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The Numinous and Neurology

Correlating Neurology and Sufism to Understand and
Legitimize Mystical and Religious Experience

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Abstract

The *Numinous* is a subjective experience of creating a framework for God without rational nor moral implications. Within its own framework, it is the ineffable within religious and mystical experience. The research for this project is divided into two sections: Sufism and Rumi, and the neurology of the brain during religious and mystical experience. Sufism is the mystical “branch” of Islam, which is used together with the writings of Jalal Ad-Din Muhammad Rumi to portray the mindset within a mystical experience. The second section uses the neurology of the brain to demonstrate the quantitative data of a mystical experience. This is done to reconcile religious experience with scientific data. Together, these two sections describe the authenticity and desire for religious and mystical experience in practitioners of all different faiths. Rumi is used as an intermediary to aid in the understanding, whilst the neurology of mystical experience is used to legitimize these experiences.

Sufism and Rumi

For the previous 800 years, Jalal Ad-Din Muhammad Rumi has been an influential force in the realm of mysticism with his massive amount of poetic publication. Within his poems, Rumi attempts to bring a linguistic power to understanding mystical and religious experience. Within the confines of his religion of Sufism, Rumi uses Tawhid as the symbolic unity between man and God. However, Tawhid is an inconceivable concept that addresses a “oneness” that is far more superior than that of a homecoming with the divine. Since the descriptions of these experiences is limited within the restraints of human language, the only methodology that can be utilized to describe Tawhid and God suffices in analogy and metaphor. Using this basis, parallels between Rumi and Rudolf Otto’s Numinous will be contrasted to gain a better insight into the importance of the ineffable in religious and mystical experience. Rumi, much like other “drunken Sufis”, uses love as a path to describe the longing for God and unity. As Peter Newberg has described; with our contemporary understanding of neurology and divine experience, we can begin to coincide scientific and religious analysis. Using Rumi as an intermediary can legitimize and aid the understanding of mystical and religious experience through analysis of his poetry. However, to understand his writings, we must understand the different components that have credited Rumi as one of the most influential Sufis.

Jalal Ad-Din Muhammad Rumi was a 13th-century Persian poet, Islamic scholar, theologian, Sufi mystic, and faqih. In the Middle East, a faqih is an Islamic Jurist that has mastered Islamic law. He was born during the Islamic Golden Age. The Islamic Golden Age took place during the Abbasid Caliphate and initiated tremendous gains in cultural, economic, and scientific developments for Muslims and the rest of the world. Because of this powerhouse

of resources and information, Rumi was able to publish works efficiently that were able to reach many different audiences. Rumi influenced Iranians, Tajiks, Greeks, Turks, and many south Asian Muslims through his publications on Sufism and mysticism. Although he primarily wrote in Persian, he also wrote in Turkish, Arabic and Greek to reach these different demographics. The works that are analyzed for this comparison have been translated into English from their respected published languages, however the message remains clear. Only analogies and metaphors suffice for such an enormous topic, which can be seen time and again when reading and analyzing Rumi's poetry. Aside from Rabia Basri, Rumi is the most famously known Sufi. To understand Rumi's poetry, we must understand the aspects of Sufism that have influenced Rumi as a theologian and faqih.

Sufism, known in his Arabic cognate as *tasawwuf*, adheres to an inward dimension of Islam known as "Islamic Mysticism". Sufism began at the start of Islam, with some scholars stating that Muhammad was the first Sufi. Most Sufis are followers of Sunni practices and ideologies; however, Sufis operate and exist in both the Shi'a and Sunni denominations of Islam. One of the main ideological practices of Sufis is *dhikr*, which is the practice of remembering God. This sounds oxymoronic in its delivery; how can someone remember something they cannot define? The methodology for this is to consistently practice gaining microcosmic insight into the oneness of God. One of the main Sufi avenues to insight into God is through love; however, there have been other methods which will be discussed further along in this analysis. In the same way that the goal of Hinduism is to gain Nirvana, the goal of Sufis in their spiritual quest is to reach "perfect Tawhid". Perfect Tawhid can be compared to reaching the Absolute Unitary Being¹ that Peter Newberg has defined as the state of mind that a person reaches when

¹ Newberg M.d., Andrew; Eugene G. D'Aquili; Vince Rause. Why God Won't Go Away

undergoing a religious or mystical experience. This follows suit with the Sufi notion of shifting from asceticism to mysticism in the Islamic religion.

