

Liberty University
College of Arts & Sciences, Department of Philosophy

THE SPIRIT MOLECULE: DMT, BRAINS, AND A THEONEUROLOGICAL MODEL TO
EXPLAIN SPIRITUAL EXPERIENCES

Master's Thesis

Presented in Partial Fulfillment

For the Master of Arts in Philosophical Studies

by

Shaun M. Smith

Defended April 2015

Acknowledgments

I would like to thank my fiancée Candice for continually supporting and encouraging me in this project. Through out this season, she and I were able to grow and strengthen one another. Also, I would like to thank Dr. Rick Strassman for reading this thesis, providing feedback, and encouraging the further pursuit of this study. Thanks must also be given to those on my thesis committee at Liberty University. Dr. Thomas Provenzola and Dr. Mark Foreman gave their agreement to what may be the most unorthodox research project completed at Liberty University. Most importantly, it is because of God and our Lord Jesus Christ that we study and learn, not for pragmatic reasons, but for the intrinsic value of learning mysteries of this universe.

Table of Contents

<u>Acknowledgements</u>	1
<u>Chapter 1: Setting the Stage</u>	4
I. What is the Problem with Spiritual Experiences.....	4
II. The Questions at Hand.....	6
III. Outline of Chapters.....	9
IV. Disclaimer.....	10
<u>Chapter 2: What is N, N-Dimethyltryptamine?</u>	11
I. Introduction.....	11
II. What is DMT?	12
III. Ayahuasca: The Religious Plant.....	15
IV. The Pineal Gland.....	19
V. Dr. Strassman’s Analysis.....	26
VI. Conclusion: Sound Abduction?.....	30
<u>Chapter 3: The Demands of the Mind/Body Problem</u>	35
I. Where the Mystical Meets the Mental.....	35
II. Life-force to Consciousness: Strassman’s Dualism.....	37
III. Mind/Brain Interaction.....	39
IV. Theoneurology: Dualist and Naturalist Responses.....	46
<u>Chapter 4: Theoneurology, Spiritual Experiences, and “Spiritual” Qualia</u>	51
I. The Problem of Spiritual Qualia.....	51
II. What is this Qualia We Speak Of?	51

III. Mystical Experiences.....	53
IV. Is Qualia Physical?.....	57
V. The Hardest Problem of Mystical Consciousness.....	62
VI. Concluding Remarks.....	65
<u>Bibliography</u>	66

Chapter 1: Setting the Stage

What is the Problem with Spiritual Experiences?

Consider the following scenario. Your friend Shaun approaches you around 3 o'clock in the afternoon with some very important news he would like to share with you. Shaun states affirmatively, "last night I experienced God, a divine, a being of which was external to myself. God stood there looking at me and with an emphatic, mighty voice exhaled the words 'Shaun you must go forth and report to your friends and family that you have encountered the true living God, go forth and proclaim your experience.' I have never had an experience like this, full of wonder and amazement, the colors swirling around as if they were the shapes of humanly form. I had to tell you this immediately."

Quite the mystical moment, maybe something that you would read out of an excellent science fiction novel that attempted to highlight some Western religious traditions. The first reaction, and rightly so, is to challenge the veridicality of your friend's experience. Was the experience genuinely occurring? Was Shaun hallucinating? Perhaps Shaun has quite the appetite for psychedelic drugs. The one fact that we can affirmatively be grounded in is that for centuries mystics, observers of various religions, and even the every day common agnostic have reported strange life occurrences where they experienced a divine, celestial being, or God. Our intuitive reaction is to question whether the experience genuinely occurred. However, there are deeper questions worth exploring.

Predominantly, the vast majority of academic philosophers tend to agree that we live within a closed physical system of laws and causal effects. This implies that nature is such that only a material substance exists, and nothing beyond or above that is ever present, no matter what our "imagination" brings about. How then could a spiritual experience ever occur? How

could a presumably nonmaterial being start making interactions in a world that is completely material?

Some of these questions may or may not have lead research psychiatrist Dr. Rick Strassman to attempt and discover the biological happenings of spiritual experiences. An attempt to answer this question starts to ask exactly how the brain and or mental processes take shape when a spiritual experience occurs. The fundamental issue comes to be this: do our brains formulate some causal influence for spiritual experiences?

