loss. The Bible does contain prophecies of the restoration of Israel, but this is supposed to be brought about by the Messiah. Christians of course believe Jesus of Nazareth to have been the Messiah, while Jews believe he has yet to come. The establishment of the state of Israel would seem to be neither here nor there with respect to Biblical prophecy, unless perhaps one believes that Ben Gurion was the Messiah, which is not, evidently, a view held by many.

Joseph's references to Hitler and ancient Roman insignia do not seem to help his case any, either. Saying that the enemy will "swoop down like an eagle" is not the same as saying that the Jews will some day be conquered by a nation which uses the eagle as a heraldic device. Even if Joseph is correct that the Romans used the swastika as a symbol, this fact is irrelevant to his case. Presumably Joseph assumes that Adolf Hitler also acted in fulfillment of Biblical prophecy. A funny prophecy, that, which refers to a future destruction of the kingdom of Israel that occurs both in the 1st century CE and also almost two thousand years later. Evidently some prophecies take a while to fulfill, and must be

fulfilled repeatedly. If use of the swastika is sufficient to show that one is implicated in the prophecy, perhaps Buddhists and Hindus are involved as well, since they use the swastika as a religious symbol. One could likewise object that Joseph's mentioning of Hitler's alleged Jewish identity is irrelevant to his case, but that would be but to prolong the case against him unnecessarily.

In sum, Joseph's interpretation of mystical experiences is unwarranted from the standpoint of his own neurological model, and it seems to derive from prior religious convictions. Joseph provides an example of a scientist who adopts an insufficiently critical stance in discussing mystical experiences, when the issues involved overlap with his own religious beliefs.

4.4 Hood's Theory of the Soulful Self

Hood (2002) interprets mystical experiences as experiences of a "soul," "soulful self," or "transcendent self." Unlike traditional theology, Hood seems to equate the soul with a transcendent reality, and not with a finite immaterial entity that serves as the basis of a particular person. He refers, for example, to the experience of the soul as an experience of unity with the "Eternal" (Hood, 2002, p. 12).

Hood gives a phenomenological argument for his interpretation of mystical experiences. His essential point is that the transcendent self is an object of experience, just like the reflexive self (that is, the usual sense of the self), and just like the various objects of sense experience, and should thus be regarded as equally real as the latter. By taking a phenomenological approach, Hood claims to be following in the footsteps of William James. Hood characterizes James as adopting a radical empiricism, but an empiricism which is not based on manipulation and measurement—unlike the empiricist

methodology adopted by most scientists. Instead, James's empiricism is based on the careful observation of the phenomena of one's own experience.

Hood regards standard scientific empiricism as impoverished or at least incomplete without the phenomenological form of empiricism. Hood provides the unity of the reflexive self as an example of the usefulness of James's methodology. The 18th century Scottish philosopher David Hume famously called into question the existence of a unified self, because this self does not seem open to direct observation. According to Hume, one can observe one's own thoughts, feelings, perceptions, and other psychological states, but one never observes a unified self. The German philosopher Immanuel Kant, meanwhile, attempted to prove the existence of a unified self by using a transcendental (non-empirical) argument. According to Hood (2002), James rejected both of these approaches, and instead argued that the unity of the (reflexive) self is "immediately given" in experience (p. 7). Standard scientific empiricism may miss the unity of the reflexive self, but only because it focuses exclusively on the perception of external objects, and abandons the use of introspection. Moreover, according to Hood, James's use of introspection is no more problematic than the use of sense experience to verify the identity over time of external objects. Hood (2002) claims that the unity of the reflexive self, like the unity of external objects, is simply a "brute fact" of experience (p. 8). Contra Kant, it is not something that we know transcendently, because it is present in experience, and could conceivably be lacking (such as, for example, if one had a psychological disorder which caused one to have experiences but to fail to identify them as one's own).

Having demonstrated the usefulness of a phenomenological approach in determining the existence of a reflexive self, Hood then uses this approach to prove the existence of a soulful self. Hood claims that the soulful self is a non-naturalistic concept, which can be discovered by a phenomenological approach, but which standard scientific empiricism will not be able to make sense of. Hood (2002) also accuses standard scientific empiricists of harboring a “prejudice against the soul” because of their insistence on purely naturalistic accounts of phenomena (p. 11).

However, Hood’s defense of the existence of a soulful self seems inadequate, even from a phenomenological perspective. Some mystical experiences involve the sense that one has united with some external reality, but it is hard to say what can be concluded about the nature of this external reality solely from the phenomenology of such experiences. Mystical experiences are by their very nature ineffable; they seem at most to be moments of contact with a “something I know not what” (to use John Locke’s infamous characterization of the notion of a substance without attributes). Mystics do adopt particular interpretations of their experiences, but these seem to be derived from cultural conditioning, and perhaps from certain patterns of thinking hard-wired into the human brain (Atran, 2004; Boyer, 2001), and not from the phenomenology of the experiences themselves.

There is thus nothing to stop a mystic from interpreting his own experience in purely naturalistic terms—perhaps, for example, as an experience of union with the material cosmos. Alternatively, a mystic adopting a phenomenological perspective might not even believe that he contacted any external reality during a mystical experience, naturalistic or otherwise. After all, not every experience is of an external reality, even

from a phenomenological perspective. Buddhists, for example, do not generally interpret mystical experiences in terms of contact with an external reality, but rather as moments of intense concentration, or as occasions of insight into the truth of no-self. Hood (2002) himself claims that “a case can be made that in introvertive mysticism it is the self’s being devoid of all attributes that is revealed as a phenomenological fact” (p. 3). In other words, a person having an introvertive mystical experience may just be experiencing his own consciousness, but without the psychological characteristics that he usually associates with himself. Hood’s conclusion that a phenomenological perspective shows the existence of a transcendent reality is thus without foundation.

Hood’s difficulty may call into question the utility of the phenomenological approach in general. If the existence of the reflexive self is simply a brute fact of experience, for example, then how could Hume or Kant possibly have missed it? Hume’s argument against the existence of a unified self is based on introspection, the same method used by James in his argument for the unified self. Relying on introspection alone may lead to apparently irresolvable disputes. Hood scorns the manipulation and measurement form of empiricism, but its virtue is that it appeals to the contents of sense perception, which can usually be agreed upon by independent observers. The phenomenological perspective, by contrast, does not seem to be able to produce consensus—even among those who have had mystical experiences.

Hood seems to want to use James’s good name among psychologists to lend luster to his adoption of the phenomenological form of empiricism. Despite the importance of James as a founding father of psychology, it is not clear that his phenomenological approach is superior to the standard scientific form of empiricism, which involves

manipulation of independent variables and measurement of their effect on dependent variables. Hood might favor a phenomenological approach because he suspects that it will help him prove the existence of a transcendent reality, but, as was discussed above, a phenomenological approach is actually consistent with multiple interpretations of mystical experiences. Without a stronger argument for why the manipulation and measurement form of empiricism should be abandoned in favor of a phenomenological approach, and without a stronger argument for why a phenomenological analysis of mystical experiences shows that they must be interpreted in terms of a transcendent reality, Hood's account proves inadequate as a response to Persinger and other scientific materialists.

4.5 D'Aquili and Newberg's Theory of Absolute Unitary Being

D'Aquili and Newberg discuss the issue of the reality of mystical experiences in terms of whether Absolute Unitary Being (AUB) is more real than "baseline" reality—that is, the way reality appears in ordinary waking consciousness. In other words, they assume there is a conflict between AUB and ordinary waking consciousness, which must be decided in favor of one or the other ways of experiencing reality. In baseline reality, the self is distinct from the world, and the world consists of discrete objects. In AUB, all of existence appears united in a single being. These two ways of looking at the world appear mutually inconsistent. Mystical experiences are thus only accurate representations of reality if AUB beats baseline reality in this epistemological conflict.

D'Aquili and Newberg's discussion of the relative status of AUB and baseline reality is complicated, however, by their claim that the resolution of this issue is itself dependent on the resolution of a prior issue—namely, whether "external reality" or

“subjective reality” ought to be regarded as “primary” (d’Aquili & Newberg, 1999). External reality is the reality of material objects which exist independently of the mind. Subjective reality is the reality of subjective awareness. According to d’Aquili and Newberg, a scientific approach takes external reality as primary, while a phenomenological approach takes subjective reality as primary. D’Aquili and Newberg also claim that, de facto, culture often determines whether external or subjective reality is regarded as primary. Specifically, they claim that, in the “West” external reality is usually regarded as primary, while in the “East” subjective reality is usually regarded as primary. (Incidentally, this claim is almost certainly false, since the vast majority of people in the East are not idealists. Among philosophers, there have been prominent idealists in both the East and the West, but they seem to have been a minority in both cases.)