Sufi Islamic practices would shift from asceticism to mysticism with the indulgence of love being introduced. Asceticism is the practicing of self-denial, extreme abstinence, and austerity². In this religious context, mysticism is the experiential approach to God and beauty through obscure thought or speculation³. Kazuyo Murata described the difference between the two perfectly when he said,

“Although Muslim and Jewish philosophers approached aesthetics from what we would today call a number of different disciplinary perspectives, common to all is the role and function of beauty in the noetic development of the individual. This involves... a process whereby an individual encounters a beautiful object, resulting in a subsequent correspondence between the soul of the knower and the object known. This correspondence in turn allows the individual to recognize the beauty of the intelligible world.”⁴

This common theme of unity between the creation and the Creator being one is known as *Wahdatul-Wujood*⁵. This eliminated the fear of hell and a desire for paradise. An inward realization that humans were a piece of God did not completely satisfy the cravings to understand God. The famous Hadith by Muhammad called *I was a Hidden Treasure* is Allah speaking the words, *“I was a Hidden Treasure and loved to be recognized; so I created the*

² “Asceticism.” (n.d.) retrieved from <http://www.dictionary.com/browse/asceticism>

³ “Mysticism.” (n.d.) retrieved from <http://www.dictionary.com/browse/mysticism>

⁴ Murata, K. (2017). *Beauty in Sufism: The Teachings of Ruzbihan Baqli*. State University of New York Press.

⁵ Abdurrahman, M. (2011). *Sufism*. Retrieved from <https://www.islamreligion.com/articles/1388/viewall/sufism/>

creatures so that I may be recognized⁶.” Another Arabic word *Wahdah* means unity or alliance, and these terms are used frequently in Sufism.

The Bible can be seen to carry a similar message of the Divine coming from within in the New King James version of Luke 17:20-21 which reads,

“Now when He was asked by the Pharisees when the kingdom of God would come, He answered them and said, “The kingdom of God does not come with observation; nor will they say, ‘See here!’ or ‘See there!’ For indeed, the kingdom of God is within you.”

In Surah 95:4, it says that man was created in the best of molds. Abdullah Yusuf Ali commented on it and mentioned that it translates to *Taqwim*, which can mean symmetry, form, nature, or constitution⁷. This describes the creation of man and the beauty in which Allah has created everything. Abdullah Yusuf Ali says, *“There is no fault in Allah’s creation. To man Allah gave the purest and best nature, and man’s duty is to preserve the pattern on which Allah has made him*⁸. Surah 30:30 reads, *“So set thou thy face steadily and truly to the Faith: (Establish) Allah’s handiwork according to the pattern on which he has made mankind...”*⁹

The effort in which the Qur’an states that Allah has created people perfectly portrays the Sufi ideology of love and beauty at the core of Creator and creation. As mentioned before, Sufi’s could be categorized more as philosophers than the regular practicing ascetic Muslims. The difference between the two when approaching the topic of beauty is that philosopher’s call it First Cause, while Sufi’s would refer to it as Allah¹⁰. The contents of discussion of beauty are

⁶ Murata, K. (2017). *Beauty in Sufism: The Teachings of Ruzbihan Baqli*. State University of New York Press.

⁷ Ali, A. (1995). *The Meaning of the Qur’an*. Amana Publications.

⁸ Ali, A. (1995). *The Meaning of the Qur’an*. Amana Publications.

⁹ Ali, A. (1995). *The Meaning of the Qur’an*. Amana Publications.

¹⁰ Murata, K. (2017). *Beauty in Sufism: The Teachings of Ruzbihan Baqli*. State University of New York Press.

categorized into five main themes. The first is ontology, which is the beauty of perfection found in creation. The second is theology, which is the beauty in the works of God. The third is cosmology, which is the beauty in which the orderly sequence of events in the world worked out. The fourth are ethics, which is *how to beautify one's soul by acquiring virtues*¹¹. And finally, psychology, which when defined as an academic field is the study of soul. For the sake of the discussion of beauty, the psychological theme is the beauty of the human soul. Sufi's agree that the first step is understanding that everything is beautiful and perfect, and the discussion continues from there.