Dr. Rick Strassman takes a rather interesting turn with a unique and creative biological explanation for spiritual experiences and near-death experiences. During the 1990s, Dr. Strassman successfully was able to perform observations on the intravenous use of N, N-Dimethyltryptamine, otherwise known as DMT. His research was an attempt to test the hypothesis that endogenous psychedelics play an important part, if not all of the part, in an occurring spiritual experience. His research focused primarily on the mysterious pineal gland, as the seat of very important chemical compounds that could possibly develop at certain time periods this psychedelic compound DMT. For Descartes, the pineal gland was the “seat of the soul,” but for Strassman, the pineal gland is the central developing station for DMT. Strassman states specifically that he is looking for the “Spirit Molecule.”¹

The problem that I would like to take seriously and make clear is the possibility that there could be a causally influential biological explanation for spiritual experiences.² The scope of this thesis is to also consider the implications of such an explanation. Working specifically with

¹ Rick Strassman, *DMT: The Spirit Molecule* (Rochester, VT: Park Street Press, 2000): 53, and *DMT and the Soul of Prophecy* (Rochester, VT: Park Street Press, 2014): 24-34.

² Particularly, my interests in regards to spiritual experiences spanning across the board to cover all religious traditions who claim to have experiences of the divinely kind. Again, the broadness will come into question as the thesis progresses.

the research done by Dr. Rick Strassman, I would like to tease out these implications of having a contender to take the role of a “spirit molecule.” This goes beyond the epistemic issues that are involved with the discussion of spiritual experiences. Instead, this analysis would take into account the metaphysical implications of having brain processes or functions that cause spiritual experiences. In essence, the phenomenological data becomes immensely important as neuroscience continually attempts to develop models that sufficiently explain the qualia (raw-data) of experience.

The Questions at Hand

For this thesis, the question that arises is the extent a religious observer ought to expect some biological, neurological, or brain function responsible or causally sufficient for spiritual experiences to exist. The fundamental issues worth exploring is whether a DMT “spirit molecule” explanation is something to be expected. Further analysis will tend to suggest that perhaps there is no conclusive way to defend this kind of identity statement. The mind/brain analysis will attempt to demonstrate that perhaps qualia is not so reducible to any kind of physical process, so far as the current philosophers of mind struggle with.³ The strength of identity statements in regards to the mind/body problem typically unfolds into a functionalism. Likewise, demonstrating that Strassman’s biological explanation is similar to a type-identity statement over brain and mental processes further explicates this rigorous attempt to reduce mental processes to brain processes. Exploring the vast array of literature in the philosophy of mind is no easy task. However, as will be illustrated, the mysteries of experience, consciousness, and psychological aptitude play an important role in understanding Strassman’s adventure into a

³ See further, Ned Block “The Hard Problem of Consciousness,” in *Collected Papers, Vol. 1* (Cambridge, MA: MIT Press

possible biological explanation for spiritual experiences. Biology should not be discredited in our discussions on experience. Many psychoactive compounds play an important role in our everyday lives. Strassman's research model attempts to explain how the human brain is built, or designed, to receive and process spiritual information.

Another important facet to understand is the definition or requirements necessary for a spiritual experience to occur. Strassman expresses quite clearly that his attempt to discover a biological explanation is not to reduce divine experiences to mere hallucinatory effects of psychedelic drugs. He claims emphatically that he "is not a DMT zealot."⁴ The goal of his model and research is to emphasize possible endogenous elements that God may actually use as biological means of communication. According to Strassman, DMT is not the sole "cause" of spiritual experience. Phenomenologically, the robustness of the information entails that it derives from a "higher-order phenomenon."⁵

Strassman is attempting make a material implication compatible with divinely intervention. The current landscape of studying spiritual experiences occurs under the model of neurotheology: that the brain gives rises to spiritual beliefs, experiences, and anything related to that sort. Sigmund Freud expresses this perfectly in his use of psychoanalysis on persons who practice religion. Freud claims that these "God beliefs" come from the inherent structure of father and son that all of us experience.⁶ Also, Freud claims that these beliefs come from the inability for a government to always be able to give moral judgments on their citizens. In part, Freud implies in *The Future of an Illusion* that often times this idea of God comes from the

⁴ Strassman, *DMT and the Soul of Prophecy*, 14.

⁵ Ibid.

⁶ Sigmund Freud, *Totem and Taboo: Resemblances between the Psychic Lives of Savages and Neurotics* (New York: Vintage Books, 1918).

inherent hope that all who are doing immoral acts are being judged, and those who are doing morally good acts are being recognized when the community is not recognizing them.⁷ Freud's picture details the deep desire of God as a psychologically sufficient explanation. Others, such as Matthew Alper, attempt to describe God as a brain function that is solely used by all people groups as a means of survival. These examples merely detail a neurotheological view where any God belief or spiritual experience is the result of certain brain functions, typically related to survival mechanisms inherent in our neurophysiological makeup.

