



# **NeuroTheology**

## **Brain, Science, Spirituality, Religious Experience**



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## **Brain, Science, Spirituality, Religious Experience**

**Edited by Rhawn Joseph, Ph.D.**

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# DREAMS, SPIRITS AND THE SOUL

by R. Joseph

Dreams and hallucinations, have, as their neurological source, activity generated within the temporal lobe and limbic structures buried within--the hippocampus and the amygdala. The hippocampus is known to be a depository of new memories and to assist in the retrieval of new memories--memories that often reappear in the contexts of dreams. Yet, dreams and memories, especially emotional memories, also have as their neurological source, the amygdala and overlying temporal lobe and associated limbic structures.

The amygdala enables us to hear "sweet sounds," recall "bitter memories," or determine if something is spiritually significant, sexually enticing, or good to eat. The amygdala also makes it possible for us to store personal, sexual, spiritual, and emotional experiences in memory and to recall and reexperience these memories when awake or during the course of a dream in the form of visual, auditory, or religious or spiritual imagery (Bear 1979; d'Aquili & Newberg 1993; Gloor 1986, 1992, 1997; Halgren, 1992).

The amygdala, in conjunction with the hippocampus, contributes in large part to the production of very sexual as well as bizarre, unusual and fearful mental phenomenon including out-of-body dissociative states, feelings of depersonalization, and hallucinogenic and dreamlike recollections involving threatening men, naked women, sexual intercourse, religion, the experience of god, as well as demons and ghosts and pigs walking upright dressed as people (Bear 1979; Daly 1958; d'Aquili & Newberg 1993; Gloor 1986, 1992; Halgren 1992; Horowitz et al., 1968; Jaynes 1976; MacLean 1990; Mesulam 1981; Penfield & Perot 1963; Rolls, 1992; Schenk & Bear 1981; Slater & Beard 1963; Subirana & Oller-Daurelia 1953; Taylor, 1972, 1975; Trimble, 1991; Weingarten et al., 1977; Williams, 1956).

The amygdala also makes it possible to experience not just spiritual and religious awe, but all the terror and dread of the unknown. Indeed, the amygdala can generate feelings of hellish, nightmarish fear

And yet, it is also the amygdala which is responsible for the capacity to transcend the known, this reality. It is also the amygdala which assists in maintaining this reality through the inhibition and filtering of most of the sensory signals bombarding the brain and body. If not for this sensory filtering, a color might have taste and its own particular texture, whereas sounds might provoke smells, warmth, light, colors, tastes, and feelings of weight. Hyperactivation of the amygdala, and overlying temporal lobes can remove these sensory filters, and what is concealed is revealed, sometimes in overwhelming confusing majesty.

Neurosurgical patients have reported communing with spirits or receiving profound knowledge from the Hereafter, following depth electrode amygdala stimulation or activation (Penfield and Perot 1963; Subirana and Oller-Daurelia, 1953; Williams 1956). Some have reported hearing even the singing of angels and the voice of "God."

## THE LIMBIC SYSTEM: SPIRITUALITY AND EMOTION

According to d'Aquili and Newberg (1993) mystical states may be voluntarily or involuntarily induced and are dependent upon the differential stimulation of limbic system nuclei, including the hypothalamus, hippocampus, and amygdala, as well as the right frontal and right temporal lobe. However, it appears that these brain areas differentially contribute to religious and emotional experience.

For example, the hypothalamus is concerned with all rudimentary aspects of emotion, homeostasis such as food and water intake, and controls the hormonal and related aspects of violent behavior and sexual activity. The amygdala also plays a highly significant role in sexual and violent behavior, and, in conjunction with the temporal lobe and hippocampus, enables a human to have religious, spiritual and mystical experiences (Bear 1979; Daly 1958; d'Aquili and Newberg 1993; Horowitz et al. 1968; Mesulam 1981; Penfield and Perot 1963; Schenk, and Bear 1981; Slater & Beard 1963;

Subirana & Oller-Daurelia 1953; Trimble 1991; Weingarten, et al. 1977; Williams 1956). These religious experiences may involve violent behavior or sexual activity, due to limbic involvement.

As we shall see in later chapters, many religious customs and rituals involve violence and sexuality, which in turn is due to the activation of this limbic system transmitter to god.

The amygdala and hypothalamus subserve the capacity to experience feelings of intense sexual arousal, fear or, conversely, euphoria, including an orgasmic feeling of rapture, or the “nirvana” of a heroin “high.” This is because the hypothalamus and amygdala are major pleasure centers, and contain opiate-producing neurons and opiate (enkephalin) receptive neurons, thus generating feelings of numbness and a narcotic high. Large concentrations of opiate receptors and enkephalin-producing neurons are located throughout the amygdala (Atweh & Kuhar 1977ab; Uhl et al., 1978).

In response to pain, stress, shock, fear, or terror, the amygdala and other limbic nuclei begin to secrete high levels of opiates which can eventually induce a state of calmness as well as analgesia and euphoria (Joseph, 1998a, 1999a). It is this heroin high that explains why an ox, deer, and other animals will simply give up and lie still while they are devoured and eaten alive. It is this amygdala-induced heroin high which also contributes to feelings of religious rapture and the ecstasy associated with life after death and the attainment of Nirvana.

### THE AMYGDALA, HIPPOCAMPUS AND HALLUCINATIONS

Whereas the amygdala and hypothalamus interact in regard to pleasure, rage, and sexuality, the amygdala and hippocampus interact to subserve and mediate wholly different aspects of experience, including memory, dreaming, and hallucinations. The hippocampus in particular appears to be responsible for certain types of “hallucinations” such as the visualizations of astral projection or seeing oneself floating above the body (Joseph 1996, 1999b, 2000a). Some patients report not only floating, but of being embraced by a light and taken to a vast realm of fantastic proportions where they are given access to knowledge of the nature of life and death.

The amygdala, hippocampus, and temporal lobe are richly interconnected and appear to act in concert in regard to mystical experience, including the generation and experience of dream states and complex auditory and visual hallucinations, such as may be induced by LSD (Broughton 1982; Goldstein et al. 1972; Gloor 1986, 1992; Hodoba 1986; Horowitz, et al. 1968; Joseph, 1992a; Meyer et al. 1987; Penfield and Perot 1963; Weingarten, et al. 1977; Williams 1956). If these neurons are hyperactivated, such as occurs during dream states, seizures, physical pain, terror, food deprivation, social and sensory isolation, and under LSD (which disinhibits the amygdala by blocking serotonin) an individual might infuse their perceptions with tremendous religious and emotional feeling. Hence, under these conditions the individual may hallucinate, and ordinary perceptions, objects or people may be perceived as spiritual in nature or endowed with special or religious significance.

Intense activation of the temporal lobe, hippocampus, and amygdala has been reported to give rise to a host of sexual, religious and spiritual experiences; and chronic hyperstimulation can induce an individual to become hyper-religious or to visualize and experience ghosts, demons, angels, and even “God,” as well as claim demonic and angelic possession or the sensation of having left their body (Bear 1979; Gloor 1986, 1992; Horowitz et al. 1968; MacLean 1990; Mesulam 1981; Penfield & Perot 1963; Schenk & Bear 1981; Williams 1956).