*“The harmony produced by this cosmic order remains the human soul, which is engrossed in corporeality, of its higher origin and invites it to turn away from the sensible world toward the intelligible world.”*¹² The discussion of God as being corporeal has been seen in philosophical works from Maimonides to texts in the Bible and Qur'an. God is seen to have human characteristics in the Bible when portrayed to investigate situations such as Sodom and Gomorrah. The Qur'an has always upheld Allah as being noncorporeal and having no physical form. This excerpt from *Beauty in Sufism* shows the true message of man being made in the image of God. We have reversed the role historically when we describe the creation of man from God. Most religious followers view God in a Eurocentric, masculine way, but this contradicts the ineffable nature of God. Humans are corporeal creations that try to find God in the beauty of everything around us. It is impossible for a primitive, finite mind to try to define and understand the omnipotent and infinite. This is where the creative outlets of poetry and art are useful in trying to capture a fractal piece of this grand scheme of creation.

¹¹ Murata, K. (2017). *Beauty in Sufism: The Teachings of Ruzbihan Baqli*. State University of New York Press.

¹² Murata, K. (2017). *Beauty in Sufism: The Teachings of Ruzbihan Baqli*. State University of New York Press.

The ever-influential Jalal Al-Din Muhammad Rumi was born in Balkh, Afghanistan in 1207 when it was still a part of the Persian empire¹³. Him and his family had to flee from Mongol forces where they would end up in Turkey in about 1220. He was a religious scholar and would fit the criterion of that by teaching and meditating. His scholarship shifted when his teacher Fariduddin Attar gave him a copy of his famous piece *Ilahinama (The Book of God)*¹⁴. He would then hold the role of being the head of madrasah which held responsibilities of being the leader of 10,000 students in a spiritual learning community¹⁵. Rumi made a major outbreak in his spiritual conquest when he met Shams Tabriz, a man that had devoted his life to poverty (like a bodhisattva). Rumi had lots of praise for him and is quoted saying, “*What I had thought of before as God, I met today in a human being*”¹⁶. Shams fled and Rumi would look for him, searching in Damascus and other places. He accepted that his close friend and spiritual leader was gone but knew the power within him could uphold his legacy. (In fact, his greatest work was called *Divan-e Shams-e Tabrizi* which is a tribute to Shams consisting of over 40,000 verses¹⁷).

In his poem, *In Between Stories*, he highlights one part that says, “*There is no reality but God. There is only God*”¹⁸. This idea of unity flows through the veins of his work. Rumi is also famously known for using wine as a reference to the mysticism side of Islam. In his piece, *The Many Wines*, he says,

“*God has given us a dark wine so potent that, drinking it, we leave the two worlds. God has put into the form of hashish a power to deliver a taster from self-consciousness... There are thousands of wines that can take over our minds. Don’t think all ecstasies are the same! Jesus*

¹³ Rumi, J. (2004). *The Essential Rumi*. HarperCollins

¹⁴ “Jalal Al-Din Rumi.” (2014). Retrieved from <https://www.poets.org/poetsorg/poet/jalal-al-din-rumi>

¹⁵ “Jalal Al-Din Rumi.” (2014). Retrieved from <https://www.poets.org/poetsorg/poet/jalal-al-din-rumi>

¹⁶ “Jalal Al-Din Rumi.” (2014). Retrieved from <https://www.poets.org/poetsorg/poet/jalal-al-din-rumi>

¹⁷ “Jalal Al-Din Rumi.” (2014). Retrieved from <https://www.poets.org/poetsorg/poet/jalal-al-din-rumi>

¹⁸ Rumi, J. (2004). *The Essential Rumi*. HarperCollins

was lost in his love for God. His donkey was drunk with barley... Be a connoisseur, and taste with caution. Any wine will get you high. Judge like a king, and choose the purest¹⁹.”