An enormous contention of Strassman is to flip this *neurotheological* view to a *theoneurological* model. The theoneurological model leaves room for a divine entity to be able to communicate via the brain. Strassman argues that a theoneurological view allows room for God to be the arbiter of the experience. Theoneurology grants the possibility of a divine to initiate these experiences, and this can be inferred from the comparison of the spiritual phenomenology of several observations. The model is reversed from a bottom-up to a top-down explanation.⁸ Strassman's research attempts to compare the phenomenological qualities of several patients to determine the similarities in what I will call "spiritual qualia."

The model of theoneurology begs important questions. First, is there need to even posit anything beyond the material? Initially, this will become an important issue in regards to explanatory power of Strassman's research. Secondly, the model asks us to consider once again exactly what a spiritual experience is. If the process involved is a mere biological working of our neurophysiological selves, then this seems to broaden the scope of what a mystical-spiritual

⁷ Sigmund Freud, *The Future of an Illusion* (Garden City, NY: Anchor Books, 1964): 1-34.

⁸ Strassman, *DMT and the Soul of Prophecy*, 11. Strassman devotes some attention to Jewish philosophers who refer to the rational and imaginative faculties that give rise to these phenomenological qualities. Again, this demonstrates a lack of acknowledgment with the current discussion over the reducible qualitative nature of phenomenal qualities.

experience entails. The euphoric moments of enjoying a nice cup of coffee, the experience of friendship, the experience of color itself, all of these seem to fit under the category of a spiritual experience. How do we delineate the divinely encounters with the non-divinely encounters? These important questions devise the scope and some of the analysis offered forth in this thesis.

Though there are quite a few philosophical questions that come out of this study, the goal is not to merely discredit or disprove Strassman's research. Instead, the goal will be to treat the matter philosophically, to find the nuances and tensions that will unfold into further study over the theoneurological model and a possible brain correlate or biological compound that triggers spiritual and mystical experiences. Applying the concepts from the history of the philosophy of mind into this project will bring us to those questions of mystical consciousness and its place in the universe.

Outline of Chapters

The outline for the chapters is as follows. First, I will discuss the very nature of the psychoactive compounds N, N-Dimethyltryptamine (DMT). This will include a discussion of DMT's chemical compound, its botanical characteristics, along with the production it serves within the pineal gland. With that said, chapter one will focus also on the issues of Descartes' hypothesis of the seat of the soul, the pineal gland. Finally, I will discuss reasons why Dr. Strassman's hypothesis serves as a best explanation or a proper abductive response in parsimony with Charles Peirce's definition of abductive reasoning within the scientific framework.

In the second chapter I will dive into the issues concerning the mind-body problem, consciousness, and the philosophical implications of Dr. Strassman's DMT explanation. One step in this process is to introduce spiritual experiences as a mental event, apart from a physical

event, that there is a qualia specific to spiritual experiences, qualia that are inner-subjective. This will include a survey of some of the more popular materialist accounts of the mind-body problem. However, there will be a fundamental question that will arise as we venture through the materialist survey: does substance dualism have to be true in order for *authentic* spiritual experiences to occur?

Chapter 3 will include a discussion of the nature and categorization of spiritual experiences. Relying heavily on William James for guidance on this issue, the fundamental question in this chapter will concern the ability for Dr. Strassman's brain-spiritual identity thesis to explain all varieties of spiritual experiences, mystical and nonmystical alike. As will be concluded, Dr. Strassman, along with any naturalist attempting to find a spiritual brain process or function, will have an immense amount of trouble accounting for the phenomenal/qualitative nature of spiritual experiences. Most importantly, being able to distinguish between the feel of each experience will prove to be an enormous task.

Disclaimer

Venturing through this rather fascinating explanation comes with a challenge to the writer and to the reader. There is a lot of dense material to sort through, especially in the up coming chapter. The ride to the end is aimed at one essential goal, discovery. A number of interesting scientific discoveries are hidden in the large volume of pages produced in academia. Modern times have brought with it a large population. My goal remains the same, to discover something new to talk about. I hope you share in my belief that Strassman's work is worthy of philosophical discussion and continuing research in the topic of mystical and spiritual consciousness and experiences.

Chapter 2: What is N, N-Dimethyltryptamine?