In some instances the individual may come to believe he or she is hearing, seeing, and interacting with gods, angels and demons when in fact they are hallucinating. These false beliefs are accentuated further because they are excessively emotionally and religiously aroused and are experiencing an “enkephalin” high and feelings of rapture or “nirvana.”

In many cases, however, the individual is not hallucinating. Rather, their eyes have been opened, and they suddenly see as gods... knowing good and evil.

### LSD, LIMBIC SYSTEM FILTERING AND HALLUCINATIONS

The amygdala is capable of processing visual, tactile, auditory, gustatory, olfactory, and emotional stimuli simultaneously. Amygdaloid neurons are multimodally responsive. Single amygdaloid neurons receive a considerable degree of topographic input, and are predominately polymodal, responding to a variety of stimuli from different modalities simultaneously (Amaral et al. 1992; O’Keefe & Bouma, 1969; Ono & Nishijo, 1992; Perryman, Kling, & Lloyd, 1987; Rolls 1992; Sawa & Delgado, 1963; Schutze et al. 1987; Turner et al. 1980; Ursin & Kaasa, 1960; Van Hoesen, 1981).

Normally much of this data is suppressed and filtered so as to prevent the tasting of colors, the visualization of sound, and so on. This is made possible via the inhibitory influences of the frontal



lobes and a variety of neurotransmitters including serotonin (5HT). 5HT suppresses synaptic activity in the amygdala and throughout the neocortex and thus reduces sensory input (Curtis & Davis 1962; Marazzi & Hart 1955; Morrison & Pompeiana 1965). 5HT restricts perceptual and information processing and in fact increases the threshold for neural responses to occur at both the neocortical and limbic level. In this manner, selective attention (via sensory filtering) can be maintained while the organism is engaged in goal directed motor behavior, such as running away or taking evasive action if chased by a lion.

In consequence, substances which block 5HT reception at the level of the synapse -such as LSD- results in increased activity in the amygdala and in the sensory pathways to the neocortex (Purpura 1956), such that information that is normally filtered out is perceived. Following the administration of LSD high amplitude slow waves (theta) and bursts of paroxysmal spike discharges occurs in the hippocampus and amygdala (Chapman & Walter, 1965; Chapman et al. 1963), and the amygdala begins to process information that is normally suppressed.

Under conditions which induce limbic hyperactivity, 5HT may be depleted and limbic sensory acuity is increased. However, what is perceived is not necessarily a hallucination but instead represents the perception of overlapping sensory qualities that are normally filtered out. Colors may be felt and tasted, music may be observed as well as heard, the molecular composition of ceilings, floor and walls may be parted so that one can see through the spaces between where molecules join together. And the pulse of life may be experienced as it ebbs and flows in a leaf one holds between their finger tips.

Consider, for example, a description of someone's first LSD "trip:"

"It was 1966... Jimi Hendrix was singing about purple haze, and that is exactly what we scored up in Haight Ashbury—mixed by the master himself, Stanley Osley..."

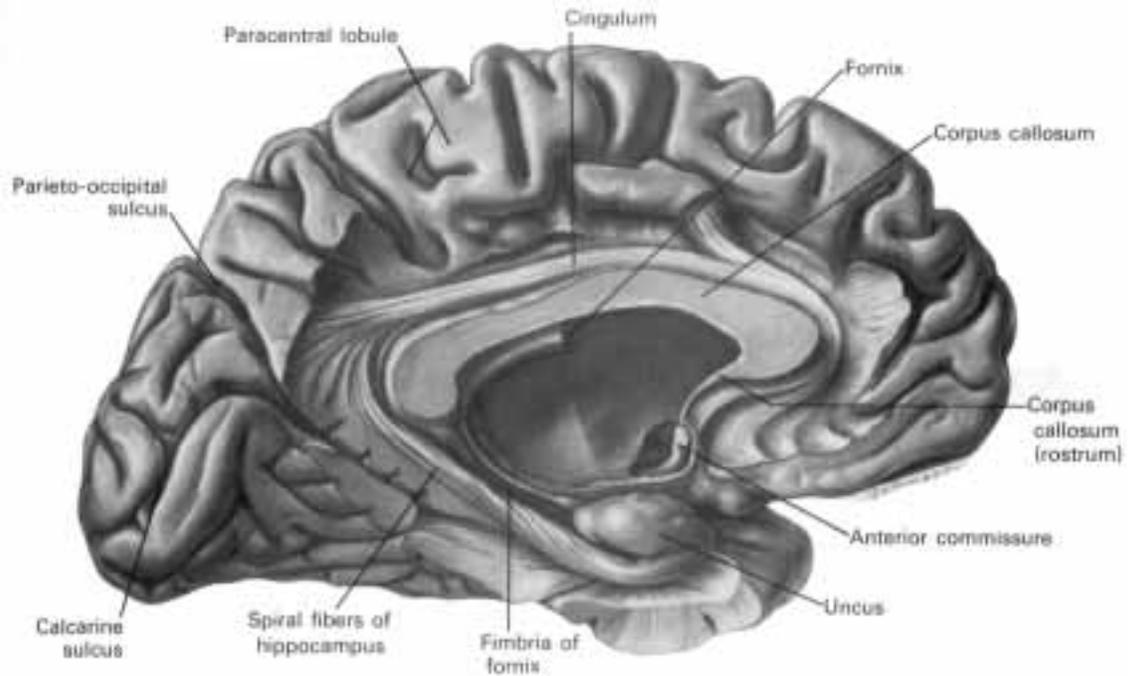
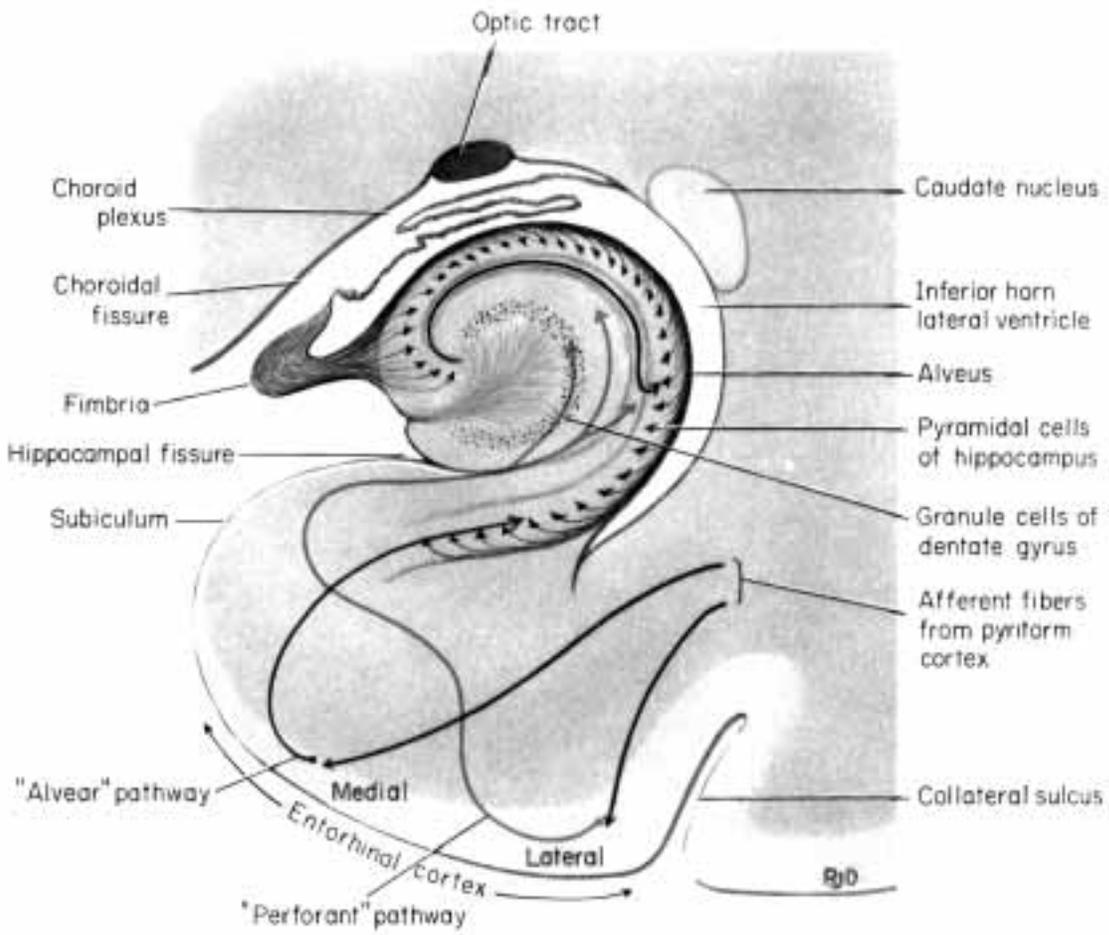
"About half an hour after I'd taken it, I was walking toward the park to meet and trip with my fellow trippers when I began to notice the incredible clarity and vividness of my surroundings. Colors were brighter, plants seem to sparkle...and I stopped and touched a leaf...I could feel its energy, its life... I could taste it through my fingers...And when I got to the park I was so overwhelmed with the colors, the tastes, the smells, the incredible vividity and clarity that I felt almost overwhelmed and sat down to take it all in..."