Unfortunately, however, d’Aquili and Newberg do not clarify whether the conflict between external and subjective reality has to do with metaphysical or with epistemological priority. In addition, while they seem to consistently maintain that the resolution of the conflict between AUB and baseline reality hinges upon the resolution of the conflict between external and subjective reality, they do not themselves offer a resolution of the latter issue, because they seem to think that the issue is not decidable at some fundamental level. They claim there are equally compelling grounds for regarding both external and subjective reality as primary, and they provide no transcendental argument to resolve this apparent antinomy (to use the jargon of Immanuel Kant). Instead, d’Aquili and Newberg attempt to draw out the implications for the conflict between AUB and baseline reality of adopting either external or subjective reality as primary.

D'Aquili and Newberg (1999) propose that the "subjective vivid sense of reality" of an experience is the only criterion which can decide the conflict between AUB and baseline reality (p. 191). (Their discussion of using this criterion to resolve the conflict seems to rely on the assumption that subjective reality is primary, though they do not make this explicit.) Based on the criterion of the subjective vivid sense of reality of an experience, d'Aquili and Newberg claim that AUB wins hands down over baseline reality. AUB is coupled with a vivid sense of reality during the experience itself, which, according to d'Aquili and Newberg, is greater than the sense of reality in ordinary waking consciousness. D'Aquili and Newberg further claim that, unlike dreams and hallucinations, AUB retains its vivid sense of reality even from the standpoint of later episodes of baseline reality. They thus conclude that AUB is not only not a dream or hallucination, but that, from a phenomenological perspective, AUB is more real than baseline reality. Or, as they put it, "God" (AUB) "generates" baseline reality, including both its subjective and objective components (p. 193).

A different conclusion is reached, however, if one instead assumes the primacy of external reality. Thus, d'Aquili and Newberg claim that, from the standpoint of neuropsychology (which evidently assumes the primacy of external reality), the conflict between AUB and baseline reality is not decidable (just as with the conflict between external and subjective reality). In contrast with Persinger, d'Aquili and Newberg claim that their scientific model of mystical experiences does not prove that they are illusions. The experience of AUB is accompanied by changes in the brain, but so is the perception of physical objects, and this is not thought to show that physical objects exist only in the mind. They thus conclude that "God" (AUB) is just as real as external objects, from a

scientific perspective. (Incidentally, the equation of AUB with God or an experience of God is problematic, given that many people view God as a personal entity with human-like thoughts and feelings, while AUB does not seem to have these features.)

A further confusion is introduced into d'Aquili and Newberg's account when they deploy the same distinction at multiple levels of their discussion. They use the distinction between external and subjective reality in their description of baseline reality (which consists of objective and subjective components), but they also use this distinction at a higher level of analysis, when they claim that the conflict between AUB and baseline reality cannot be decided unless the prior conflict between external and subjective reality is first resolved. This raises the possibility that the higher order distinction is parasitic upon the lower order concept of baseline reality. How can one decide between AUB and baseline reality if the entire discussion assumes the priority of baseline reality, with its distinction between subjective and external realities? It is possible, however, that this problem could be resolved if d'Aquili and Newberg employed a set of two distinctions, each of which operated at a different level of their analysis.

D'Aquili and Newberg's account is nevertheless defective on several other grounds. A scientific materialist could object both to d'Aquili and Newberg's sharp distinction between subjective and external reality, and to the implications they subsequently draw from taking either of these points of view as primary. Each of these objections will be discussed in turn.

First, d'Aquili and Newberg's attempt to draw a sharp distinction between subjective and external reality runs into the metaphysical conundrums faced by mind-body dualists. D'Aquili and Newberg (1999) claim, for example, that subjective reality is

superfluous to matter, because it nowhere enters into a scientific account of the physical world (p. 185). If the subjective awareness of living creatures is considered to be fundamentally distinct from the matter which composes them and with which they interact, then their subjective awareness is left to float above the physical world, like a ghost hovering over a corpse. But the problem of mind-body interaction only occurs because of the dualism which they have unwisely adopted.

In addition, d'Aquili and Newberg claim that there is no way to prove that the contents of subjective awareness map onto the actual features of external reality—the problem of demonstrating the isomorphism between representation and reality. This problem, which they note in passing and for which they offer no solution, is also an artifact of the dualism between subjective and external reality which they have introduced. It, and the aforementioned problem about the superfluity of subjective awareness, do not arise if one does drop the notion of a fundamental separation between subjective awareness and external reality. Human beings (and other creatures with subjective awareness) can have no concept of “external reality” independent of their “representations” of it. To deploy a concept of “external reality” which makes no reference to “representations” within the “subjective awareness” of humans is to use an empty concept, a concept without any determinate meaning. Conversely, to label all human experiences as part of “subjective awareness” is to assume that such awareness can be cleanly separated from external reality. But a “representation,” to the extent that it represents something, is by definition not purely subjective. D'Aquili and Newberg's distinction between a scientific approach based on external reality and a phenomenological approach based on subjective awareness is thus misguided. The real

choice is between an approach which is based on systematic observation and analysis and an approach which is based on anecdote and intuition.

In addition to the problems which stem from their implicit dualism, there are problems with d'Aquili and Newberg's arguments regarding the reality of AUB from both the scientific and phenomenological perspectives. Their evaluation of AUB from a phenomenological perspective, which takes subjective awareness as primary, utilizes the "subjective vivid sense of reality" of an experience as the sole basis for its reality. They reject other criteria, such as coherence with other experience, and consistency with the experiences of other observers, by claiming that these are ultimately parasitic upon the subjective vivid sense criterion (d'Aquili & Newberg, 1999, p. 191). Relying solely on the latter would seem, however, to welcome such experiences as hallucinations and delusions into the community of reality-based representations. D'Aquili and Newberg attempt to give preferential treatment for AUB over hallucinations by claiming that AUB retains its vivid sense of reality even after the experience is over, and by claiming that this is not the case with such experiences as dreams and hallucinations. While it is true that dreams do not retain their vivid sense of reality once one has awoken, it is far from clear that hallucinations and delusions do not, especially in the case of persons suffering from a psychological disorder such as schizophrenia. Such delusions and hallucinations are rejected, not because they lack a vivid sense of reality to those who experience them, but rather because they fail the criterion of consistency with the views of independent observers. But the same seems true of AUB. AUB may seem very real to those who experience it, but it does not seem to be as widely verified by other observers as do the typical contents of ordinary waking consciousness.

D'Aquili and Newberg's attempt to resolve the conflict between AUB and baseline reality from a "neuropsychological" perspective is likewise problematic. They claim that it is not decidable whether AUB or baseline reality is more real from this perspective, but they overlook an important asymmetry between the perception of external objects in baseline reality and the alleged experience of God in mystical experiences. There is substantial consensus among independent observers both about the existence of external objects and about the existence of changes in the brain due to the perception of them, but there is not substantial consensus among independent observers about the existence of God or another transcendent reality. When a person perceives an external object, independent observers can perceive not only the relevant changes in the person's brain, but also the external object itself. Other people can agree that an external object exists just as easily as they agree that the person who perceives it has the relevant sort of brain activity; but this is not so with God or other transcendent realities.

The problem with the reality of AUB, however, is greater than the lack of a substantial consensus about the existence of the alleged object of AUB. Even if more people started experiencing AUB, perhaps through the widespread practice of meditation or other methods for attaining mystical experiences, this would not prove the existence of God or some other transcendent reality, any more than seeing lights when one is punched in the face proves the existence of an external light source, transcendent or otherwise. In both cases, there is no independent means of verifying the existence of the alleged object of the experience, nor an account of the mechanism by which information is transmitted from the object to the sense organs of the observer, and thence to the brain, to induce the relevant sorts of brain activity.

D'Aquili and Newberg's attempt to provide an alternative to Persinger-style scientific materialism must therefore be regarded as a failure. They confound the issue of the authenticity of mystical experiences with that of the alleged conflict between external and subjective reality, and their analysis from each of these perspectives is likewise problematic. D'Aquili and Newberg seem eager to construct epistemological space for a mystical God of the gaps, but unfortunately their arguments seem to collapse on closer inspection, sealing the gap both for them and their mystical friends.