Introduction

The 20th century has ushered in a strong advancement in the field of cognitive science. Apart from speculation, empirical evidence has come to support some of the finer details of the human brain. The most important question that has plagued philosophers in contemporary times is whether or not there is this ontologically independent entity known as the mind. Are there purely mental events that are separate from the physical brain? Does the mind emerge from the properties inherent in the physical brain? Was Descartes correct in his assessment that the mind and body are completely distinct from one another? This is the question that is still filled with amazement and perplexity. Philosophically, there have been much recent advancements from thinkers like John Searle, Daniel Dennett, Jaegwon Kim, David Chalmers and Thomas Nagel. The ever growing attraction to the theory of emergentism, the hard nosed acceptance of purely physicalist positions, or the subtle adaptation of substance or property dualism into contemporary thought has brought to life new questions and ambitions in solving Descartes beautiful problem.

The purpose of this thesis, however, is not to solve that issue or come close to resolving the tensions between all facets of the mind/body problem. Instead, the purpose is to dive deeper into one specific aspect of the mind or the physical: spiritual experiences. Where do spiritual experiences take place? Are they mental events or purely physical events? This question has brought Dr. Rick Strassman, psychiatrist out of the University of New Mexico, to dive deeper into a possible brain process that had some responsibility for spiritual and near-death experiences. Building off of the research from Swiss chemist Albert Hofmann, father of Lysergic Acid Diethylamide (LSD or LSD-25), Dr. Rick Strassman believes that the human brain, specifically the pineal gland, synthesizes a highly potent and ritualized psychoactive compound

known as N, N-Dimethyltryptamine, or DMT for short. After researching this fascinating bit of the human brain, the question Strassman began asking himself are these: (1) what is DMT doing in our bodies, as (2) why does our body produce DMT? Dr. Rick Strassman gives a succinct and open answer: “because it is the spirit molecule.”⁹ Philosophically, however, the question becomes this: does the DMT hypothesis offer forth a plausible option for a brain process associated with a given mental event, one that is spiritual? Discovering an answer to this would have major ramifications over Dr. Strassman’s hypothesis.

Using a phrase like “spirit molecule” seems to carry oxymoronic qualities. After all, much of Western thought has described spiritual objects or substances as non-material. Dr. Strassman believes that much of our spiritual and sexual lives can be reduced to the formulation of DMT within the human body, a specific brain process responsible for the *feel*, mental qualia, of a spiritual or near-death experience. Philosophically, there are succinct implications. Apart from Strassman’s desire to attain some instance of a “soul” that all humans have, there is a purely material answer that is being used to solve the riddle of how spiritual experiences in some way work, and still contain spiritual meaning and significance.¹⁰ At face value, the answer can be seen as a materialist-reductive account of spiritual phenomenon. Before diving into the philosophical underpinnings of the DMT explanation of spiritual and near-death experiences, there is need to dive into the chemistry, botany, and overall scientific understanding of DMT.

What is DMT?

⁹ Rick Strassman, *DMT: The Spirit Molecule*, 53.

¹⁰ Strassman indicates that the pineal gland is the sole proprietor of DMT production. Carrying along with some of the thoughts of Rene Descartes, the pineal gland is the connection between the mind and the brain, the soul and the body. However, Strassman is indicating that the production of DMT within the neurophysiology of humans is solely the molecule that enhances the soul, something of a higher conscious, into connection with the brain. This analysis is quite confusing and is need of remission or reproof.

A large part of what has led Dr. Rick Strassman to N, N-Dimethyltryptamine was the study of the tryptamine class of organic compounds that become the predominant force behind some intriguing theories in the 1960s and 1970s. The class of tryptamine compounds are the essential building blocks to a few “psychedelic drugs”, such as lysergic acid diethylamide (LSD-25), psilocybin (“magic mushrooms” as they are often labeled), and DMT. The uniqueness of a said class of compounds is that the foundational compound tryptamine is a derivative of tryptophan. This is an amino acid present in the human diet.¹¹ Just to clarify the term a bit, Strassman wants to reassure us that the term “psychedelic” should not be given the negative connotations of “left wing” or “radical”. Instead, he insists that the term be taken in a more adaptive psychological way, as “mind-manifesting”.¹² The study of how these compounds work in the body, and how they are possibly produced within the body, was made successful by Albert Hofmann’s 1938 discovery of LSD-25.¹³

Shortly after Hofmann accidentally created LSD-25, the study of “psychopharmacology” was born. Psychopharmacology seeks to discuss the connection between the behaviors of the patient, and the medication that is given to that patient. One such way of studying this is to apply certain antidepressants to conclude whether the patient’s emotional status changed from negative to positive. Again, the rather euphoric and bizarre effects of psychedelic drugs came into the equation. Pharmacologists such as Albert Hoffman and Stephen Szara started pondering the effects these compounds had on the brain. This is what led Dr. Strassman to analyze closely the nature of DMT.