"And then I heard a jet somewhere in the distance, and I looked into the sky but couldn't see it but my ears led my eyes to one of the mountains surrounding the valley, and oh my god, I could see right through the mountain. It was like the molecular composition of the mountain was parting into separate molecules. I could see the spaces between the molecules which were all in a frenzy of activity... it was as if I had achieved X-ray vision, and there were these crystal blue holes—like bubbles—and I could see right through the mountain and I could see the sky on the other side, including the jet. I could see the jet on the other side of the mountain by looking right through the mountain, by looking right through those gaps in the spaces between the molecules which were zipping along in their own unique pattern. And then the jet flew over the top of the mountain and instead of one jet I could see ten, then a hundred, and a kaleidoscope of jets in the sky."

"I raised my hand to point to this incredible sight, and instead of one hand, there were these trails of hands. And I did that again, waved my hand and there were these hand-arm trails of hands-hands-hands catching up and then merging... and it was then that I realized I could see through my hand. So I gazed at it for closer inspection. It was as if my eyes became a tunneling microscope—and this was 10 years before they invented tunneling microscopes."

"At first I could see the incredible cellular structure of the skin, and then the molecular structure...the pulsating molecules themselves... and then I could see between the spaces where the molecules joined together... my sight penetrated the skin and I could see the blood vessels, and then my eyes penetrated the blood vessels and I could see inside the blood vessel, I could see the blood platelets and the white corpuscles as they swirled through the vessel—and I kept thinking: How come I never noticed this before? I had forgotten that I had taken LSD."

Hallucinogens, of course, are an age-old means of obtaining access to alternate realities, including the realities of "god." Hallucinogens are said to enable an individual to peer between the space that separate this reality from all other realities, such that what is concealed is suddenly revealed. It is the amygdala, hippocampus, and temporal lobe which are responsible for these complex hallucinations, and it is the amygdala which normally filters much of this information so that it remains hidden. Hence, by hyperactivating these structures, in essence, one is also activating the transmitter to god.



