Innate Mysticism:

An Argument for Neurotheology

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Cultures around the world have different forms of religion, all with unique forms of religious experience. Western culture considers the religious experiences associated with religion to be incredibly unquantifiable and often beyond measurement. In Judeo-Christian traditions, the focus of this article, religious experience often involves subjective mystical interaction with supernatural powers. Though my sources in this article focus on the Western understanding of religion, mysticism is found universally. For example, the many gods of Hinduism and the rituals that connect practitioners of this religious tradition to the deities of this can constitute a deeply mystical and supernatural experience. A variety of people from anthropologists to deeply atheistic scientists try to explain why and how humanity experiences the universal phenomenon categorized as religion. Neurotheology is a relatively young field which qualifies religion in scientific terms by examining how religion manifests within the brain, placing measurements and specific objective characteristics to what previously has been completely subjective. This is done using various forms of brain scans and measurements of electrical brain activity. In this paper, I will argue that neurotheology uses quantifiable evidence to further previous theories from other disciplines about why religion is universal to definitively prove that humans have an innate capacity for mysticism. First, I will define the concept of religion as a universal aspect of human culture and list the characteristics of religion that are relevant to my article. Next, I will look at unquantifiable theories of why religion seems natural to humanity. Finally, I will discuss recent studies in neurotheology by Eugene D'Aquili and Andrew Newberg and V.S. Ramachandran to explain how findings in the neuroscience of religion, when compounded with these unquantifiable theories, prove humankind's innate capacity for religion.

A large number of cultures around the world involve some sort of mysticism. From the perspective of Jonathan Smith (d. 2017), an American historian of religions, "Religion is thought to be a ubiquitous human phenomenon…'Religion' is an anthropological not a theological

category…It describes human thought and action."[1] The distinction in this quote between the theological and the anthropological furthers the sense of universality. No single religion is superior to any other—merely many versions of mysticism exist. From this point on, I will not define religion by the differences between the theologies of different cultures; instead, I will define religion as the idea that culture involves a connection between humanity and the supernatural. This connection to the supernatural is mysticism. The various roles that mysticism can serve in society is as diverse as the theologies around the world. My goal is not to reduce meaningful religious experience to random brainwaves. I aim to expand religious experience by exploring its physical manifestations.

Theologists and anthropologists vary greatly in their individual definitions of religion. This is evidenced by their varied theories which attempt to justify the existence of religion. The universality of religion means all these theories must acknowledge that religion is a cultural necessity, regardless of the specific religious tradition in any given region. Nancy Ellen Abrams, a religious philosopher, summarizes psychoanalyst Carl Jung's theory of religion as "all people need ideas and convictions that can give meaning to their lives and help them find their 'place in the universe'… we have the *capacity* to satisfy this need symbolically with a god image."[2] This idea that humans have a capacity for religious experience suggests that humans are wired for belief in the supernatural. As interpreted by Abrams, for Jung, religion offers a system for the patterns that humans need and an idea of god who can guide them. Cultures around the world develop different ways to fulfill this capacity.

Even from the perspective of atheists, there are reasons why religion is so universal and necessary. Richard Dawkins, a notoriously anti-religious biologist, wrote a controversial work of non-fiction called *The God Delusion*, in which he describes why he sees all religion as false. He cites fellow atheist Steven Weinberg, who wrote, "Of course, like any other word, the word 'God' can be given any meaning we like. If you want to say that 'God is energy,' then you can find God in a lump of coal."[3] In one interpretation, God, or any other deity which is the object of mystical experience, is just an arbitrary label created by humans. Conversely, it could suggest a natural desire for a higher order. If people assign the name of God to something powerful like "energy," there is a clear desire for an influence greater than themselves. The idea of a "God Capacity," a term coined by Jung and defined here as a natural predisposition for religious thought, is interesting

1 Jonathon Z. Smith, "Religion, Religions, Religious" in *Critical Terms for Religious Studies*, ed. Mark C. Taylor, 269.

2 Nancy Ellen Abrams, *A God that Could Be Real: Spirituality, Science, and the Future of Our Planet* (Boston: Beacon Press, 2015), 84. Emphasis in original.

3 Richard Dawkins, *The God Delusion* (Boston: Houghton Mifflin Co., 2006), 33.

because it implicitly suggests the presence of brain structures prewired for religion.[4] The theories suggested by both the religiously-sympathetic Abrams and by atheist Dawkins suggest a human brain is naturally able to interpret the world around them in a way that connects to the supernatural. The conviction to believe in a religious power is uniquely a human quality. Evidence found by neurotheological studies support these theories, proving humankind's innate mysticism.

These theories, which explain the human need for religion, prove that the phenomenon of religion is pervasive and universal, yet it is still puzzling. Regardless of specific and varying religious beliefs, religion is important to humanity in an amazingly universal way; even a secular scholar like Dawkins can admit this fact.