4.6 Feit's Critique of the Scientific Study of Mystical Experiences

Feit portrays his interpretation of mystical experiences as the "middle ground" between the two extremes of Persinger-style "Reductionism" and the "Religionism" of d'Aquili and Newberg (Feit, 2003, p. 4). This portrayal is misleading, however, in two principal ways. The first is in his characterization of Persinger as a reductionist and d'Aquili and Newberg as religionists. As discussed above, the term "reductionism" has multiple meanings, none of which seem to capture precisely how Persinger's view of mystical experiences differs from other psychologists. Feit's characterization of d'Aquili and Newberg as religionists is similarly misleading. He claims that religionists are guilty of "self-assuredly pronouncing a god's existence," and that they "assume that the brain is specially designed to 'tune into' whatever god designed it" (Feit, 2003, p. 6). But this characterization fits researchers such as Joseph much more than it does d'Aquili and Newberg. As Feit himself notes, d'Aquili and Newberg do not advocate the beliefs of any particular religion (*ibid.*). It is therefore misleading to place d'Aquili and Newberg in the same group as self-avowed theists, much less the same group as those who assert that God designed the human brain in part as a sort of one-way celestial receiver.

The second principal way in which Feit's description of the debate is misleading is that his view does not really seem to constitute a Goldilocks-style happy median between Persinger on the one hand and d'Aquili and Newberg on the other. Unlike both Persinger and d'Aquili and Newberg, Feit claims that the attempt to construct a scientific model of mystical experiences is fundamentally problematic, for a variety of reasons (to be discussed below). In other words, he objects in principle to the research program currently being carried out by neuroscientists who study mystical experiences. In this sense, Feit does not occupy the middle ground between the scientific materialists and their opponents, but is rather on the opposite end from them both. What this really indicates, however, is not that Feit has drawn the spectrum incorrectly, but that the various theories cannot accurately be differentiated along a single dimension. More than one issue is at stake in the interpretation of the scientific research on mystical experiences. Two issues have already been mentioned above: the issue of whether mystical experiences can be completely explained scientifically, and the issue of whether mystical experiences are valuable. Feit's objection to the scientific study of mystical experiences raises a third issue, whether it is even possible to construct an accurate scientific model of mystical experiences, as Persinger, Joseph, and d'Aquili and Newberg have all attempted.

Feit raises several different objections to the scientific study of mystical experiences. He does not clearly distinguish the separate strands of his argument, but there seem to be at least five separate objections which occur in his critique of d'Aquili and Newberg (and, by implication, of other neuroscientists who study mystical

experiences). These objections will be discussed roughly in the order in which they are introduced in his discussion.

Feit's first objection is that neuroscientists such as d'Aquili and Newberg ignore the social environment in which mystical experiences occur. Feit here seems to adopt the view of Katz (1978, 1983, 1992) and other contextualists that mystical experiences differ fundamentally from one another, due to the varying social contexts in which they are embedded (as discussed in section 2.1, above).

Feit's second objection to the scientific study of mystical experiences is that only the subject of a mystical experience, and not a scientific researcher or other external observer, is qualified to describe the experience as such. According to Feit, an external observer is never qualified to make that determination, regardless of any data he might have about the brain states of the subject in question. Feit (2003) objects to "doctors in lab coats" determining when a person has a mystical experience (p. 8). He also claims that "no one has bothered to ask" the subjects of an experiment what they believe to be a mystical experience (*ibid.*).

Feit's third objection is that mystical experiences are irreducibly subjective, and that they can thus never be accurately described by a scientific theory. The difference between the second and the third objection is that the second objection reflects an epistemological worry, while the third objection reflects a metaphysical worry. Feit's epistemological worry is that mystical experiences can never be known as such by an external observer because of their restricted access to the relevant information; his metaphysical worry is that mystical experiences are intrinsically subjective (at least in

part), and thus no one, not even those who experience them, can devise a complete objective description of them.

Feit's third (metaphysical) objection seems to presume a metaphysical dualism between the biology of a person's brain and at least some of his states of consciousness. This presumption is discussed directly by Feit, when he claims that a "person" exists independently of the neurons of his brain (and presumably independently of the other parts of his brain as well). Feit claims that the term "person" would have no "meaning" and that personhood would have no "function" if the person were just neurons (and not some further, non-physical entity) (p. 7). According to Feit, different people's brains can be in "identical" states even though they interpret the state differently (p. 8). With respect to mystical experiences in particular, Feit claims that they partially consist of a subjective component, a cognitive label that is not a biological process.

Feit's fourth objection is that mystical experiences cannot be studied experimentally because laboratory conditions will inevitably alter the nature of the experience. He asserts that meditation in a lab cannot be the same as in a "mountain cave" or at home (p. 8). Feit presumably assumes that there would be analogous problems with studying the other mechanisms for generating mystical experiences.

Finally, Feit's fifth objection, which he derives from Bulkeley (2002), is that each mystical experience is *sui generis*, and thus it is impossible in principle to create a scientific theory which accounts for them all.

Despite the impressive array of objections that Feit raises, a scientific materialist can effectively counter them all. Feit's first objection was that mystical experiences are mediated at a fundamental level by social context. Even if this were true, the scientific

study of mystical experiences would not necessarily fail. If mystical experiences did vary irreducibly based on social context, then researchers should in principle be able to detect and measure these differences, and show how they correlate with the relevant social facts.

Feit's second objection was that mystical experiences are fundamentally epistemologically subjective. It seems fair to ask, however, how Feit would know this. The claim sets up a sort of paradox, because if it is true that mystical experiences are fundamentally epistemologically subjective, then there is no way anyone could prove this, since they could not have access to information about other people's mystical experiences. The claim is in any event implausible. Even if there are practical or technical problems resulting from an asymmetry of information between subject and observer, this does not prove that such problems are not soluble in principle. Feit's objection seems to be based on an emotional objection to "doctors in lab coats" studying mystical experiences, perhaps because of the often great personal significance of such experiences, and because of the negative opinion many people have of scientific researchers, who are often regarded as excessively dry or clinical in their approach. But Feit's objection seems to amount to little more than special pleading on behalf of mystical experiences. Why should mystical experiences, and mystical experiences only, not be accessible to scientific scrutiny? If mystical experiences are fundamentally epistemologically subjective, why isn't this also true of seeing red? Yet Feit does not object to the scientific study of perception, emotion, cognition, or other psychological processes with phenomenological components.

Feit's related claim, that researchers never ask subjects what they believe to be mystical experiences, is simply false. Researchers associate certain brain states with

mystical experiences in large part on the basis of subject's designations of certain experiences as mystical. The subjects are the ultimate source of the descriptions of the phenomenology of their experiences (see, for example, Beauregard & Paquette, 2006).

Feit's third objection was that mystical experiences are fundamentally metaphysically subjective. This objection opens Feit to the standard problems faced by metaphysical dualists, as discussed in section 4.5 above. Feit's dualism faces additional problems, however, because of his belief that there is not a unique correspondence between mental states and physical states. If mystical experiences or other mental states are non-physical, but uniquely correspond to particular physical states, then at least the corresponding physical states can have a set of effects on the rest of the physical world which vary based on each type of mental state. If, on the other hand, mental states do not uniquely correspond to particular facts about the physical world, then different mental states can be associated with the same physical state, and would thus have an identical causal impact on the physical world.

If the cognitive label portion of a mystical experience is purely subjective, then it can have no effect on a person's physically observed behavior or on the world generally, unless one adopts an implausible notion of causation. One might assume, for example, that the world is not a physically closed system, or that some events are simply uncaused, or that God undetectably interferes with physical causation so that non-identical mental states with identical physical substrates can yet have a different effect on the physical world.

An example may help to illustrate the case. Suppose that two people have identical brain states, but that one person identifies the state as a mystical experience

while the other does not. If Feit claimed simply that the cognitive label were a further fact about the brain independent of the (unlabeled) mystical experience itself, then at least it would be possible for this further physical fact to have a causal influence on a person's behavior or on the world. If the cognitive label is purely subjective, then a person's behavior will only change as a result of it if it is somehow connected to other physical causes in an occult manner. For example, perhaps God alters a person's behavior if the person labeled the experience as mystical, or perhaps other physical causes coincidentally emerge to affect the person's body in the relevant ways (such as causing his brain to change in ways that make him go to church more often). Otherwise, the purely subjective aspect of the mystical experience is causally inert. In any case it becomes mysteriously separated from the rest of reality if one insists on its metaphysical distinctness. And the only remaining mechanisms by which the experience could have a physical impact on a person or his environment are patently absurd.