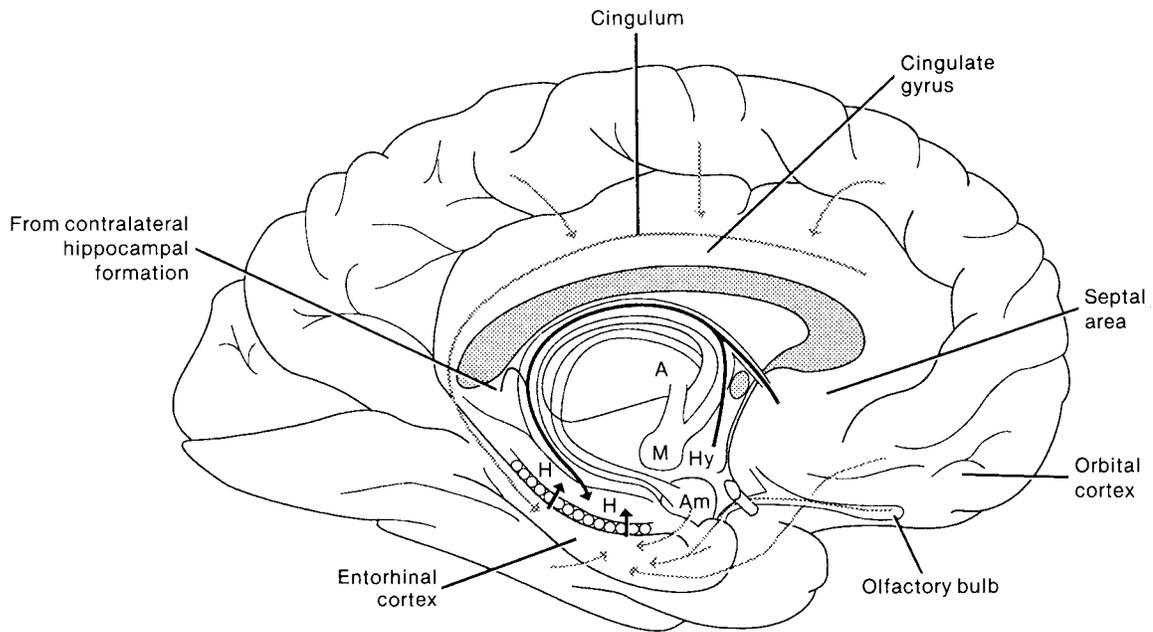
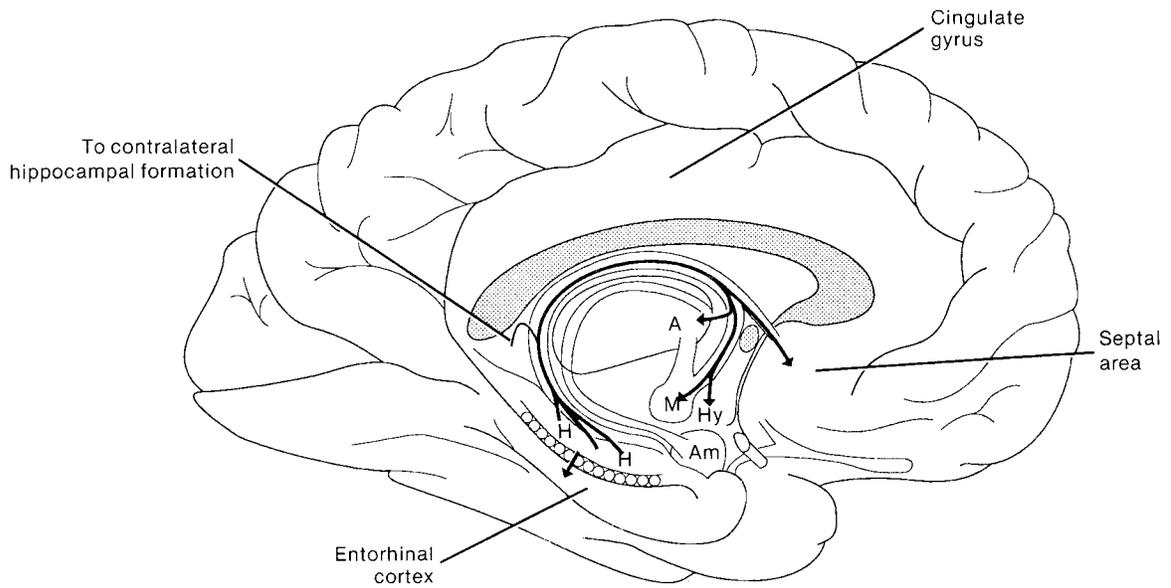
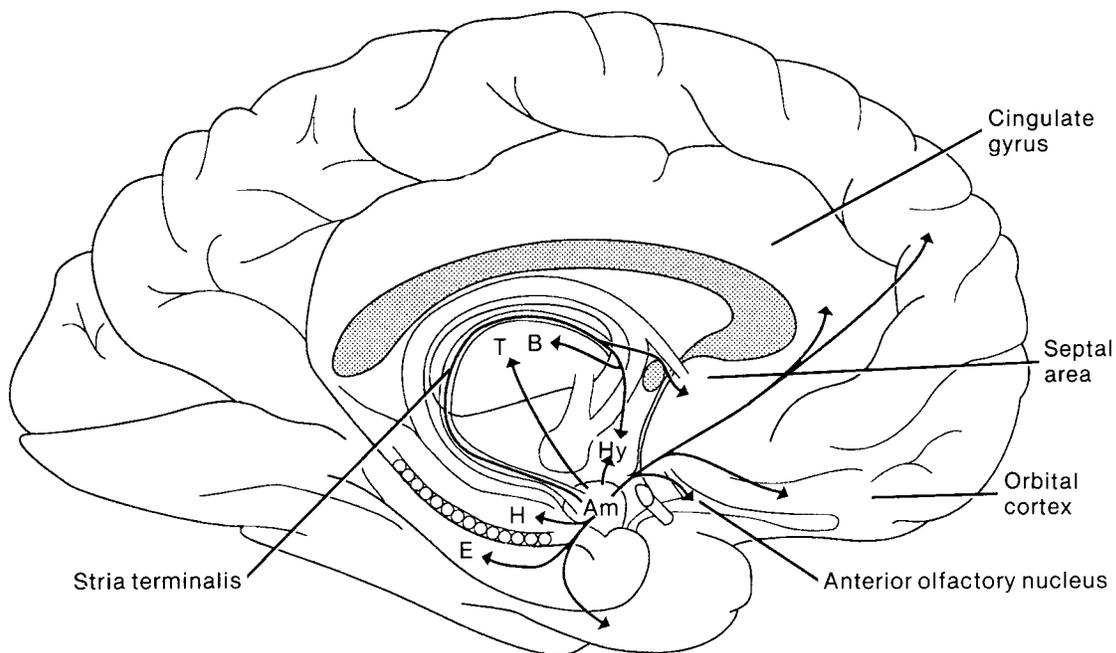
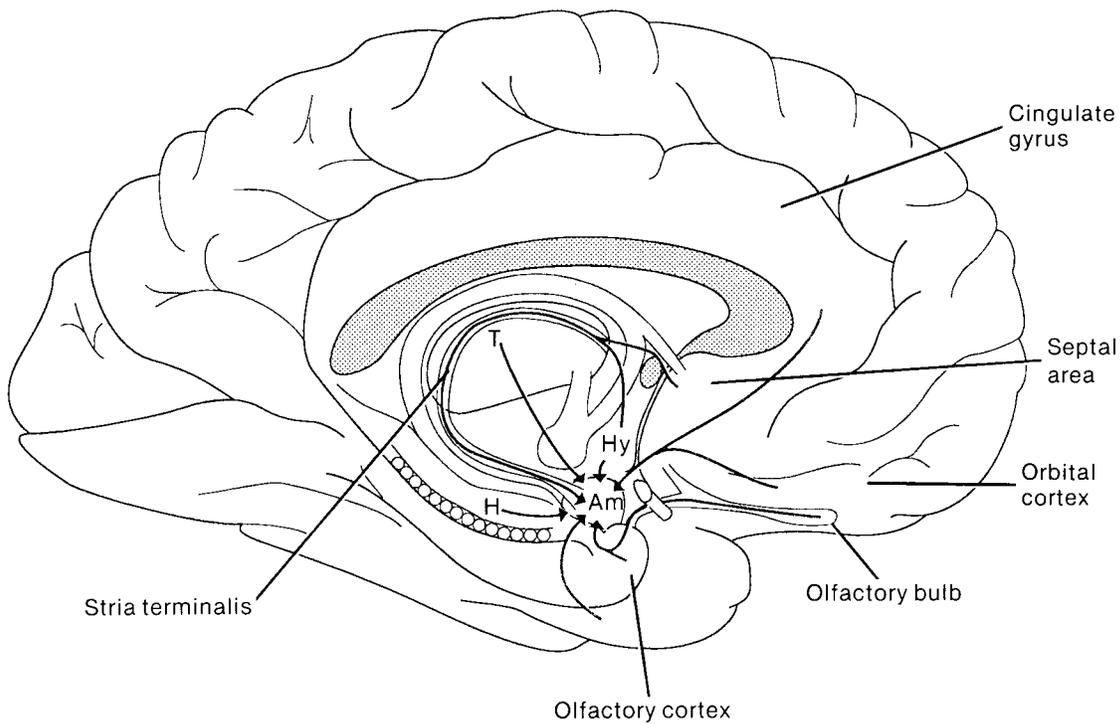


Figure 150. (Above left) Cut-away view of the hippocampal complex and its sublayers. From P. Gloor, 1997, *The Limbic System & Temporal Lobe*. Oxford University Press. (Below left) Medial cutaway view of the hippocampal fiber pathways. From F. Mettler, 1948, *Neuroanatomy*. Mosby, St. Louis. (Top & Bottom) Hippocampal efferents and afferent pathways. From Nolte, 1988, *The Human Brain*, Mosby, St. Louis.