¹¹ Rick Strassman, *DMT: The Spirit Molecule*, 32-41.

¹² *Ibid.*, at 31-32.

¹³ *Ibid.*, at 23. See also Richard E. Schultes and Albert Hofmann, *Plants of the Gods* (New York: McGraw Hill, 1979) and *The Botany and Chemistry of Hallucinogens*, 2nd ed. (Springfield, IL: Charles C. Thomas, 1980).

After reviewing the organic compound of DMT, what makes the compound so interesting and appealing to Szara and Strassman is quite clear. First, DMT is natural. Classifying a compound as natural simply means that nature is producing or that the human composition is producing or inhibiting of a said compound (i.e. much like enzymatic and metabolic activity that occurs within the human body). A second appealing feature is the simplicity. The compound is so uniquely and simply structured that, compared to other, more complex compounds, the human body can easily break down and process DMT. Let us look at these two appealing features in a bit more detail.

Observationally, DMT is a naturally occurring substance. In fact, many Amazonian tribes were the first to intake the substance through a tea known as *ayahuasca*.¹⁴ Dr. Strassman has dealt extensively in determining if the molecule is a self-formulating entity in the human composition. The very fact that DMT could formulate within the brain serves to help his case. In 2013, Strassman and other researchers published an article indicating that DMT has a natural occurrence and production within pinealian mammals. Using the process of microdialysis, DMT was seen to have developed in or around the pineal gland of lab rats.¹⁵ Thus, as one mammal indicates, there is good reason to suspect that the mammal class contains organisms that can and do develop this unique compound.

The second feature is the simplicity of the compound. Apart from lysergic acid diethylamide (LSD), the organic structure of N, N-Dimethyltryptamine is simple. Both contain the tryptamine core as the structure, but LSD contains an additional nitrogen and oxygen atom.

¹⁴ Strassman, *DMT: The Spirit Molecule*, 43.

¹⁵ Steven A. Baker & et. al. "LC/MS/MS Analysis of the Endogenous Dimethyltryptamine Hallucinogens, Their Precursors, and Major Metabolites in Rat Pineal Gland Microdialysate," In *Biomedical Chromatography* 27, no. 12 (December 2013): 1690-1700.

Compared to LSD the simpler, more natural compound of DMT contains only two methyl groups to the tryptamine compound. The substance is more natural and less complex.¹⁶

In short, this section is to introduce the molecule as something that is appealing for the biological research of spiritual experiences. The simplistic and natural occurrence of this substance is reason to look further into its nature and to try and determine what DMT is doing in our bodies. Overall, the nature of psychedelic activity does closely resemble the kinds of behaviors and responses we expect from what are commonly referred to as “spiritual experiences.” Of course, these experiences are far more amplified. For biological research, however, this is a starting point that should be taken seriously, if biology is need of an explanation for spiritual experiences: ones that are ineffable and unique.

Ayahuasca: The Religious Plant

There is a fascinating history behind the natural appearances of DMT within the plant kingdom. Religious groups of the Amazonian region have often partake in the tea ritual of *ayahuasca* (*Banisteriopsis Caapi*), a naturally occurring extract from certain barks in South America.¹⁷ In the language of Quechua, the rough translation of *ayahuasca* would be “vine of the souls” or “vine of the dead.”¹⁸ Tribes of the Central and South American location, such as the Peruvians, Aztecs, and Mochica, are known for their vibrant religious practices, incorporating the use and exploration of hallucinogenic items like *ayahuasca*. Specific to this

¹⁶ Strassman, *DMT: The Spirit Molecule*, 35.

¹⁷ Marlene Dobkin de Rios, *Hallucinogens: Cross-Cultural Perspectives* (Albuquerque NM: University of New Mexico Press, 1984): 11, 17.

¹⁸ Charles S. Grob, et al. “Human Psychopharmacology of Hoasca, A Plant of Hallucinogen Used in Ritual Context in Brazil,” in *The Journal of Nervous and Mental Disease* 184, no. 2 (February, 1996): 86.

thesis, there is need to explore the botanical and anthropological content of DMT; bringing to life the cross-cultural relevance of these religious practices.

Mayan culture contains an enormous amount of wonder and amazement. A people group once populating much of Central America, specifically modern day Honduras, Guatemala, and El Salvador, these Indians often focused on the development of geometry, divination, and understanding the space-time continuum.¹⁹ From this tribe, we have early reports of the development of ritualized *ayahuasca* psychoactive effects. The feelings attributed to floating in a “epiphinreal space-time continuum.”²⁰ This aerial travel, or hallucinogenic travel, produced an emotional apparatus of some divine being.