Feit's fourth objection was that mystical experiences will be inevitably altered by the controlled conditions of an experiment. Feit provides no evidence of this, and indeed it is difficult to see how he would know this, unless he had special access to information about mystical experiences apart from what can be learned about them experimentally. It is of course possible that mystical experiences are altered due to the conditions of an experiment, but this is true of any psychological process. Feit thus seems once again to be engaged in special pleading on behalf of mystical experiences. If perception, emotion, and cognition can be studied experimentally, then why not mystical experiences? Even if there are greater practical problems with the study of mystical experiences than with other psychological processes, this would not show that such experiences cannot be

studied in principle, nor that these problems could not be gradually overcome through improved instruments or experimental designs.

Feit's fifth objection was that mystical experiences are *sui generis* and that there can thus be no single scientific theory which explains them all (or even any sub-set of them). Once again, Feit provides no evidence for this claim. Even if the claim were true, it could still be determined scientifically, unless one adopts Feit's version of metaphysical dualism, according to which the same physical state can correspond to more than one mental state. Otherwise, a scientific study of mystical experiences would reveal that there is no single physical process associated with such experiences, but rather a set of various physical processes, no two of which are alike.

Feit's alternative to the "Reductionism" of Persinger and the "Religionism" of d'Aquili and Newberg provides a characteristic example of how the psychology of religion and spirituality is often viewed by researchers in the fields of theology and religious studies—with suspicion and alarm. Feit's objections to the scientific study of mystical experiences are nonetheless deeply flawed. As with Joseph, Feit seems to base his view more on his preconceived notions about mystical experiences than on any actual evidence.

4.7 Spiritual Scientific Materialism

As discussed above, in addition to believing that mystical experiences can be completely explained scientifically, scientific materialists have, as a matter of fact, also regarded them as pathological or harmful. It is possible, however, to assert both that mystical experiences can be completely explain scientifically—specifically, that they are "just in your head," and can be explained through describing the relevant brain activity—

but also that they can be of great value and meaning to those who have them. This amounts to assuming both a scientific materialist worldview and a belief that spirituality is an important part of human welfare. In what follows, the beginnings of a positive case for a “spiritual” scientific materialism will be made, and this view will then be defended from some likely objections.

The first part of the positive case for spiritual scientific materialism is just a defense of a scientific materialist interpretation of mystical experiences. Any alternative interpretation of mystical experiences would seem to involve abandoning or going beyond the scientific method for generating its explanation of mystical experiences. The scientific method has proven to be a reliable way of resolving disputes about the nature of reality; hypotheses must be supported with evidence open to public scrutiny, and the results of experiments can be replicated even by those who initially disagree with the hypothesis being tested. Unscientific ways of knowing lack these advantages, and to the extent that alternative views of mystical experience appeal to religious or other unscientific concepts, they appeal to hypotheses that cannot be directly tested by others. Spiritual scientific materialism will thus be attractive to anyone who regards the scientific method as the best way for resolving intellectual disputes.

The second part of the positive case for spiritual scientific materialism is to display the evidence which seems to show that mystical experiences have positive effects. Unfortunately, the evidence for the positive effects of mystical experiences is largely (though not entirely) anecdotal. Some of the anecdotal evidence for the positive effects of mystical experiences will be presented first, before presenting some of the empirical support which has begun to emerge.

Mystics and students of mysticism have long insisted on the beneficial effects of mystical experiences. Mystical experiences are often regarded as beneficial both in themselves and in terms of how they affect the lives of those who have them. The experiences themselves are often regarded as beneficial because of the positive affect associated with them and because of the accompanying belief that one has experienced the fundamental nature of reality, which imbues the experience with great intrinsic meaning. The experiences are also often believed to make those who have them more joyful and at peace, to increase their sense of meaning and purpose in life, and to make them more compassionate towards their fellow human beings (Austin, 1998; James, 1902; Underhill, 1911/1999; White, 1995). They are also often thought to make one more vigorous and efficient in one's actions (Austin, 1998; Underhill, 1911/1999).

Despite these traditional beliefs about mystical experiences, some scientists have regarded them as being pathological, in the sense that they are symptoms of a psychological disorder, and are thus harmful or undesirable. This is probably due both to the fact that some mystical experiences are caused by temporal lobe epilepsy, and because some persons with schizophrenia have experiences which resemble mystical experiences (Kemp, 2000). Jackson and Fulford (1997) distinguish between pathological experiences and (non-pathological) spiritual experiences on the basis of whether the experience frustrates or enhances one's ability to act (for a critique of Jackson and Fulford, see Marzanski and Bratton, 2002b). According to d'Aquili and Newberg (1999), genuine mystical experiences can be distinguished from psychotic episodes in that mystical experiences are usually associated with feelings of joy, serenity, wholeness, and love, and in that mystics are usually accepted by the community and even looked to for

guidance, while psychotic experiences are usually associated with feelings of confusion, fear, and judgment by an angry God, and psychotics usually become increasingly isolated from society. Brett (2002a) identifies three ways in which psychotic states differ from mystical states: “(1) a maintenance of the ego structure, albeit in a distorted or fragmented fashion, and a concurrent maintenance of some subject/object distinctions; (2) less ability to control attention; and (3) less ability to maintain equanimity, demonstrated by emotionality, confusion, and anxiety” (p. 335). Brett (2002b) also argues that, while psychotic states can be meaningfully distinguished from mystical states, it is possible for them to occur together in the same person. Cook (2004), meanwhile, argues that experiences which are widely regarded as positive, valuable, and “life-enhancing” are probably not pathological (p. 157). There is thus no definitive consensus as to precisely what differentiates mystical experiences from pathological states, but there is a definite trend toward regarding them as distinct from those pathological states which they resemble.

The effects of mystical experiences must also be distinguished from the effects of two other related factors, religiousness and the practice of meditation techniques (both of which have been more thoroughly studied than have mystical experiences). There is a growing body of research which shows that religiousness is associated with positive physical and mental health outcomes (see, for example, Koenig, 1998, 1999; Pargament, 1997; Worthington, Korusu, McCullough, & Sandage, 1996 [cited in Newberg, d’Aquili, & Rause, 2002]), and which shows an association between religiousness and well-being (Chumbler, 1996; Diener, 1984; Ellison, 1991; Peterson & Roy, 1985; Pollner, 1989; Poloma & Pendleton, 1989 [cited in Byrd, Lear, & Schwenka, 2000]).

There is also an extensive literature on the positive effects of meditation. Mindfulness meditation, for example, has been shown to reduce stress and anxiety (Baer, 2003; Cahn & Polich, 2006; Grossman, Niemann, Schmidt, & Walach, 2004; Kabat-Zinn, 2003, 2005) and to contribute positively to a variety of health outcomes (Bonadonna, 2003; Grossman, Niemann, Schmidt, & Walach, 2004; Kabat-Zinn, 2003). Because of its beneficial effects on anxiety and other mental health outcomes, mindfulness meditation has begun to be used as a clinical intervention strategy for anxiety and depression (Germer, Siegel, & Fulton, 2005; McQuaid & Carmona, 2004).

According to Byrd, Lear, and Schwenka (2000), the research on religiousness and well-being shows that religious experience is more directly related to well-being than is religious behavior. They also claim that mystical experiences have been neglected in comparison to religiousness, possibly due to a “theistic bias concerning what it means to have a religious experience” (p. 260). In any event, they attempt to partially rectify this neglect by measuring the effect of mysticism on well-being, being careful to isolate mysticism from those religious factors which have previously been associated with well-being.

Byrd, Lear and Schwenka use a modified version of Hood’s (1975) Mysticism Scale, which has been divided into three subscales, owing to further factor analysis (Hood, Morris, & Watson, 1993). Two of the three subscales are actually derived from Stace’s (1960) distinction between introvertive and extrovertive mystical experiences. As discussed in section 1.3, introvertive mystical experiences involve the sense that there is no boundary between oneself and the external world, while extrovertive mystical experiences involve the sense that the external world is united. The third subscale is

referred to as “Religious Interpretation.” Byrd, Lear, and Schwenka (2000) characterize the Religious Interpretation subscale as “a cognitively mediated mystical state in which the ‘raw’ mystical experiences are construed as blissful, revelatory, or sacred” (p. 260). It should be noted, however, that the term “Religious Interpretation” may be misleading, because the questions on the inventory make reference to the “sacred” and “ultimate reality,” and do not assess the subject’s adherence to any particular religious belief system. It therefore seems reasonable to regard the Religious Interpretation subscale as a measure of mysticism and not of religiousness. As such, Byrd, Lear, and Schwenka (2000) refer to Religious Interpretation as a “mystical interpretive framework” or “mystical cognitive framework” (p. 268). (For a recent study which supports slightly modifying the items in two of the three mysticism subscales, see Lazar & Kravetz, 2005.)