Figures 151. Cut-away views of the amygdala fiber pathways, including efferents and afferents. From Nolte, 1988, *The Human Brain*, Mosby, St. Louis.



## SOULS, SPIRITS, DREAMS, AND POLTERGEISTS

### TO KNOW FEAR IS TO KNOW GOD

“Fear the Lord your God.” -Deuteronomy 10:12.

Priests, prophets, shamans and many others who encounter “god” or His “angels” not uncommonly experience tremendous fear. Fear is the most common emotion associated with the amygdala (Gloor, 1997; Halgren, 1992; LeDoux, 1996; Williams, 1956), with some patients experiencing horrifying, hellish, and nightmarish fear, sometimes coupled with hellish hallucinations.

We are repeatedly told in the Bible, that to know fear is to know god. Indeed, even a committed atheist may feel compelled to cry out and pray to god if sufficiently terrified. Terror is also an emotion associated with the amygdala... as well as with the Lord God.

Yet others experience awe and rapture when confronted by the divine. As noted, amygdala hyperactivation is also associated with feelings of extreme joy and ecstasy.

According to d’Aquili and Newberg (1993; p. 194) “a combination of the experience of both fear and exhalation” is “usually termed religious awe.” These feeling states are “almost always associated with religious symbols, sacred images, or archetypal symbols” which flow “from the inferior temporal lobe” and which “appear sometimes as monsters or gods”. Indeed, angels, demons, and poltergeists may be experienced.

Most people find these experiences quite terrifying. They also frequently believe their perceptions are completely real and are not hallucinations.

### SPIRITS AND POLTERGEISTS

“Cindy,” a 22 year old college student, was plagued by demons and ghosts for months until her abnormal right inferior temporal lobe was surgically removed.

Prior to her brain injury, Cindy had never been very religious, and had certainly never seen a ghost; that is, until following her auto accident. She had been thrown over 50 feet through the windshield of her car and suffered a fracture of the right temporal region of the skull and developed a subdural hematoma, a blood clot, which was pressing on the temporal lobe inducing herniation. Burr holes were drilled into her skull and the clot was surgically evacuated. Although her brain and temporal lobe had been injured, over the following weeks she seemed to quickly recover.

It was several days after her release from the hospital when she was startled while watching television. The arms, legs, hands, feet, and heads of the various actors began protruding from the screen into the living room where she sat.

Cindy said that at first she thought the television was broken and turned it off. But, as she stared back at the blank screen she saw what looked like her dead father staring back at her (which was probably her own reflection). As she backed away, the figure emerged from the television. He beckoned to her, and then behind him ghostly spooks and wraiths began to stream from the picture tube.

Terrified and crying for her mother she raced for the bathroom and locked herself in. Yet, even as she hid within the inner sanctum of the washroom, spirits, sprites and poltergeists streamed from the bathroom mirror and swirled about her. Crying and stumbling, she raced into the living room and was horrified to see a spirit enter and take possession of her mother who was transformed before her eyes. Panicked and terrified, Cindy ran into the street crying for help. A police officer, after investigating the scene, brought her to the local hospital and psychiatry unit. She was medicated and kept there on a 72 hour hold.

Later she decided what she had experienced were ghosts and lost souls of people who had been buried in an old, almost completely forgotten cemetery on the other side of the hill from where she lived. She also thought they were the ghosts of Indians who had been entombed beneath her house as there are numerous Indian burial grounds in the county.

Once she was released from her 72 hour psychiatric hold, she stopped taking her medication, and over the course of the next several weeks, she claimed to see “animal spirits.” She reported that the “secret souls” of her mother’s house plants were watching and observing her and that she could sometimes see filmy, soul-like entities traveling to and fro across the room and between different plants.

After several more hospitalizations, and an EEG, it was determined that she was suffering from excessive activity, seizure activity in the damaged temporal lobe. The inferior temporal lobe and the underlying amygdala were surgically ablated and destroyed, and she ceased to “hallucinate.”



### DREAMS, ANIMAL SPIRITS AND LOST SOULS

Across time and culture, people have believed that not just humans and animals, but plants and trees were sensitive, sentient, intelligent, and the abode of spirits including the souls of dead ancestors (Campbell 1988; Frazier 1950; Harris, 1993; Jung 1964; Malinowski 1948). Before felling a tree, the spirit sometimes had to be conjured forth so as to not harm it (Campbell 1988; Frazier 1950). Be it animal or plant, souls were also believed capable of migrating to new abodes.

Among the ancients and many so called primitive cultures, it was believed that souls are reflected in shadows, in streams, and pools of water (Campbell, 1988; Frazier, 1950; Harris, 1993; Jung, 1964; Malinowski, 1948). Because ghosts or demons sometimes attempt to abduct souls, this required that one's shadow and reflection be protected. Even water spirits might try to capture a person's soul, so staring into reflecting ponds and lakes was to be avoided.

Moreover, the ancients believed that the shadows and reflections of others had to be avoided so that one did not come into contact with the soul of a witch, sorcerer, or a demon. It was believed that one's soul could be abducted by demons and witches as well as the recently departed. This is also why in some cultures people turn mirrors to the wall after a death and lay down pictures of the recently departed (Frazier 1950). This insures that living souls are not stolen by the souls of the dead who are leaving this world for the next one.

The belief in the persistence of the soul after death gave rise to ancestor worship in some ancient cultures, including China. Oracle Bones were believed to contain the souls of the dead and were employed for divinatory purposes in ancient China over 4,000 years ago. The earliest Oracle Bones so far discovered are covered with pictograms including a man with a large ghostly distorted head (Brandon, 1967). This pictogram also denotes the word *kuei*, which means, soul. Oracle bones also included characters signifying the words "she, shen, and tsu." "Tsu" means dead ancestor, "she" is a protective fertility deity of the soil, and "shen" are divine beings connotating phallic significance.

The ancient Chinese practiced a religious ritual which was intended to prevent the soul from departing the body at death. The orifices would be stopped up to keep the *kuei* safely inside the body. So long as the soul remained tethered to the body, the body would not undergo its final fatal disintegration. These beliefs gave rise to the ritual of "calling back of the soul," a ritual also performed for the living as the souls were believed able to wander forth from the body, such as during sleep, exposing the living body to death and extinction (Brandon, 1967).

The ancient Chinese believed that the *kuei* represented by the yin-soul, was associated with the body since conception. By contrast, a yang-soul was associated with the individual personality and the person's unique mental qualities.