Humans have gathered an amazing amount of information about how the world around us works, yet our mysticism remains elusive. The definitive answer to why we believe in a god or gods has not yet been found. What is clear is that religion is extremely meaningful to humans as a whole, and this is reflected in brain activity. The relatively new field of neurotheology developed as a response to this. Neurotheology is described as the neuroscience of religion. The goal of neurotheology, as described by its founder Andrew Newberg, is to discover how religion manifests within the brain. Its goal is not to say whether or not religion is real or fabricated.[5] If neurotheologists go into studies believing religion is illegitimate, they must also consider that their studies most likely involve people with strong religious conviction. It is important that neurotheologists respect the people who are helping us learn about the brain.[6] To do this, neurotheologists focus on the systems of the brain instead of on theories about culture. Like the theories presented by Abrams and Jung, Dawkins and Weinberg, and others about the purpose of religion, neurotheology explores the human capacity for religion. One study conducted by neurotheologists Eugene D'Aquili and Andrew Newberg looked at the brains of eight American Buddhists and three Franciscan Nuns engaged in their religious practice, either meditation or intense prayer. Using a SPECT scanner,[7] they discovered that during religious practice, neural activity in the prefrontal cortex increased and neural activity in the superior parietal lobe decreased. Activity in the prefrontal cortex, which is associated with

4 Abrams, 84.

5 Interview with Andrew Newberg, *Neurotheology: Where Religion and Science Collide,* Talk of the Nation, podcast audio, December 15, 2010. http://www.npr.org/2010/12/15/132078267/neurotheology-where-religion-and-science-collide.

6 Ibid.

7 SPECT stands for single-photon emission computed tomography. It uses gamma rays and a radioactive marker administered to the patient to give 3D information about the brain's activity, which is indicated by the presence or absence of the radioactive marker. Anatomical structures are measured along with biological activity.

complex thought and decision making, compounded with activity in the superior parietal lobe, which is associated with touch and vision sensory input, demonstrates that real sensation and thought arises from a religious activity. This study proves that mystical experiences are based on real neurological events, not on delusions.[8]

In his book *Phantoms of the Brain*, V.S. Ramachandran further explores how the human brain evidences religious experience. He discusses the connection between religious experience and temporal lobe epileptics. Ramachandran specifically describes a case study involving a temporal lobe epileptic named Paul. Paul experienced intense religious experience and visits from God, which caused significant lifestyle changes, including losing desire for sex.[9] Dr. Ramachandran establishes the strong connections between the temporal lobe and the amygdala. The temporal lobe is associated with sight, which, because of the fight or flight response, is strongly connected to the amygdala, which controls emotion.[10] Ramachandran hypothesizes that because sight (controlled by the parietal lobe) activates emotional response, and one of Paul's greatest symptoms from his seizures (which activate the parietal lobe) is interaction with God, emotional response prompts religious experience. Emotions originate in the brain; therefore, religious experience can be prompted by brain activity.

D'Aquili and Newberg's study suggests that the brain is affected by religious practice. Ramachadran's findings suggest that brain activity triggers religious experience. In addition, both studies suggest that religion is connected to different systems of the brain, the first to the prefrontal cortex, and the second to the limbic system, which contains the amygdala and controls emotion. These findings show that humans have physical systems which interact with religion, proving humans' capacity for mystical experiences. Some might argue because these studies found two different brain systems, the validity behind the innate mysticism in humanity is undermined; however, I would argue that these studies instead strengthens the idea. The differences in the works of these neurotheologists shows that religion is present across many parts of the brain—not just in one. The fact that mysticism occurs across many parts of the brain and is not just isolated to either system suggested by D'Aquili and Newberg or Ramachandran is significant because it means mysticism is intertwined within different structures of the brain.

Neurotheology legitimizes theories about the cultural necessity of religion by assigning quantitative measurements of brain structures

8 John Horgan, *Rational Mysticism: Dispatches from the Border Between Science and Spirituality* (Boston: Houghton Mifflin Co., 2003), 75.

9 V.S. Ramachandran, Phantoms in the Brain: Probing the Mysteries of the Human Mind (New York: Harper Perennial, 2009), 181.

10 Ibid, 185.

to the phenomena of religion. The pervasive presence of religion in all human cultures strongly suggests that religion comes naturally to humans; therefore, like all of our other behaviors, it must have some origin in our brains. Religious experience has a clear connection, from D'Aquili and Newberg's study, to the posterior superior parietal lobe and the prefrontal cortex. Religious experience was also clearly connected to the limbic system, as Ramachandran demonstrated. The differences between the findings in these studies does not mean the studies are invalid. Instead, it proves that religion is present across multiple parts of the brain. Religion is complex and multi-faceted, and humans are clearly prewired for mystical experience. Neurotheology is an important bridge between religion and science in Western scientific culture, which tends to put itself at odds with religion. Religion is far more complex than the brain activity within one person. Science should not be seen as superior to religion; scientific discovery and religion, while different, are both essential parts of human culture. Only by respecting the diversity of our culture and cultures across the world will progress be made in learning more about what we share as humans.