Byrd, Lear, and Schwenka adopt the well-being measures of Poloma and Pendleton (1989, 1990), which include four separate dimensions of subjective well-being: Satisfaction with Life, Existential Well-Being, Negative Affect, and Religious Satisfaction. Existential Well-Being measures a person’s sense of purpose and meaning in life (and is thus referred to by Byrd, Lear, and Schwenka as “Purpose in Life”). The inventory used to measure Religious Satisfaction is the same as that used to measure Satisfaction with Life, except that the word “religious” is inserted in front of the word “satisfaction” in the various questions that make up the inventory.

In order to distinguish between the effects of mystical experience and religiousness on well-being, Byrd, Lear, and Schwenka selected four control variables associated with religiousness: prayer experience, frequency of prayer, intrinsic religiousness, and church attendance. Prayer experience is the tendency to experience

God during prayer, while intrinsic religiousness is the degree to which a person regards religious activities as ends in themselves and not as mere means to other ends (such as the desire for social interaction). Each of these explicitly religious independent variables has been previously shown to be associated with gains in at least one of the dimensions of subjective well-being identified by Poloma and Pendleton.

Byrd, Lear, and Schwenka found that mysticism is a significant predictor of well-being. Interestingly, however, Extrovertive Mysticism without Religious Interpretation was found to predict less well-being, while Introvertive Mysticism without Religious Interpretation was found to predict a marginally significant increase in Negative Affect. This is so despite the fact that both Extrovertive Mysticism and Introvertive Mysticism with Religious Interpretation predict significant increases in Satisfaction with Life and Purpose in Life. Religious Interpretation alone is associated with an increase in Purpose in Life, and is negatively associated with Negative Affect (presumably reflecting the blissful character of mystical experiences). Byrd, Lear, and Schwenka (2000) hypothesize that having introvertive or extrovertive mystical experiences in the absence of the mystical cognitive framework measured by the Religious Interpretation subscale might be a “vertiginous and therefore uncomfortable experience” (p. 267). They note that the phenomenology of introvertive mystical experiences is reminiscent of two clinical states, “depersonalization” and “derealization” (ibid.). It is possible that the introvertive and extrovertive subscales by themselves do not capture what is meant by the term “mystical experience” as defined herein, and that an experience should only be regarded as “mystical” if it is interpreted within a certain cognitive framework (perhaps corresponding to the “noetic quality” of mystical experiences identified by James

[1902]). Another possibility is that mystical experiences without the cognitive framework are still genuine mystical experiences, but that some mystical experiences are harmful or at least uncomfortable. To a certain extent the issue may be a purely terminological one; if so, future research may help determine which way of speaking is more useful or convenient.

In any event, there is thus both some evidence that mystical experiences may lead to increased well-being, as has long been claimed by mystics and students of mysticism, and some evidence that certain quasi-mystical experiences may be harmful or unpleasant. More research should help clarify the nature of mystical experiences' contribution to well-being, and the relation between the respective contributions to well-being of mysticism, religiousness, and meditation. Assuming that future research confirms the relationship between mystical experiences and well-being, this would make the view of Persinger, Alper, and others seem somewhat implausible. Mystical experiences are probably not universally pathological or harmful if it turns out they contribute significantly to well-being in some cases.

There are, however, at least two kinds of objections which can be made to spiritual scientific materialism. The first is that a scientific materialist account of mystical experiences does not provide a satisfactory account of the relationship between the phenomenology of mystical experiences and the neurology of mystical experiences. The second is that valuing spirituality is not actually compatible with scientific materialism. Each of these objections will be discussed in turn.

The first objection is that scientific materialism does not explain how the phenomenology of mystical experiences can be completely explained scientifically. This

objection seems to rest on an unnecessary dichotomy between the phenomenology of an experience and the neurology of an experience. From a scientific materialist point of view, mystical experiences just *are* the relevant sorts of brain activity. Consciousness does not float above or beyond the brain, like a ghost hovering over a dead body. What separates a phenomenological description of a mystical experience from a neurological description of it is just the different *points of view* of the subject of an experience and an external observer. From the subject's point of view, the mystical experience consists of self-transcendence and so on, while, from the external observer's point of view, the experience consists of the relevant sort of brain activity.

It is true that the language used to describe a mystical experience from the subject's point of view can never be made identical to the language used to describe the experience from an external observer's point of view, but this is only because the points of view themselves can never be made identical. What the scientific materialist denies is that the inherent difference between subjective and external points of view points to a metaphysical dichotomy between the experience of a conscious subject and the brain state that is perceived by an external observer. They both perceive the same thing, but from different vantage points. While an external description can never be rendered identical to a subjective description, a complete scientific theory of consciousness would enable one to effectively translate any given subjective description into the corresponding external description, and vice-versa. (Analogously, a French sentence can never be made identical to its corresponding English sentence, even if they have the same meaning.)

The second objection to spiritual scientific materialism is the claim that valuing spirituality is incompatible with scientific materialism. Many people seem to have the

feeling that to describe an experience scientifically is to devalue it. Scientific explanations of romantic love and compassion often create this reaction, for example. This may be because the value of the experience is dependent on its characteristic phenomenology, and an objective description of the experience may distract one from the usual positive associations one has with the relevant phenomenology of the experience, creating an unpleasant sensation. Regardless, believing in a scientific explanation of an experience is compatible with valuing the experience for its characteristic phenomenology. Thinking about the scientific explanation of an experience while one is having it may indeed interfere with the subjectively perceived meaning or value of the experience. But it is possible to hold scientific views of experiences even if one does not let them intrude upon one's enjoyment or appreciation of the experiences themselves. That is why psychologists can still enjoy the smell of a rose, the taste of a fine wine, and the rapture of love, even if they also believe that these experiences can be explained scientifically.

But what about the crucial role which seemed to be played by Religious Interpretation in the well-being associated by Byrd, Lear, and Schwenka (2000) with mystical experiences? Recall that the Religious Interpretation inventory does not measure religious beliefs *per se*. Instead, the inventory measures whether a person regards the experience as "blissful, revelatory, or sacred" (*ibid.*, p. 260). The real question is whether the sense that an experience is blissful, revelatory, or sacred is compatible with the belief that the experience can be completely explained scientifically. And the answer seems to be yes. The kind of interpretation of an experience measured by the Religious Interpretation survey is distinct from the kind of interpretation offered by religious,

philosophical, or scientific theories. The Religious Interpretation survey measures the degree to which a person regards a mystical experience as meaningful or valuable. This is a separate issue from whether or not a person interprets the experience in terms of a particular theological or metaphysical theory. If this is correct, then adherents of a scientific worldview can appreciate the joys and wonders of a mystical experience just as much as adherents of unscientific worldviews.

If this is so, why have so many adherents of a scientific worldview been opposed to mysticism for so long? One possibility is that mysticism suffers from guilt by association, because of the implausible philosophical and religious interpretations that have long been given to it. The scientifically-minded may also have been turned off by mystics' frequent claims to have had ineffable experiences that are not subject to rational explanation. But the phenomenological ineffability of mystical experiences does not in fact show they cannot be explained scientifically, from an external point of view. And the fact that many mystics have tried to use their experiences as evidence for particular religious or philosophical theories does not imply that they in fact constitute evidence for anything of the sort.

Spiritual scientific materialism thus avoids two common tempting lines of thought when dealing with mystical experiences. The conventional scientific materialist jumps to the conclusion that a scientific explanation precludes the possibility that mystical experiences are of great value to those who have them, and that they could well constitute the peak experiences, the pinnacles of their lives. The opponent of scientific materialism jumps to the conclusion that mystical experiences, because of their characteristic phenomenology, are not capable of being completely explained scientifically, but require

reference to some religious or philosophical theory. Pace Feit, spiritual scientific materialism represents the true “middle way” between these two extremes. The scientific method, which has done so much to increase humanity’s understanding of itself and the world, is perfectly compatible with a spirituality as deep and as broad as any of the world’s religious and philosophical traditions. It is time that both scientists and mystics awaken to this fact.

4.8 Epilogue

Despite the fact that they are experienced by people the world over and from a variety of religious and philosophical traditions, mystical experiences have long been left to fall through the cracks of scientific research. This neglect has begun to be remedied in recent years, and one hopes that continued research will increasingly clarify the neurology of such experiences. The already existing research has begun to clarify the ways in which mechanisms such as meditation can lead to mystical experiences, and the way the characteristic phenomenology of such experiences is produced through changes in the usual functioning of the brain. The existing research has also seemed to give some evidence for the perennialist view that mystics the world over have the same types of experiences, insofar as this research seems to be identifying common biological mechanisms which underlie different persons’ mystical experiences. Unfortunately, however, the progress in the scientific study of mystical experiences does not seem to have brought much clarity to scientists’ and mystics’ interpretations of these experiences. The tendency has been to either regard mystical experiences as pathological or to view them as evidence of the inadequacy of the scientific worldview. Spiritual scientific

materialism may provide a way for scientists to move beyond hostility to mystical experiences on the one hand, and infidelity to the scientific method on the other.