The alternating and competing principles of the yin-soul and the yang-soul are directly related to the concepts of ying and yang. They also gave rise to ancestor worship as the ancient Chinese believed that the life force, the energy associated with the soul, this *substance familiale*, lay buried beneath the ground as *une masse indistincte*. "This energy was represented above ground at any given moment, only by the living members of the family, which constituted the individualized portions of that *substance familial*. It followed, accordingly, that each birth within the family represented the reincarnation of a portion of that subterranean *substance familial*, while each death meant the return of a part of this individual family substance familial to the *masse indistincte* in the ground below" (Brandon, 1967, p. 180).

### SOULFUL DREAMS

Souls were also believed by ancient humans to wonder about while people sleep and dream (Brandon 1967; Frazier 1950; Harris 1993; Jung 1945, 1964; Malinowski 1990). That is, among many different cultures and religions the soul is believed to sometimes escape the body via the mouth or nostril during sleep. Moreover, during a dream the soul may wander away from the body and may engage in certain acts or interact with other souls including those of the dear but long dead and departed.

Sometimes the soul is believed to take on another form, such as a bird, or deer, fox, rabbit, wolf, and so on. The spirit and the soul could also hover about in human-like, ghostly vestiges, at the fringes of reality, the hinterland where day turns into night (Campbell 1988; Frazier 1950; Jung 1964; Malinowski 1954; Wilson 1951). The souls of animal's such as a wolf or eagle, could also leave the body and take on various forms including that of a woman or Man. Not just men but animals too had souls that had to be respected.

Even after death souls continued to interact with the living, and every living being possessed a



*Figure 152. (Below)  
The souls of young  
women who had  
drowned beckon to  
passing men, luring  
them to their deaths.  
(Left) A female tree  
spirit.*





**Figure 153.** Wondjina figure with plum tree at its side. Wondjinas are spirits. Above the Wondjina are the “children of the wondjinas” which are the souls of men. (Below) Paleolithic souls ascend to heaven.

soul. Hence, the ancients believed that these souls could be influenced, their behavior controlled, and, in consequence, a good hunt insured or with the assistance of a soul, or by performing magical rituals aimed at the soul, enemies could be defeated and an evil man could be easily slain.

Because animals and plants had souls, and as some gods would also take up residence within an animal or plant as a temporary or permanent abode, this gave rise to animal worship and animal sacrifice, as well as the avoidance of certain animals or plants which were not to be killed or eaten, or killed or eaten only in a certain ritualized manner (Campbell 1988; Frazier 1950; Malinowski 1948; Smart 1969).

Over the course of human cultural and cognitive evolution, these beliefs became increasingly complex and required specialists to interpret and minister the rituals and rites (Armstrong 1994; Brandon 1967; Campbell 1988; Frazier 1950; Smart 1969; Wilson 1951). Soon priests, prophets, and even the Gods evolved.

### DREAMING OF GOD

Priests and prophets as well as the common people, often experienced God as well as animal spirits and the souls of the dead, during the course of a dream (Campbell 1988; Frazier 1950; Jung 1945, 1964; Malinowski 1954).

Dreams have their source in the amygdala and hippocampus and inferior temporal lobe. Although mediated by brainstem nuclei, activity within the amygdala may in fact trigger the first phase of dreaming (REM), which is signified by the buildup of PGO (pontine-geniculate-occipital) waves. REM (dream) sleep is heralded and then accompanied by what has been referred to as PGO waves. That is, the amygdala is active not only during REM, but amygdala activity triggers PGO waves (Calvo, et al. 1987) which then leads to dream sleep. The amygdala produces the dream, and dreams the dream, and the dream may consist of fragmentary memories, hallucinatory imagery, and emotional extremes.

In addition to amygdala activity during REM, the hippocampus begins to produce slow wave, theta activity (Jouvet 1967; Olmstead, Best, and Mays 1973; Steriade and McCarley





1990). Presumably, during REM, the hippocampus and amygdala act as a reservoir from which various memories, images, emotions, words, and ideas are drawn and incorporated into the matrix of dreamlike activity being woven by the right (and left) hemisphere (Joseph 1982, 1988, 1996, 2000a). The hippocampus and amygdala also serve as a source from which material is drawn during the course of a daydream.

Yet, as also noted, these limbic structures also normally acts to inhibit the perception of most of the stimuli impinging on the body. This information is filtered so that one reality is maintained and to prevent the individual from being overwhelmed with competing streams of input. In other words, just as a channel selector on a television or radio permits the select reception of information from a single source (a single reality), these brain structures perform likewise. However, just as there are a multitude of channels, and just as one can change from channel to channel in order to receive a wealth of data, images, sounds, and information from a variety of sources (a variety of realities), likewise, the limbic system can also become tuned to other sources of information which are not normally perceived.

And, once the Doors of Perception are opened, all appears as it is...infinite.

### **DREAMING & WITCHCRAFT**

“Witchcraft” and any and all “paranormal” capabilities, including “ESP” or divining by dreams, has been condemned as “unnatural” by many (but not all) religions throughout the ages including the ancient Jews and the Catholic Church.

“Witchcraft is a sin.” I Samuel 15: 23

Of course, the “god” Yahweh would communicate with his prophets through visions and dreams. However, the unauthorized use of these same capacities was also condemned and outlawed, and those possessing these “unnatural” attributes killed: “I will gather you and blow upon you the fire of my wrath, and ye shall be melted in the midst therefore... for... They prophesy falsely and divine deceitfully. They have profaned what is sacred to me... I am profaned in their midst” (Ezekiel, 22:23).

The Lord God declared religious war against and condemned to death all witches and all those who could commune with the dead, speak with spirits, conjure ghosts, or communicate with devils (Exodus 22: 18, Samuel 15: 23; Ezekiel 22:23).

“You know... how he has cut off those familiar with ghosts and spirits and wizards. So wherefore then layest thou a snare for my life, to cause me to be killed.” -I Samuel 28:8-10.

Likewise, the Medieval Catholic Church burnt witches, warlocks, and dreamers, and all those suspected of communing with devils. According to Church and religious authorities, these practices were the work of the Devil, Satan, the fallen angel, the fallen god, the serpent also known as the god of the snake.

These “supernatural abilities” were viewed as a threat for they could be employed to divine the future, to influence and cast spells on other humans, or to communicate with the dead or even with other gods including the devil. Hence, those who saw the future through trance states or via dreams, or who demonstrated what might be described as “ESP,” although venerated by some, were condemned by others as “unnatural” and sinful.

“Thou shall not suffer a witch to live.” Exodus 22:18

### **DREAMING THE FUTURE**

It is said that Mary Lincoln dreamed of President Lincoln’s assassination, and saw his dead body laid out with the bullet wound to his head. If that story is true, it could be said that Mary Lincoln gained advance access to information that already existed in the future, in some distant realm of space. Because time is a function of movement through space and distance, it could be assumed that Mary Lincoln was able to see what lay up ahead whereas others, being more “near sighted” were unable to perceive these events until they were upon them.

Yet another possibility is that she somehow deduced what might transpire, and then it did come to pass. Therefore what she dreamed was a well reasoned prediction, rather than a form of extrasensory perception.