In his poems, he talks about beauty, love, the “unseen world”, Jesus, emptiness, the notion of returning home (in the context of Islam, the idea of remembering God), and many other things. He even has obscure references, such as comparing himself to a burnt kabob. In his poem, *I Have Five Things to Say*, the first two points are his speaking about God. He says, “*First, when I was apart from you, this world did not exist, nor did any other. Second, whatever I was looking for was always you²⁰.*” The first point plays with this union idea, and the second touches on the returning home, or remembrance of God. Rumi touches on every Sufi point throughout his poems, such as his poem, *Love and I Talking*, he says, “*The water of realization is the wine we mean where love is the liquid, your body the flagon²¹.*”

There are not a lot of interpretations in the Qur’an that state that anything other than the normal practices could be categorized as genuine sects of Islam. However, the Qur’an does show a welcoming attitude towards Jews, Christians, Sabeans, and other monotheistic religions. The question remains, are Sufis a genuine sect of Islam? Surah 33:36 reads,

“It is not fitting for a Believer, man or woman, when a matter has been decided by Allah and His Messenger, to have any option about their decision: If anyone disobeys Allah and His Messenger, he is indeed on a clearly wrong Path²².”

Another passage from the Qur’an, Surah 6:153 reads,

¹⁹ Rumi, J. (2004). *The Essential Rumi*. HarperCollins

²⁰ Rumi, J. (2004). *The Essential Rumi*. HarperCollins

²¹ Rumi, J. (2004). *The Essential Rumi*. HarperCollins

²² Ali, A. (1995). *The Meaning of the Qur’an*. Amana Publications.

“Verily, this is My Way leading straight: follow it. Follow not (other) paths: They will scatter you about from His (great) Path; Thus doth He command you, that ye may be righteous²³.”

In Christianity, accepting Jesus as your savior bridges the gap between those and their salvation. In the Qur’an, the gap is bridged by reciting the words of God. This shows the magnitude of the words both written and spoken in the Qur’an. The debate of whether a Sufi is a legitimate Muslim has been discussed since the mystic side of Islam has started. Although the argument can lean in either direction, the Qur’an was written as God’s word verbatim, leaving little room for interpretation. However, the Hadith of *I was a Hidden Treasure* makes an interesting point that if Allah is omnipresent, that would mean that He is in every aspect of life itself. In part of being All, Allah would then also have His power in humans, thus being one-part Creator and one-part creation. Sufi’s belief in the unity of Allah and everything as one challenges the traditional view of Islam as a separation of Creator and the creation. These different beliefs are like Judaism, as there are orthodox Judaic followers, and reform Judaic followers.

To understand the importance of Rumi’s writings, an examination of the concept Tawhid will serve as the basis for rhetorical analysis. Tawhid has been defined as the oneness of God. In practical analysis, this translates to God being everything external and internal. This creates an ineffable rationale for several reasons. One of the reasons is that humans come to define “what is” and “what is not” with the usage of contradictions. Humans can conceptually understand when it is night-time because it is dark and when it is daytime because of the contrary. In a religious context, believers have created a basis in understanding God because of a moral,

²³ Ali, A. (1995). *The Meaning of the Qur’an*. Amana Publications.

ethical, and religious code. Through understanding the profane in the world, believers have created their versions of the sacred which adheres to “reaching out” to God. For those trying to understand Tawhid, it is a complex task.

Through prayer, meditation, biblical study, and other forms of ritual, one can gain an “insight” into the mechanisms of God. Through performing ritual, one’s mind can receive the information temporally. This is the way in which Rumi has received information divinely²⁴. The sacred experience cannot be gained optimally as that would adhere to experiencing everything at once, which is the conceived concept of heaven and nirvana. However, through different experiences, Rumi has been able to understand bits and pieces of Tawhid. This has created a longing to understand God through different methodologies. Historians of Sufism have distinguished three paths to God which include ritual, biblical study, and love. Rumi has used love as his path to God since he began his publications over 800 years ago.