REFERENCES

- Alexander, C. N., Rainforth, M. V., & Gelderloos, P. (1991). Transcendental meditation, self-actualization, and psychological health: A conceptual overview and statistical meta-analysis. *Journal of Social Behavior and Personality*, 6, 189-247.
- Alper, M. (2001). *The "God" part of the brain: Scientific interpretation of human spirituality and God*. New York, NY: Rogue.
- Andresen, J. (2000). Meditation meets behavioural medicine: The story of experimental research on meditation. *Journal of Consciousness Studies*, 7, 17-73.
- Atran, S. (2004). *In gods we trust: The evolutionary landscape of religion*. New York, NY: Oxford University Press.
- Austin, J. H. (1998). *Zen and the brain: Toward an understanding of meditation and consciousness*. Cambridge, MA; London: The MIT Press.
- Austin, J. H. (2000). Consciousness evolves when the self dissolves. *Journal of Consciousness Studies*, 7, 209-230.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology*, 10, 125-143.
- Bartocci, G., & Dein, S. (2005). Detachment: Gateway to the world of spirituality. *Transcultural Psychiatry*, 42, 545-569.
- Bear, D. M. (1979). Temporal lobe epilepsy: A syndrome of sensory-limbic hyperconnectionism. *Cortex*, 15, 357-384.
- Beauregard, M., and Paquette, V. (2006). Neural correlates of a mystical experience in Carmelite nuns. *Neuroscience Letters*, 405, 186-190.
- Bodhi (Bhikkhu) (Trans.) (2000). *The connected discourses of the Buddha: A translation*

- of the Samyutta Nikaya*. Boston, MA: Wisdom Publications.
- Bonadonna, R. (2003). Meditation's impact on chronic illness. *Holistic Nursing Practice*, 17, 309-319.
- Boyer, P. (2001). *Religion explained: The evolutionary origins of religious thought*. New York, NY: Basic Books.
- Brett, C. (2002a). Psychotic and mystical states of being: Connections and distinctions. *Philosophy, Psychiatry and Psychology*, 9, 321-341.
- Brett, C. (2002b). Spiritual experience and psychopathology: Dichotomy or interaction? *Philosophy, Psychiatry and Psychology*, 9, 374-380.
- Bucke, R. M. (1901). *Cosmic consciousness: A study in the evolution of the human mind*. Philadelphia, PA: Innes & Sons.
- Buddhaghosa (1999). *The path of purification: Visuddhimagga* (Nanamoli [Bhikkhu], Trans.). Seattle, WA: BPS Pariyatti Editions.
- Bulkeley, K. (2002). The evolution of wonder: Religious and neuroscientific perspectives. Paper delivered at the Annual Meeting of the American Academy of Religion, Toronto, Canada, 23-26 November.
- Byrd, K. R., Lear, D., & Schwenka, S. (2000). Mysticism as a predictor of subjective well-being. *The International Journal for the Psychology of Religion*, 10, 259-269.
- Cahn, B. R., & Polich, J. (2006). Meditation states and traits: EEG, ERP, and neuroimaging studies. *Psychological Bulletin*, 132, 180-211.
- Cleary, T. (Trans.) (2000). *Taoist meditation: Methods for cultivating a healthy mind and body*. Boston, MA; London, UK: Shambhala Publications.

- Cook, C. M., & Persinger, M. A. (2001). Geophysical variables and behavior, XCII: Experimental elicitation of the experience of a sentient being by right hemispheric, weak magnetic fields: Interaction with temporal lobe sensitivity. *Percept Mot Skills*, 92, 447-448.
- Cook, C. C. H. (2004). Psychiatry and mysticism. *Mental Health, Religion & Culture*, 7, 149-163.
- Crosson, B., Sadek, J. R., Maron, L., et al. (2001). Relative shift in activity from medial to lateral frontal cortex during internally versus externally guided word generation. *J Cognitive Neurosci*, 13, 272-283.
- D'Aquili, E. G. (1982). The sense of reality in science and religion: A neuroepistemological perspective. *Zygon*, 17, 361-384.
- D'Aquili, E. G. (1983). The myth-ritual complex: A biogenetic structural analysis. *Zygon*, 18, 247-269.
- D'Aquili, E. G. (1986). Myth, ritual, and the archetypal hypothesis. *Zygon*, 21, 141-160.
- D'Aquili, E. G., & Laughlin, C. (1975). The biopsychological determinants of religious ritual behavior. *Zygon* 10: 32.
- D'Aquili, E. G., & Newberg, A. B. (1993). Religious and mystical states: A neuropsychological substrate. *Zygon*, 28, 177-200.
- D'Aquili, E. G., & Newberg, A. B. (1998). The neuropsychological basis of religions, or why God won't go away. *Zygon*, 33, 187-201.
- D'Aquili, E. G., & Newberg, A. B. (1999). *The mystical mind: Probing the biology of religious experience*. Minneapolis: Fortress Press.
- D'Aquili, E. G., & Newberg, A. B. (2000). The neuropsychology of aesthetic, spiritual,

- and mystical states. *Zygon*, 35, 39-52.
- Dionysius the Areopagite (2004). *The Mystical Theology and the Divine Names* (C. E. Rolt, Trans.). New York, NY: Dover Publications.
- Dunn, B. R., Hartigan, J. A., & Mikulas, W. L. (1999). Concentration and mindfulness meditations: Unique forms of consciousness? *Applied Psychophysiology & Biofeedback*, 24, 147-165.
- Emerson, R. W. (1992). The Over-soul. In B. Atkinson (Ed.), *The selected writings of Ralph Waldo Emerson* (pp. 236-251). New York: Modern Library. (Original work published 1841.)
- Emerson, R. W. (1992). The Transcendentalist. In B. Atkinson (Ed.), *The selected writings of Ralph Waldo Emerson* (pp. 81-95). New York: Modern Library. (Original work published 1843.)
- Emmons, R. A., and Crumpler, C. A. (1999). Religion and spirituality? The roles of sanctification and the concept of God. *The International Journal for the Psychology of Religion*, 9, 17-24.
- Epictetus (1983). *The handbook (The Encheiridion)* (N. P. White, Trans.). Indianapolis, IN: Hackett Publishing Company.
- Epicurus (1988). *Letters, principal doctrines, and Vatican sayings* (R. M. Geer, Trans.). New York, NY: Macmillan Publishing Company; London, UK: Collier Macmillan Publishers.
- Feit, J. S. (2003). *Probing neurotheology's brain, or critiquing an emerging quasi-science*. Symposium on Critical Theory and Discourses on Religion conducted at

- the 2003 Annual Convention of the American Academy of Religion, Atlanta, GA, Nov. 22-25.
- Fenwick, P. (2003). The neuroscience of spirituality. Retrieved November 20, 2005 from <http://www.rcpsych.ac.uk/college/sig/spirit/publications/Peter%20Fenwick%2011.03%20The%20Neuroscience%20of%20Spirituality.pdf>
- Fischer, R. (1971). A cartography of ecstatic and mystical states. *Science*, 174, 897-904.
- Galen (1963). *On the passions and errors of the soul* (P. W. Harkins, Trans., & W. Riese, Intro.). Columbus, OH: Ohio State University Press.
- Gellhorn, E., & Kiely, W. F. (1972). Mystical states of consciousness: Neurophysiological and clinical aspects. *Journal of Nervous and Mental Disease*, 154, 399-405.
- Germer, C. K., Siegel, R. D., & Fulton, P. R. (Eds.) (2005). *Mindfulness and psychotherapy*. New York; London: The Guilford Press.
- Goldstein, J., & Kornford, J. (2001). *Seeking the heart of wisdom: The path of insight meditation*. Boston, MA; London, UK: Shambhala.
- Griffiths, R. R., Richards, W. A., McCann, U., & Jesse, R. (2006). Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning an spiritual significance. *Psychopharmacology*, 187, 268-283.
- Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, 57, 35-43.
- Gunaratana, H. (Bhante) (2002). *Mindfulness in plain English*. Boston, MA: Wisdom Publications.