The ritual use of the powerful hallucinogen *ayahuasca* has a direct connection to the tryptamine compound of N, N-Dimethyltryptamine. First there is need to track the botany of *ayahuasca*. *Banisteriopsis* is a tropical, South American genus accounting for around 100 species of vines.²¹ To track the classification chart, *Banisteriopsis* is a genus of plant life that is of the family *Malpighiaceae*, of the order *Malpighiales* (one of the largest in flowering plants), and these are derivatives of the angiosperm type of plants. Angiosperms contain the largest group of plant life that is often edible or part of the human nutrition.²² Hallucinogens, for the most part at least, are vegetal in origin.²³ There are several species of *Banisteriopsis* that are used in the formation of *ayahuasca*. In the Amazonian Brazil, Bolivian, Colombian, Peruvian,

¹⁹ Dobkin de Rios, *Hallucinogens*, 131.

²⁰ *Ibid.*

²¹ Richard Evans Schultes & Albert Hoffman, *The Botany and Chemistry of Hallucinogens*, 2nd ed. (Springfield, IL: Charles C. Thomas, 1980): 163. This source is the best outline and overview of the chemistry and botany of hallucinogenic compounds.

²² *Ibid.*, at 19-20.

²³ *Ibid.*, at 19.

Ecuadorian, Orinoco of Venezuela, and Pacific coasts of the Columbian and Ecuadorian regions, the drink is developed from the stems of this specific genus. The basic ingredients involved in this drink includes *Banisteriopsis caapi* [ayahuasca] and *Banisteriopsis inebrians*.²⁴ Richard Spruce was the first of the English plant explorers that travelled through the Amazon and Orinoco valleys to survey hallucinogenic plants.²⁵ As recorded in 1857, Richard Spruce encountered the Zaparo tribe ingesting the *ayahuasca* drink; not only through drink, but also the chewing of the dry stem. Spruce states that he “could tell no more than that it was a liana or vine.”²⁶

The plant is something of special significance to these tribes located around southern Central America and in South America, specifically the Amazonian regions. Charles S. Grob, from the department of psychiatry Harbor-UCLA medical center, and his team of researchers conducted an empirical study of the effects of the *ayahuasca* ritual within the contexts of churches in Brazil. The specific church known as the Uniao do Vegetal (UDV), translated as “union of plants,” was the context upon which they studied.²⁷ The results demonstrated something of an uncharted nature. Test subjects entered the study with a background of a very abusive lifestyles: some subjects were drug/narcotic abusers dealing previously with violent behavior after the use of narcotics, and some displayed pervasive and dysfunctional behavior. Of course, some entered the study with no abusive backgrounds. The churches contained Maestres that would guide the user along in their experience. Of these test subjects, after partaking in the *ayahuasca* ritual, they display a deep desire to be family oriented, refraining from the use of

²⁴ Ibid.

²⁵ Ibid., at 167.

²⁶ Ibid., at 169.

²⁷ Charles S. Grob, et. al. “Human Psychopharmacology of Hoasca, A Plant of Hallucinogen Used in Ritual Context in Brazil,” 87.

narcotics, and to share this knowledge with their fellow congregates.²⁸ For psychiatric purposes, this displays a complete reverse from a previous abusive lifestyle to one that focuses on what we traditionally refer to as a moral lifestyle. Those withstanding the experience describe an almost third-person view of themselves that allow them to see themselves exactly as they are. From there, they develop a cognitive experience of their ethical issues, transforming them to the point of turning their lives around.²⁹ Much of the current psychopharmacological research Dr. Rick Strassman is leading examines the development of DMT within the body and the correlation between DMT effects and spiritual experience. Three reasons are indicated by Strassman: (1) short-acting effects, (2) it is a naturally occurring hallucinogen, and lastly, (3) its obscurity would not draw undue attention, much like a hallucinogen like LSD would.³⁰

Chemically, the more potent version of plant producing N, N-dimethyltryptamine starts with the sundry mixture of *Banisteriopsis Rusbyana*. This plant adds more to the potency, increasing and lengthening the hallucinogenic effects. The specific admixture results in a drink containing β -carboline alkaloids and N, N-dimethyltryptamine (DMT).³¹ Both of these compounds are hallucinogenic (tryptamine) indole derivatives, and the simplest is serotonin.³² M.J. Poisson was the first to record strong concentrations of N, N-dimethyltryptamine in *Banisteriopsis Rusbyana*.³³ Specifically, in the psychotria viridis (psychotria being in family

²⁸ Ibid., at 90-92.