In his poem *The Alchemy of Love*, he begins writing about God as a historical consciousness. He writes,

“You come to us from another world
 From beyond the stars and void of space.
 Transcendent, Pure, of unimaginable beauty,
 Bringing with you the essence of Love²⁵.”

²⁴ In no way is this analysis of Rumi attempting to create a prophet from the 13th century poet. This act can be performed by believer and non-believer.

²⁵ Chopra, D. *The Love Poems of Rumi*. New York: Harmony Books. 1998. Page 18

In this excerpt, Rumi describes God as a priori to human understanding and existing outside of a conceivable realm. It also highlights the usage of love as the pathway to and from God. As the poem progresses, he writes,

“Through your loving existence and nonexistence merge.

All opposites united.

All that is profane becomes sacred again²⁶.”

Within this piece of *The Alchemy of Love*, Rumi shows the hardship of definition. He is using the contradictions of existence and nonexistence, the union of opposites, and the transition from the profane to the sacred. Although Rumi is an established and credible Sufi poet, this excerpt shows that metaphors and analogies are the only sufficient method of linguistic delivery. However, Rudolf Otto shows that the ineffable within religion deserves its due importance.

The ineffable nature of God is a concept that dispositions itself to be more irrational than rational. Rudolf Otto writes that the non-rational in religion is extraordinarily important and needs to receive the attention it deserves. In his work, Rudolf Otto has defined the ineffable in religious and mystical experience as the *Numinous*. The *Numinous* experience is a feeling, described as, “it’s nature is such that it grips or stirs the human mind with this and that determinate affective state²⁷.” The *Numinous* creates a framework for God that is without moral nor rational aspects. Rudolf states that it cannot be described in terms of other experiences. He goes to mention that those who experience the *Numinous* then experience a dependency on something that is objective and external. This dependency is the core in which Rumi’s path

²⁶ Chopra, D. *The Love Poems of Rumi*. New York: Harmony Books. 1998. Page 18

²⁷ Otto, R. *The Idea of the Holy*. Page 12

through love can be defined as. Rudolf coined the term *Numinous* as a state of mind in which “the spirit must be awakened²⁸.”

Rudolf Otto shows the mindset that a numen enters when they experience the numinous. The experience of *Mysterium Tremendum* contains the most fundamental aspects of religious emotion, such as trust, love, and salvation. It invokes feelings of awe, humility, and intense energy. The use of *Tremendum* is to adhere to the numinous experience. The term *Mysterium* is used in two ways; one as the numinous being experienced as an “other”, and one as the fascination of being within the experience. Otto writes,

“The feeling of it may at times come sweeping like a gentle tide, pervading the mind with a tranquil mood of deepest worship. It may pass over into a more set and lasting attitude of the soul, continuing, as it were, thrillingly vibrant and resonant, until at last it dies away, and the soul resumes its ‘profane’, non-religious mood of everyday experience²⁹.” These different feelings and emotions can be seen extensively throughout Rumi’s writings. In Rumi’s *My Burning Heart*, the feelings of awe can be seen when he writes,

“My heart is burning with love,

All can see this flame.

My heart is pulsing with passion

Like waves on an ocean.

...

²⁸ Otto, R. *The Idea of the Holy*. Page 7.

²⁹ Otto, R. *The Idea of the Holy*. Page 13.

Behind the veils intoxicated with love,

I too dance the rhythm of this moving world.

I have lost my senses in my world of lovers³⁰.”

The reader can grasp the awe that Rumi is experiencing as he has lost his senses trying to understand his experience. In his poem *The Self We Share*, Rumi writes,

“Thirst is angry at water. Hunger, bitter with bread.

The cave wants nothing to do with the sun.

This is dumb, the self-defeating way we have been.

A gold mine is calling us into the temple.

Instead, we bend and keep picking up rocks from the ground.

Every *thing* has a shine like gold,

But we should turn to the source.

The origin is what we truly are³¹.”