- Guthrie, S. E. (1995). *Faces in the clouds: A new theory of religion*. New York, NY: Oxford University Press.
- Hadot, P. (1995). *Philosophy as a way of life* (A. I. Davidson, Ed.; M. Chase, Trans.). Malden, MA; Oxford, UK; Carlton, Australia: Blackwell Publishing.
- Hadot, P. (2001). *The inner citadel: The Meditations of Marcus Aurelius* (M. Chase, Trans., rev. ed.). Cambridge, MA: Harvard University Press.
- Hadot, P. (2002). *What is ancient philosophy?* (M. Chase, Trans.). Cambridge, MA; London, UK: The Belknap Press of Harvard University Press.
- Harris, S. (2004). *The end of faith: Religion, terror, and the future of reason*. New York, NY; London, UK: W. W. Norton & Company.
- Herzog, H., Lele, V. R., Kuwert, T., et al. (1990-1991). Changed pattern of regional glucose metabolism during Yoga meditative relaxation. *Neuropsychobiology*, 23, 182-187.
- Hood, R. W., Jr. (1975). The construction and preliminary validation of a measure of reported mystical experience. *Journal for the Scientific Study of Religion*, 14, 29-41.
- Hood, R. W., Jr. (2002). The mystical self: Lost and found. *The International Journal for the Psychology of Religion*, 12, 1-14.
- Hood, R. W., Jr. (2005). Mystical, spiritual, and religious experiences. In R. F. Paloutzian and C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 348-364). New York, NY: The Guilford Press.
- Hood, R. W., Jr., Morris, R. J., & Watson, P. J. (1993). Further factor analysis of Hood's Mysticism Scale. *Psychological Reports*, 3, 1176-1178.

- Horgan, J. (2003). *Rational mysticism*. Boston, MA; New York, NY: Houghton Mifflin Company.
- Huxley, A. (1944). *The perennial philosophy*. New York, NY: Harper & Row.
- Jackson, M., and Fulford, K. W. M. (1997). Spiritual experience and psychopathology. *Philosophy, Psychiatry and Psychology*, 4, 42-65.
- James, W. (1902). *The varieties of religious experience: A study in human nature*. New York, NY: Longmans, Green.
- Johnston, W. (1997). *The inner eye of love: Mysticism and religion*. Bronx, NY: Fordham University Press.
- Joseph, R. (1982). The neuropsychology of development: Hemispheric laterality, limbic language, and the origin of thought. *Journal of Clinical Psychology*, 33, 3-34.
- Joseph, R. (1988). The right cerebral hemisphere: Emotion, music, visual-spatial skills, body image, dreams, and awareness. *Journal of Clinical Psychology*, 44, 630-673.
- Joseph, R. (1990). *Neuropsychology, neuropsychiatry, and behavioral neurology*. New York, NY: Plenum.
- Joseph, R. (1992). The limbic system: Emotion, laterality, and unconscious mind. *Psychoanalytic Review*, 79, 405-456.
- Joseph, R. (1996). *Neuropsychiatry, neuropsychology, clinical neuroscience*. Baltimore, MD: Williams and Wilkins.
- Joseph, R. (1998). Traumatic amnesia, repression, and hippocampal injury due to corticosteroid and enkephalin secretion. *Child Psychiatry and Human Development*, 29, 169-186.
- Joseph, R. (2001). The limbic system and the soul: Evolution and the neuroanatomy of

- religious experience. *Zygon*, 36, 105-136.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology*, 10, 144-156.
- Kabat-Zinn, J. (2005). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness* (15th ed.). New York: Delta Trade Paperbacks.
- Kaplan, S. (1978). An appraisal of a psychological approach to meditation. *Zygon*, 13, 83-101.
- Kapleau, P. (1967). *The three pillars of Zen: Teaching, practice, and enlightenments*. New York, NY: Harper & Row.
- Karnath, H. O., Ferber, S., & Himmelbach, M. (2001). Spatial awareness is a function of the temporal not the posterior parietal lobe. *Nature*, 411, 950-953.
- Katz, S. (Ed.) (1978). *Mysticism and philosophical analysis*. New York, NY: Oxford University Press.
- Katz, S. (Ed.) (1983). *Mysticism and religious traditions*. New York, NY: Oxford University Press.
- Katz, S. (Ed.) (1992). *Mysticism and language*. New York, NY: Oxford University Press.
- Kemp, D. (2000). A Platonic delusion: The identification of psychosis and mysticism. *Mental Health, Religion & Culture*, 3, 157-172.
- Koenig, H. G. (Ed.) (1998). *Handbook of religion and mental health*. San Diego, CA: Academic Press.
- Koenig, H. G. (1999). *The healing power of faith*. New York, NY: Simon & Schuster.
- Kornfield, J. (1993). *A path with heart: A guide through the perils and promises of spiritual life*. New York, NY: Bantam Books

- Lai, W. (1982). Sinitic speculations on Buddha-Nature: The Nirvana School (420-589). *Philosophy East and West*, 32, 135-149.
- Lau, D. C. (Trans.) (1963). *Lao tzu*. London, UK: Penguin Books.
- Lazar, A., & Kravetz, S. (2005). Responses to the Mystical Scale by religious Jewish persons: A comparison of structural models of mystical experience. *International Journal for the Psychology of Religion*, 15, 51-61.
- Lazar, S. W., Bush, G., Gollub, R. L., et al. (2000). Functional brain mapping of the relaxation cerebral blood flow during the complex cognitive task of meditation: A preliminary SPECT study. *Psychiatr Res Neuroreport*, 106, 113-122.
- Long, T., O'Donovan, C., Cabe, C., Bennett, L., Whittington, P., Bell, W., & Persinger, M. (1996). Relationship of daily geomagnetic activity to the occurrence of temporal lobe seizures in an epilepsy monitoring unit (abstract). *Epilepsia*, 36, 94.
- Lynch, J. C. (1980). The functional organization of posterior parietal association cortex. *Behav Brain Sci*, 3, 485-499.
- Makarec, K., & Persinger, M. A. (1990). Electroencephalographic validation of a temporal lobe signs inventory in a normal population. *Journal of Research Personality*, 24, 323-327.
- Marcus Aurelius (2002). *The emperor's handbook: A new translation of the Meditations* (D. Hicks & C. S. Hicks, Trans.). New York, NY: Scribner.
- Marzanski, M., and Bratton, M. (2002a). Mystical states or mystical life? Buddhist, Christian, and Hindu perspectives. *Philosophy, Psychiatry and Psychology*, 9, 349-351.
- Marzanski, M., and Bratton, M. (2002b). Psychopathological symptoms and religious

- experience: A critique of Jackson and Fulford. *Philosophy, Psychiatry and Psychology*, 9, 359-371.
- Mascaro, J. (Trans.) (1962). *The Bhagavad Gita*. London, UK: Penguin Books.
- Maslow, A. (1964). *Religion, values, and peak experiences*. New York, NY: Viking.
- McQuaid, J. R., & Carmona, P. E. (2004). *Peaceful mind: Using mindfulness & cognitive behavioral psychology to overcome depression*. Oakland, CA: New Harbinger.
- Nadel, L. (1991). The hippocampus and space revisited. *Hippocampus*, 1, 221-229.
- Nanamoli (Bhikkhu) & Bodhi (Bhikkhu) (Trans.) (2001). *The middle length discourses of the Buddha: A translation of the Majjhima Nikaya*. Boston, MA: Wisdom Publications.
- Newberg, A. B. (2001). Putting the mystical mind together. *Zygon*, 36, 501-507.
- Newberg, A. B., Alavi, A., Baime, M., Mozley, P. D., & d'Aquili, E. G. (1997). The measurement of cerebral blood flow during the complex cognitive task of meditation using HMPAO-SPECT imaging. *Journal of Nuclear Medicine*, 38, 95.
- Newberg, A. B., Alavi, A., Baime, M., Pourdehnad, M., & d'Aquili, E. G. (2001). The measurement of regional cerebral blood flow during the complex cognitive task of meditation. A preliminary SPECT study. *Psychiatry Research*, 106, 113-122.
- Newberg, A. B., & d'Aquili, E. G. (2000). The neuropsychology of religious and spiritual experience. *Journal of Consciousness Studies*, 7, 251-266.
- Newberg, A. B., d'Aquili, E. G., & Rause, V. (2002). *Why God won't go away: Brain science and the biology of belief* (rev. ed.). New York: Ballantine Books.
- Newberg, A. B., & Iversen, J. (2003). The neural basis of the complex mental task of