Yet another possibility is that the murder of Lincoln, the actual intention of killing him, had been communicated to her; that is, through her dreams and perhaps the dreams of Mr. John Wilkes Booth or one of his coconspirators. That is, she may have received this information through the commingling of dreams, or perhaps, through the interaction of souls which some believe can leave the body during sleep and interact with the souls of others.



**Figure 154.** “With dreams upon my bed thou scarest me and affrightest me with visions” William Blake, 17th century.

Anecdotal evidence abound to support the possibility that people can communicate with one another while dreaming. Some studies suggest that a dreamer can even tap into the thoughts of those awake.

Consider, for example, studies performed in the Sleep Laboratory of Mimonides Medical Center in New York, by Dr. Williams Erwin. In these studies, participants were introduced, and then later, while one subject slept and when it was determined he had entered REM sleep, the other would begin looking at particular paintings and prints. He would then attempt to project these images into the mind of the sleeper.

In one experiment, when the test subject entered REM, the “sender” opened a package which contained an art print of the Mexican and Indian followers of the Mexican revolutionary Emiliano Zapta, i.e. Zapatistas, by Romero. When the test subject entered REM, the other began gazing at the picture and attempted to project it to the dreamer. The dreamer was immediately awakened when the REM episode had ceased and was asked to describe his dream: “...a feeling of memory... of New Mexico... a lot of mountains...Indians, Pueblos” (reviewed in Broughton, 1991; see also Child, 1985; Devereuz, 1953; Ullman & Krippner, 1989).

### **DREAMS, SPIRITS AND REALITY**

“I the Lord will make Myself known to him in a vision, and will speak with him in a dream.” - Numbers 12.6

When the limbic system becomes hyperactivated it is not at all uncommon for an individual to dream. Dreams, it has been proclaimed, are the royal road to the unconscious (Freud, 1900).

It is also via dreams that gods and spirits speak to women and men (Campbell, 1988; Jaynes, 1976; Jung, 1945, 1964). It was via dreams that hunter-gatherers and ancient humans were able to gain access to the domicile of the soul and the spirit world of the hereafter (Frazier 1950; James 1958; Neihardt and Black Elk 1989). Indeed, it has been argued that dreams (and thus the limbic system) enable an individual to come into contact with a different reality; the same reality shared and experienced by our ancestors and the gods—the ultimate reality of the Great Spirit.

### **DREAMS AND MULTIPLE REALITIES**

Our ancient human ancestors lived in two realities, that of the physical and of the spiritual, both of which were undeniable and experienced by enemies and friends alike (Frazier, 1950; Jung, 1945, 1964). One need only spend a night alone in the forest among the trees and the elements to become quickly convinced that one is not alone, but is being watched by various entities both alive and supernatural, animal and spirit, benevolent and unkind.

Like modern day humans, the ancients had dreams by which they were transported or exposed to a world of magic and untold wonders. It is as if one had been transported to a different world and a reality which obeyed its own laws of time, space, and motion.

It is through dreams that humans came to believe the spiritual world sits at the boundaries of the physical, where day turns to dusk, the hinterland of the mind where imagination and dreams flourish and grow (Frazier, 1950; Jung, 1945, 1964; Malinowski, 1954); hence the tendency to bury the dead in a sleeping position even 100,000 years ago.

It is also via dreams that humans came to know that spirits and lost souls populated the night. The dream was real and so too were the Gods and demons who thundered and condemned and the ghosts and phantoms that hovered at the edge of night. Although but a dream, like modern humans, our ancient ancestors experienced this through the senses, much as the physical world is experienced. Both were real and were taken seriously.

Dreams are the royal road to the unconscious realms of the mind and to realities that lie just beyond conscious awareness. And it is through the amygdala, hippocampus, and temporal lobe, that dreams emerge and flow. The limbic neurons subserving spiritual experiences also give rise to dreams. Thus the link between the world of dreams and the spirit land of gods and demons is the limbic system; i.e. the “transmitter to god.”

### **RIGHT TEMPORAL LOBE HYPERACTIVATION & DREAMING**

The amygdala and the neocortex of the temporal lobe are interactionally involved in the production of religious and hallucinatory experiences including dream states (Broughton, 1982; Gloor, 1997; Goldstein et al., 1972; Hodoba, 1986; Humphrey & Zangwill 1961; Kerr & Foulkes 1978; Meyer et al., 1987); the right temporal lobe and amygdala in particular (Joseph, 1988a, 1992a).

Similarly, d’Aquili and Newberg (1993) argue that the right hemisphere (and right amygdala) is more involved than the left in the reception and production of religious imagery. This is likely as the right hippocampus and amygdala, and the right hemisphere in general (Broughton, 1982; Goldstein et al., 1972; Hodoba, 1986; Humphrey & Zangwill 1961; Joseph, 1988, 2000a; Kerr and Foulkes 1978; Meyer, Ishikawa, Hata, and Karacan 1987) also appear to be involved in the production of hallucinations, dream imagery as well as REM during sleep. Indeed, like the limbic system, the right hemisphere is not only associated with dreams, but the unconscious mind (Joseph, 1982, 1988a,b).

In addition to dream production, the right hemisphere also appears to be the dominant source for complex non-linguistic hallucinations. Specifically, tumors or electrical stimulation of the right hemisphere or temporal lobe are much more likely to result in complex visual as well as musical and singing hallucinations, whereas left cerebral tumors or activation gives rise to hallucinations of words or sentences (Berrios, 1990; Halgren, et al. 1978; Hecaen & Albert, 1978; Jackson, 1880; Mullan & Penfield, 1959; Penfield & Perot, 1963; Teuber et al. 1960).

Although up to five stages of sleep have been identified in humans, for our purposes we will be concerned only with two distinct sleep states. These are the REM (rapid eye movement) and non-REM (N-REM) periods. N-REM occurs during a stage referred to as “slow-wave” or synchronized sleep. In contrast, REM occurs during a sleep stage referred to as “paradoxical sleep.” It is called paradoxical, for electrophysiologically the brain seems quite active and alert, similar to its condition during waking. However, the body musculature is paralyzed, and the ability to perceive outside sensory events is greatly attenuated (reviewed in Hobson et al. 1986; Steriade & McCarley 1990; Vertes 1990).

Most individuals awakened during REM report dream activity approximately 80% of the time. When awakened during the N-REM period, dreams are reported approximately 20% of the time (Foulkes, 1962; Goodenough et al. 1959; Monroe et al. 1965). However, the type of dreaming that occurs during REM vs. N-REM is quite different. For example, N-REM dreams (when they occur) are often quite similar to thinking and speech (i.e. linguistic thought), such that a kind-of rambling verbal monologue is experienced in the absence of imagery (Foulkes 1962; Monroe et al. 1965). It is also during N-REM in which an individual is most likely to talk in his or her sleep (Kamiya, 1961). In contrast, REM dreams involve a considerable degree of visual imagery, emotion, and tend to be

distorted and implausible to various degrees (Foulkes, 1962; Monroe et al. 1965)

REM is characterized by high levels of activity within the brainstem, occipital lobe, and other nuclei (Hobson, et al. 1986; Steriade & McCarley 1990; Vertes 1990). It also has been reported that electrophysiologically the right hemisphere becomes highly active during REM, whereas, conversely, the left half of the brain becomes more active during N-REM (Goldstein et al. 1972; Hodoba, 1986). Similarly, measurements of cerebral blood flow have shown an increase in the right temporal and parietal regions during REM sleep and in subjects who upon waking report visual, hypnagogic, hallucinatory and auditory dreaming (Meyer et al., 1987).