²⁹ Ibid.

³⁰ Rick Strassman, "Human Psychopharmacology of N, N-Dimethyltryptamine," in *Behavioural Brain Science* 73, no. 1 (December, 1995): 122.

³¹ Schultes, *The Botany and Chemistry of Hallucinogens*, at 174-175.

³² Indole compounds are basic organic structures and are often in the shape of a bicycle. Alkaloid indoles contain the simplest derivatives of tryptamine compounds such as N, N-Dimethyltryptamine.

³³ Ibid., at 175.

with *Rubiaceae*), once mixed with *Banisteriopsis caapi* [ayahuasca] demonstrates MAO inhibiting activity that activates DMT.³⁴ These wondrous “vines of the Gods” demonstrate remarkable hallucinogenic effects.

Vitality, in search for a completely natural compound that possibly resembles the transformative nature of religious or spiritual experiences, bodes well for a naturalistic explanation in need to explain away the existence of these brain states or altered states of consciousness that are often referred to as spiritual experiences. Botany has recorded the depths of a naturally occurring plant that contains strong concentrations of DMT. Thus, the groundwork has been laid and affirmatively, DMT is a naturally occurring compound that has vast hallucinogenic effects.

The Pineal Gland

Before the recent advances in neurophysiology, Rene Descartes speculated immensely on the nature of the soul and the body. As Descartes hypothesized, at the time the mysterious pineal gland offered forth the best explanation for Descartes mind/body substance dualism. The question that has often plagued the substance dualist is the connection between the mental and the physical, between the soul and the body (to use religious/theological language). Strassman wants to return to this long and forgotten hypothesis. Perhaps there is something special with the pineal gland, as it interacts with neurotransmitters, neurons, synapses and other nervous system tissue.

Within contemporary discussion, the mind and body problem finds no soluble resolution in the substance dualism that Descartes preaches: namely, the mind and the body are two

³⁴ I am grateful for the fascinating features of the South Amazonian vines that Dr. Rick Strassman has demonstrated in correspondence.

completely distinct entities, capable of self-existence apart from another.³⁵ For most philosophers of mind, the central problem with this position rests in the causal interaction problem.³⁶ This problem states that Descartes' dualism is unable to explain the most important feature of any philosophy of mind, that is, how the mind and the body interact. Given that there are two distinct substances, there is no hint on how the mental affects the physical and *vice versa*. Of course, this age old problem has been enough for most contemporary philosophers of mind to completely disregard substance dualism as a plausible solution.

Does the causal interaction completely dismantle Descartes' position? Paul Hoffman offers forth a different problem that may be more worthy of an explanation than the causal interaction problem: how does the soul and body unify?³⁷ Descartes surely believed that the soul and the body were in unity:

Now I hold that when God unites a rational soul to this machine, as I intend to explain later on. He will place its principal seat in the brain and will make its nature such that the soul will have different sensations depending on the different ways in which the nerves open the entrances to the pores in the internal surface of the brain.³⁸

Fundamentally, Descartes expresses the first account of a physiological psychology. In attempt to describe where the soul is seated within the brain, Descartes resorts to "Gland H," the pineal gland.³⁹ During Descartes time, the pineal gland was more so a mystery than a profound anatomical connection between the immaterial and the material. E.J. Lowe reminds us that we

³⁵ See Rene Descartes, *Discourse On Method & Meditations* (New York: Barnes & Noble Books, 2004): Meditation 6.

³⁶ Dale Jacques, *The Philosophy of Mind: The Metaphysics of Consciousness* (London: Continuum, 2009): 15-20.

³⁷ Paul Hoffman, *Essays on Descartes* (New York: Oxford University Press, 2009): 28-30.

³⁸ Rene Descartes, "The Treatise on Man," in *The World and Other Writings*, ed. & trans. by Stephen Gaukroger (Cambridge: Cambridge University Press, 1998): 119.

³⁹ *Ibid.*, at 143, 153.

now know that the pineal gland serves no central control over the brain.⁴⁰ Contrary to Lowe, and without mention of what exactly the pineal gland does do, research indicates that it plays an important part with neuronal activity.