Within this excerpt, Rumi addresses *everything* as having a shine like gold. This is a form of humility in the sense of understanding that everything is sacred. He understands himself as having a shine but acknowledges that everything else has the same shine because it comes from

³⁰ Barks, C. *Rumi: The Big Red Book: The Great Masterpiece Celebrating Mystical Love and Friendship*. New York: HarperOne. 2011. Page 211

³¹ Barks, C. *Rumi: The Big Red Book: The Great Masterpiece Celebrating Mystical Love and Friendship*. New York: HarperOne. 2011. Page 323

the same source. We can see the concept of longing in the top section of the poem, as well as once more in the concluding lines when he writes,

“This is the prayer of each: you are the source of my life.

You separated essence from mud. You honor my soul.

You bring rivers from the mountain springs.

You brighten my eyes. The wine you offer

Takes me out of myself into the self we share.

Doing that is my religion³².”

This adheres to a humility for God and serves to deliver a trying-definition for Tawhid in the unity of man and God. The last essence of the *Tremendum* is the overpowering feelings of excitement and energy. In his poem *Form is Ecstatic*, Rumi shows his energy by writing,

“There is a shimmering excitement in being sentient and shaped.

...

Wind, water, wandering is the essential state.

Fire, ground, gone. That is how it is on the outside.

Form *is* ecstatic³³.”

³² Barks, C. *Rumi: The Big Red Book: The Great Masterpiece Celebrating Mystical Love and Friendship*. New York: HarperOne. 2011. Page 323

³³ Barks, C. *Rumi: The Big Red Book: The Great Masterpiece Celebrating Mystical Love and Friendship*. New York: HarperOne. 2011. Page 332

Regarding the *Tremendum*, Rumi would agree with Rudolf Otto's notions of the effects that it has on the individual. However, when approaching the *Mysterium*, Rumi is not as consistent. Rudolf Otto portrays the *Mysterium* as a "wholly other". Rumi describes the experience as the unity of man and God as one, eternal being. In his poem *The Taste of Morning*, Rumi answers this by writing,

"Being closer and closer is the desire of the body.

Do not wish for union.

There is a closeness beyond that.

Why would God want a second God?³⁴"

Rumi shows that the experience is a unity of two entities into one entity, rather than two entities working together as Rudolf Otto would suggest.

So, why are Rumi's writings more important today than previously? This is because science is beginning to measure and calculate the brain during mystical and religious experiences. The scientific basis is something that can be calculated and measured with anything that is outside of that realm deemed as illogical or inaccurate. This is where the problem of how a mystical experience can be accounted to be credible. However, through the neurological studies of both the passive and active neurology of mystical experience, we can witness where these mystical experiences take place in the brain. If we are able to understand where these mystical experiences are found in the brain, we show two important aspects: we are able to measure and calculate these experiences (although we are not able to understand the subjective

³⁴ Barks, C. *Rumi: The Big Red Book: The Great Masterpiece Celebrating Mystical Love and Friendship*. New York: HarperOne. 2011. Page 200-201.

experience separately from the experience itself) and we possess the neurological framework to experience these mystical and religious transcendental encounters. Those who have had mystical and religious experiences have had problems trying to describe their experience. With the use of Rumi as an intermediary, we may be able to understand the experience that is happening to an individual while they are in a mystical or religious ritual.

Neurology of Mystical and Religious Experience

With the advancement of neurological science, we are better able to understand the inner workings of the brain when a religious or spiritual practitioner undergoes a mystical or religious experience. These sacred experiences are the corner stone of the follower's belief system. In the dawn of the 20th century, psychologist and philosopher William James described characteristics of mystical experience in his book *The Varieties of Religious Experience*. He described these experiences as transient, ineffable, noetic, and passive³⁵. This translates into the experience being temporary, difficult to describe, valuable, and without conscious control. Regarding the scientific method, first-hand accounts do not provide evidence for these experiences. This is one of the main reasons that religion and science have had partition throughout human history. This can be seen in neurologist and psychoanalyst Sigmund Freud's dismissal of the mystical experience as neuroticism. These experiences cannot be weighed, measured, counted, or calculated, which explains the redundant attitude of science towards religious experience. However, the field of neurology has been able to point us toward a "reconciliation" of science and religious experience. We are now able to track and understand *physically* where experience is occurring in the brain. First, we need to understand the key parts of the brain that are activated during these religious and mystical experiences.