- meditation: Neurotransmitter and neurochemical considerations. *Medical Hypotheses*, 61, 282-291.
- Newberg, A. B., & Newberg, S. K. (2005). The neuropsychology of religious and spiritual experience. In R. F. Paloutzian and C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 199-215). New York, NY: The Guilford Press.
- Nhat Hanh, T. (1998). *The heart of the Buddha's teaching*. New York, NY: Broadway Books.
- Nyanaponika (Thera) (1996). *The heart of Buddhist meditation*. Boston, MA; York Beach, ME: Weiser Books.
- Nyanaponika (Thera) & Bodhi (Bhikkhu) (Trans.) (1999). *Numerical discourses of the Buddha: An anthology of suttas from the Anguttara Nikaya*. Walnut Creek; Lanham; New York, NY; Oxford, UK: Alta Mira Press.
- O'Keefe, J. (1976). Place units in the hippocampus of the freely moving rat. *Experimental Neurology*, 51, 78-109.
- Pargament, K. I. (1997). *The psychology of religion and coping: Theory, research, practice*. New York, NY: The Guilford Press.
- Pargament, K. I. (1999a). The psychology of religion *and* spirituality? Yes and no. *The International Journal for the Psychology of Religion*, 9, 3-16.
- Pargament, K. I. (1999b). The psychology of religion *and* spirituality? Response to Stifoss-Hanssen, Emmons, and Crumpler. *The International Journal for the Psychology of Religion*, 9, 35-43.
- Penfield, W., & Perot, P. (1963). The brain's record of auditory and visual experience.

- Brain*, 86, 595-565.
- Persinger, M. A. (1987). *Neuropsychological bases of God beliefs*. New York, NY: Praeger.
- Persinger, M. A. (1988). Increased geomagnetic activity and the occurrence of bereavement hallucinations: Evidence for melatonin-mediated microseizuring in the temporal lobe? *Neuroscience Letters*, 88, 271-274.
- Persinger, M. A. (2000). The UFO experience: A normal correlate of human brain function. In D. M. Jacobs (Ed.), *UFOs and Abductions: Challenging the Borders of Knowledge* (pp. 262-302). Lawrence, KS: University of Kansas Press.
- Persinger, M. A. (2001). The neuropsychiatry of paranormal experiences. *Neuropsychiatric Practice and Opinion*, 13, 515-524.
- Persinger, M. A., & Makarec, K. (1993). Complex partial epileptic signs as a continuum from normals to epileptics: Normative data and clinical populations. *Journal of Clinical Psychology*, 49, 33-45.
- Petry, R. C. (Ed.) (1957). *Late Medieval mysticism*. Philadelphia, PA: The Westminster Press.
- Plato (1997). *Complete works* (J. M. Cooper, Ed.). Indianapolis, IN: Hackett Publishing Company.
- Plotinus (1986). *The essential Plotinus* (E. O'Brien, Ed. and Trans., 2nd ed.). Indianapolis, IN: Hackett Publishing Company.
- Pollard, I. (2004). Meditation and brain function: A review. *Eubios Journal of Asian and International Bioethics*, 14, 28-34.
- Poloma, M. M., & Pendleton, B. H. (1989). Exploring types of prayer and quality of life:

- A research note. *Review of Religious Research*, 22, 255-276.
- Poloma, M. M., & Pendleton, B. H. (1990). Religious domains and general well-being. *Social Indicators Research*, 22, 255-276.
- Proudfoot, W. (1985). *Religious experience*. Berkeley, CA: University of California Press.
- Quine, W. V. (1995). *From stimulus to science*. Cambridge, MA: Harvard University Press.
- Radhakrishnan, S. (Ed. and Trans.) (1992). *The principal Upanishads*. Amherst, NY: Humanity Books.
- Radhakrishnan, S., & Moore, C. A. (Ed.) (1989). *A sourcebook in Indian philosophy*. Princeton, NJ: Princeton University Press.
- Rahula, W. (Sri) (1974). *What the Buddha taught* (rev. ed.). New York, NY: Grove Press.
- Rajaram, M., & Mitra, S. (1981). Correlation between convulsive seizure and geomagnetic activity. *Neuroscience Letters*, 24, 187-191.
- Roberts, B. (1993). *The experience of no-self: A contemplative journey* (rev. ed.). Albany, NY: State University of New York Press.
- Roberts, R. J., Gorman, L. L., Lee, G. P., Hines, M. E., Richardson, E. D., Riggle, T. A., & Varney, N. R. (1992). The phenomenology of multiple partial seizure-like symptoms without stereotyped spells: An epileptic spectrum disorder? *Epilepsy Res*, 13, 167-177.
- Seneca (1997). *On the shortness of life* (C. D. N. Costa, Trans.). New York, NY, et al.: Penguin Books.
- Smith, H. (1987). Is there a perennial philosophy? *Journal of the American Academy of*

- Religion*, 55, 553-566.
- Smith, H. (1991). *The world's religions*. New York, NY: HarperSanFrancisco.
- Spearing, A. C. (Trans.) (2001). *The cloud of unknowing and other works*. London et al.: Penguin Books.
- Spilka, B., Hood, R. W., Hunsberger, B., & Gorsuch, R. (2003). *The psychology of religion: An empirical approach* (3rd ed.). New York, NY: The Guilford Press.
- Stace, W. T. (1960). *Mysticism and philosophy*. New York, NY: Macmillan.
- Steinmetz, M. A., Motter, B. C., Duffy, C. J., & Mountcastle, V. B. (1987). Functional properties of parietal visual neurons: Radial organization of directionalities within the visual field. *J Neurosci*, 7, 177-191.
- Stifoss-Hansen, H. (1999). Religion and spirituality: What a European ear hears. *The International Journal for the Psychology of Religion*, 9, 25-33.
- Suzuki, D. T. (1964). *An introduction to Zen Buddhism*. New York, NY: Grove Press.
(Original work published 1934.)
- Suzuki, S. (1970). *Zen mind, beginner's mind* (T. Dixon, Ed.). Tokyo; New York, NY: Weatherhill.
- Underhill, Evelyn (1999). *Mysticism: The nature and development of spiritual consciousness*. Oneworld Publications. (Original work published 1911.)
- Tart, C. T. (Ed.) (1972). *Altered states of consciousness*. Garden City, NY: Anchor Books.
- Vaitl, D., Birbaumer, N., Gruzelier, J., Jamieson, G. A., Kotchoubey, B., Kubler, A.,

- Lehmann, D., Miltner, W. H. R., Ott, U., Putz, P., Samner, G., Strauch, I., Strehl, G., Wackermann, J., & Weiss, T. (2005). Psychobiology of altered states of consciousness. *Psychological Bulletin*, 131, 98-127.
- Vivekenanda (Swami) (1990). *Vedanta: Voice of freedom* (Swami Chetananda, Ed.). St. Louis, MO: Vedanta Society of St. Louis.
- Walshe, M. (Trans.) (1995). *The long discourses of the Buddha: A translation of the Digha Nikaya*. Boston, MA: Wisdom Publications.
- Watts, A. (1957). *The way of Zen*. New York, NY: Vintage Books.
- Watts, A. (1989). *The book: On the taboo against knowing who you are*. New York, NY: Vintage Books.
- White, J. (Ed.) (1995). *What is enlightenment? Exploring the goal of the spiritual path* (rev. ed.). New York, NY: Paragon House.
- Wilber, K. (1986). *Transformations of consciousness*. Boston, MA; London, UK: Shambhala.
- Williams, D. (1956). The structure of emotions reflected in epileptic experiences. *Brain*, 79, 29-67.
- Wilson, M. A., & McNaughton, B. L. (1993). Dynamics of the hippocampal ensemble for space. *Science*, 261, 1055-1058.
- Wolfson, H. A. (1947). *Philo: Foundations of religious philosophy in Judaism, Christianity, and Islam*. Cambridge, MA.
- Worthington, E. L., Kurusu, T. A., McCullough, M. E., & Sandage, S. J. (1996). Empirical research on religion and psychotherapeutic processes and outcomes: A ten-year review and research prospectus. *Psychological Bulletin*, 119, 448-487.

Yeshe, Thubten (Lama) (1998). *The bliss of inner fire: Heart practice of the Six Yogas of Naropa*. Boston, MA: Wisdom Publications.

Yeshe, Thubten (Lama) (2001). *Introduction to tantra: The transformation of desire* (J. Landaw, Ed.; rev. ed.). Boston, MA: Wisdom Publications.

Zaehner, R. C. (1957). *Mysticism: Sacred and profane*. London, UK: Oxford University Press.

Zinnbauer, B. J., & Pargament, K. I. (2005). Religiousness and spirituality. In R. F. Paloutzian and C. L. Park (Eds.), *Handbook of the Psychology of Religion and Spirituality*. New York, NY: The Guilford Press.