Electrophysiologically the right temporal lobe becomes highly active during REM, whereas, conversely, the left temporal region becomes more active during dreamless sleep, i.e., NREM (Goldstein et al. 1972; Hodoba 1986). Similarly, measurements of cerebral blood flow have shown an increase in the right temporal regions during REM sleep. Right temporal lobe blood flow also increases in subjects who upon waking report visual, hypnagogic, hallucinatory and auditory dreaming (Meyer et al. 1987). Abnormal and enhanced activity in the right temporal and temporal-occipital area will also provoke dreaming and acts to increase the length and amount of dreaming and REM sleep for an atypically long time (Hodoba 1986).

Interestingly, abnormal and enhanced activity in the right temporal and temporal-occipital area acts to increase dreaming and REM sleep for an atypically long time period. Similarly, REM sleep increases activity in this same region much more than in the left hemisphere (Hodoba, 1986), which indicates that there is a specific complementary relationship between REM sleep and right temporal-occipital electrophysiological activity.

As noted, LSD induces its “hallucinatory” effects by disinhibiting the amygdala. That is, LSD blocks the sensory filtering and perceptual inhibitory activity of a neural transmitter, serotonin. In consequence multisensory qualities that are normally suppressed are suddenly perceived such that what was hidden is revealed; sounds have color and colors and sounds can be tasted, as the boundaries of this reality melt away thus revealing the supernatural reality of the otherside.

Conversely, LSD induced hallucinations are significantly reduced when the right but not the left temporal lobe has been surgically ablated (Serafintides 1965). Similarly, it has been reported that dreaming is abolished with right but not left temporal lobe destruction (Bakan, 1978). Hence, it appears that there is a specific complementary relationship between REM sleep, hallucinations, LSD, mystical experiences, and right temporal (and thus right amygdala and hippocampus) electrophysiological activity. By contrast, the left half of the brain appears to be the domain of the more logical and nonintuitive aspects of conscious experience.

Whereas the right hemisphere is dominant for all aspects of emotion, and is the domain of the more visual and imaginal aspects of the mind, the left hemisphere is dominant for language, math, and the temporal sequential aspects of consciousness. It is the right hemisphere which dreams the dream, and it is the left hemisphere which not only passively observes but which forgets the dream upon waking (Joseph, 1988a). It is the more unconscious realms associated with the right hemisphere which are directly in tune with these alternate realities, such as conveyed through dreams, and it is the left hemisphere which dismisses and rationally explains away these experiences as nonsense.

#### **DAY DREAMS AND FORESEEING THE FUTURE**

During dream states we see and experience events which are normally filtered from the conscious mind. We can also gain insight into problems which have plagued us, or gain access to knowledge of events which occurred in the past or which will occur in the future (Joseph, 1988a, 2000a; Jung 1945, 1964)—just as we can think about the future or the past and make certain deductions and predictions.

Consider the day dream. In addition to its images and memories, the fantasy produced also consists of anticipations regarding the future, and in this respect, the day dream could be considered an imaginal means of preparation for various possible realities. Interestingly, daydreams appear to follow the same 90-120 minute cycle that characterize the fluctuation between REM and NREM periods, as well as fluctuations in mental capabilities associated with the right and left hemisphere (Broughton 1982; Kripke and Sonneschein 1990). That is, the cerebral hemispheres tend to oscillate in activity every 90-120 minutes. This cycle corresponds to the REM-NREM cycle and the appearance of day and night dreams, and the right hemisphere also appears to be the source of day dreams.

According to the ancients, day and night dreams both contained important information, not just regarding the past or the world of souls and spirits, but the future. As possible harbingers of the future, the intentions of the gods, and the future of self, friends and family, it has long been believed

that dreams should be observed most carefully and could be used to foretell the future (Campbell 1988; Frazier 1950; Freud 1900; Jung 1945, 1964; Malinowski 1954). It was pharaoh's dream which foretold that seven years of famine would follow seven years of plenty.

In fact, among the ancients, the American Indians, and even the highly cultured Romans, every once in a while someone would have what is called "a big dream." The big dream was of great importance to the whole clan, tribe, city, or nation. Often, the man or woman having the dream would gather the others together and announce it. And more often than not, it would be a woman who would have the big dream, for women have always been said to be more in touch with the "irrational," and throughout history it is women who have predominantly served as oracles.

### THE TRANSMITTER TO GOD

Given that dreams reflect mental activity, it is thus not terribly surprising that dreams may also contain meaningful information that is not otherwise available to the conscious mind. Since the right hemisphere and limbic system which are responsible for dreaming dreams also "speak different languages" and attend to and process unique types of information, this data cannot always be transferred to and understood by the left hemisphere (Joseph, 1986a, 1988a,b; Joseph et al., 1984). From the perspective of the temporal sequential language dependent mind, these impressions remain unconscious.

The conscious mind is often denied information and social-emotional nuances that may be unconsciously conveyed by others but which may be perceived within the right hemisphere and limbic system (Joseph, 1982, 1988a, 1992b, 2000a; Joseph et al., 1984). This is because the information attended to and the manner in which this data is analyzed by the limbic system and right hemisphere is so different from that normally received and processed by the left hemisphere.

Nevertheless, sensory and emotional stimuli, which are normally ignored or filtered out by the language-dependent left hemisphere during waking are nevertheless perceived and analyzed by other regions of the brain so that a variety of conclusions may be arrived at, albeit unconsciously; and the same occurs during dream sleep.

During dream states, serotonin levels diminish (similar to what occurs under LSD) and multimodal neurons begin to fire such that the brain becomes in tune with, and is sometimes overwhelmed by sensory and ideational events which are normally filtered before reaching consciousness. However, during dreaming, this information may be recalled, integrated, assimilated, and certain conclusions arrived at; that is, by the right hemisphere and limbic system. And this information may then be conveyed to the language dependent left half of the brain which is at a low level of arousal during dream sleep and thus cannot prevent its reception. The left hemisphere observes the dream, which, however, it may forget upon waking.

Because the limbic system and right temporal lobe are hyperactivated during dream states, not only does the brain become freed of inhibitory restraint, but one is presumably able to gain access to dreamlike alternate realities, including, perhaps, the spiritual reality of the Hereafter. Presumably the same occurs when fasting, isolated, in pain, under LSD, in trance, or in the throes of religious ecstasy, all of which activates the limbic system thus increasing channel capacity, so that what is concealed is revealed.