The two main areas of the brain that are important in this dissection of the neurology of the religious and mystical experience are the attention association area, and the orientation association area. The attention association area is responsible for two main functions: the behaviors of attaining goals and governing complex, integrated body movements. The

³⁵ James, William. *The Varieties of Religious Experience; a Study in Human Nature, Being the Gifford Lectures on Natural Religion Delivered at Edinburgh in 1901-1902*, by William James. Longmans, Green, and Co., 1902.

orientation association area is responsible for orienting the individual's body within its surrounding space. These two areas of the brain will be important for understanding both the passive and active neurology of religious and mystical experience.

The brain is immensely complex, but it is important to understand a few key parts that will be used when a person undergoes their religious or mystical experience. The main parts of the brain that are activated are the cerebrum, cerebellum, brain stem, limbic system, amygdala, hippocampus, hypothalamus, the thalamus, and the quiescent systems. The cerebrum are the right and left hemispheres of the brain that interpret sensory functions such as touch, vision, and hearing. The cerebrum is also responsible for performing the functions of speech, emotions, reasoning, learning, and movement. The cerebellum coordinates and regulates muscle activity. The brain stem is a crucial part of the brain that controls the flow of neural messages between the brain and the rest of the body. The brain stem is also important for controlling inactive functions such as breathing, swallowing, heart rate, blood pressure, and consciousness. The limbic system is where the subcortical structures meet the cerebral cortex. The limbic system controls behaviors and consists of the amygdala, hippocampus, thalamus, and hypothalamus. The amygdala controls emotional responses, hormones, and memory. The hippocampus is the index of the memory, which sends memories out to the cerebral hemisphere for long-term storage. The hypothalamus is the emotional center of the brain. The thalamus functions to relay sensory signals to and from the spinal cord and the cerebrum. Peter Newberg defines the parasympathetic nervous system as the quiescent system because of "its ability to exert a calming, stabilizing effect upon the

body³⁶". These sections of the brain are crucially important to understand the neurology of the religious and mystical experience.

The research conducted by Peter Newberg has shown that the human brain is programmed to receive spiritual insight through religious and mystical experiences. Peter Newberg writes, "The vast majority of the cerebral cortex is referred to as the neo-cortex, because it is the most recently evolved region of the brain. The evolution of this 'new cortex' gave us the cerebral intelligence that separates humans so decisively from other animals and enables us to create language, art, myth, and culture."³⁷ From eastern practices of meditation, to the sacrificial practices of Haitian Vodou, to the study of theology, humans have had an interest with the concept of a higher power. We have created myths and religions which have suited our needs and desires for understanding ourselves in the world around us. In doing this, we have developed methodologies of practice that have "linked" us to a power that has been interpreted as either "higher" or "inner". The two types of mystical experiences are passive and active, which have been practiced and implemented by all different religions around the world.

The passive mystical experience is when one clears all thoughts, emotions, and perceptions. This can be defined as meditation, yoga, or other eastern religious practices. Neurologically, as the practitioner begins, this will start in the right association area of the brain. As the practitioner gets deeper into their meditation, the thalamus will cause the hippocampus to dampen the flow of neural input. As this happens, the orientation association area begins to become deafferented, which means that it loses sensory input to the body. This causes the

³⁶ Newberg M.d., Andrew; Eugene G. D'Aquili; Vince Rause. Why God Won't Go Away

³⁷ Newberg M.d., Andrew; Eugene G. D'Aquili; Vince Rause. Why God Won't Go Away

practitioner to gain depth into the meditative practice. Neural impulses then travel from the deafferented orientation association area through the limbic system and moves to the hypothalamus. This causes a “quiescent sensation³⁸” in the brain, which is a complete calming of the individual and a counter to arousal. The attention association area registers this calming, causing the intention of the meditative practitioner to increase. This increase in intention causes a higher rate of deafferentation. Next, a “spillover” (or “breakthrough”) effect causes hyperarousal responses³⁹. Newberg writes, “The maximal stimulation of the arousal system can also cause a spillover effect, which causes quiescent responses to surge. The resulting trancelike state is experienced as an ecstatic rush of orgasmic like energy⁴⁰”. This energy and experience are the exact states that Rumi and other “drunk” Sufis describe. After this “spillover” the brain generates both calming and arousal responses. These responses get enhanced as the agitated neural activity travels up from the hypothalamus through the limbic system and back to the attention association area. The deafferenting effect of the attention association area supercharges the orientation association area, completing the deafferenting of the brain. The right orientation association area can no longer orient the practitioner, causing the brain to “escape” into absolute space-lessness. The left orientation association area cannot find boundaries, which eliminates the function of understanding the “self” for the practitioner. This leads to the individual entering altered states of consciousness through the natural innerworkings of the brain.

The active mystical experience is when a practitioner intensely focuses on a thought or an object. These examples include mantra practices or direct prayers conducted by Catholics. This

³⁸ Newberg M.d., Andrew; Eugene G. D'Aquili; Vince Rause. Why God Won't Go Away

³⁹ Newberg M.d., Andrew; Eugene G. D'Aquili; Vince Rause. Why God Won't Go Away

⁴⁰ Newberg M.d., Andrew; Eugene G. D'Aquili; Vince Rause. Why God Won't Go Away

begins in the attention association area which will facilitate neural flow. As the neural flow increases, the right orientation and visual association area will fixate themselves on the object at hand. This causes discharges from the right attention association area to travel through the limbic system to the hypothalamus which causes an arousal response. As the contemplation deepens, arousal in the hypothalamus reaches its highest levels. In the same way with the passive mystical experience, a “spillover” effect takes place, causing the hypothalamus to activate a quiescent response. The arousal and quiescent functions send massive amounts of stimulation back through the limbic system to the attention association area. As the attention association area increases its activity, the practitioner increases their focus. As the focus increases, the attention association area deprives the orientation association area of any neural input that is outside of the image that they are focused on. With the left orientation association area restricting the neural flow from the hippocampus, deafferentation occurs. The right orientation association area then creates the practitioners understanding of “self” within the image that they are focused on. This causes the deafferentation of the left orientation association area, completing the cycle of the religious and mystical practice. In the same way as the passive mystical experience, this causes the individual to enter altered states of consciousness.

These spiritual practices cause the individual to enter inexpressible states of power and sublimity. The neurological machinery of transcendence arose out of neural circuitry that evolved for mating and sexual experience. Therefore, Sufis and mystics use terms such as *bliss*, *rapture*, and *ecstasy* to describe their experiences. Although religious and mystical experience do not follow suit with the scientific method, we can begin to grasp the notions of the numinous through understanding the neurology of the brain.

Bibliography

- Ali, Abdullah Yusuf. *The Meaning of the Holy Qur'an*. Amana Publications, 2004.
- “Asceticism.” *Dictionary.com*, Dictionary.com, www.dictionary.com/browse/asceticism.
- Barks, Coleman. *Rumi, The Big Red Book: The Great Masterpiece Celebrating Mystical Love and Friendship*. HarperOne, 2011.
- IslamReligion.com), Abdurrahman Murad, 2008. “Sufism.” *Sufism (All Parts) - The Religion of Islam*, www.islamreligion.com/articles/1388/viewall/sufism/.
- “Jalal Al-Din Rumi.” *Poets.org*, Academy of American Poets, poets.org/poet/jalal-al-din-rumi.
- James, William. *The Varieties of Religious Experience; a Study in Human Nature, Being the Gifford Lectures on Natural Religion Delivered at Edinburgh in 1901-1902, by William James*. Longmans, Green, and Co., 1902.
- Murata, Kazuyo. *Beauty in Sufism: The Teachings of Rūzbihān Baqlī*. State University of New York Press, 2018.
- “Mysticism.” *Dictionary.com*, Dictionary.com, www.dictionary.com/browse/mysticism.
- Newberg, Andrew B., et al. *Why God Won't Go Away: Brain Science and the Biology of Belief*. Ballantine Books, 2002.
- Otto, Rudolf, and John W. Harvey. *The Idea of the Holy*. Penguin Books, 1959.
- Rūmī Jalāl al-Dīn, and Coleman Barks. *The Essential Rumi*. HarperCollins, 2004.