Hoffman also argues convincingly that Descartes' unity of the soul and body closely resembles the hylomorphism of the scholastics. As indicated, Descartes is overwhelmingly in favor of a hylomorphism of body and soul that is *ens per se*, apart from *ens per accidens*.⁴¹ Namely, Descartes views a substance as a thing that could exist apart from a subject.⁴² In regards to the human body, Descartes maintains that the necessary functions of the physical body only obtain when the soul (or mind) are unified.⁴³ This is a unity, not a Platonic understanding of the soul/body relationship, where the body is the mechanism of the soul's activity. Instead, Descartes' position more closely aligns with the unity described by his medieval predecessors, like Aquinas and Duns Scotus. In correspondence to Mesland on February 9 1645, Descartes takes up the unity of the soul and body:

But when we speak of the body of a man, we do not mean a determinate part of matter, or one that has a determinate size; we mean simply the whole of the matter which is united with the soul of that man. And so, even though that matter changes, and its quantity increases or decreases, we still believe that it is the same body, numerically the same body, so long as it remains joined and substantially united with the same soul; and we think that this body is whole and entire so long as it has in itself all the dispositions required to preserve that union. (AT IV 166).⁴⁴

If Descartes' position closely resembles those of his medieval predecessors, which textually appears to be a better explanation than the hard nosed substance dualism that is attributed to him,

⁴⁰ E.J. Lowe, *An Introduction to the Philosophy of Mind* (Cambridge: Cambridge University Press, 2000): 24.

⁴¹ Paul Hoffman, *Essays on Descartes*, 44.

⁴² *Ibid.*, at 45.

⁴³ *Ibid.*, at

⁴⁴ Rene Descartes, *The Philosophical Writings of Descartes*, Vol. 3, Trans. John Cottingham, et. al. (Cambridge: Cambridge University Press, 1991): 243

then there is good reason for Descartes to advance the neurophysiological view by hypothesizing that the pineal gland was the transmitter, the regulatory agent of connecting the mind to the brain. However, in contemporary times, what do we know about the mysterious pineal gland? First, let us explore the contemporary physiological discoveries of the once mysterious pineal gland. Second, let us then turn to Dr. Rick Strassman to discover why he would want to return to Descartes' age-old hypothesis.

Much of what scientists have known about the mysterious pineal gland has arrived within the last 60 years. Descartes is the first to make a useful mention of this mysterious gland, describing it as the "seat of the soul." Tracking further back, the Greek physician Herophilus, around 300 BC, was the first to discover the pineal gland.⁴⁵ Another Greek physician, during the age of the Roman Empire, Aelius Galenus (130-200 AD), or Galen as most refer to him, gave the Greek word of "konareion", or *conarium* in Latin, because the pineal gland had the shape of a cone from a pine tree.⁴⁶ As history contains, a number of great thinkers sought to find the seat of the soul. Aristotle, himself, believed that the seat was the heart. As most writers of ancient times indicate, the heart was used to give veridicality to conscious emotions. Those who searched for the seat of the soul often found just one organ that had some connection with the brain (i.e. the heart, cerebral ventricles, cerebral parenchyma, and some even thought the stomach). For 23 centuries, the pineal gland was left mysterious. It was not until the 19th century when physiologists began to take notice of this once believed soul inhibitor.⁴⁷ The past 30 years has seen advancement in biochemistry, pharmacology, and endocrinology with the help

⁴⁵ Stephanie S. Elrich, et. al. "The Pineal Gland: Anatomy, Physiology, and Clinical Significance," in *Journal of Neurosurgery* 63, no. 3 (September 1985): 321.

⁴⁶ Ibid.

⁴⁷ Ibid.

of this specific gland. What is clear as of now is that this gland has a special relation with the compound that is involved in quite a few rhythmic functions of the body: melatonin.⁴⁸

For the mammalian kingdom, the pineal gland serves as an endocrine gland that contains a core of lobules and a cortex, assisting in a diffusion of neurons. Pineal activity includes the releasing of granular shaped pinealocytes that, though not sensitive to light *per se*, retain certain photoreceptive activities. Mostly, these photoreceptors contain immunoreactivity for proteins that are photoreceptor-specific.⁴⁹ After studying the rat pineal gland, with the exception of the kidneys, the pineal gland serves as an endocrine gland with high blood flow.⁵⁰ In 1958, researchers finally discovered the pineal gland had unique secretory properties. The first isolation of secreted compounds within the pineal was “N-acetyl-5-methoxytryptamine,” later named “melatonin” for its unique chemical relation to serotonin (5-HT, 5-hydroxytryptamine).⁵¹ Pineal secretion of melatonin is regulated by the traveling of transduced light information through a multistep pathway from the retina to the pineal gland, all of which is connected by the nervous system.⁵²

As is indicative of all pineal containing mammals thus far, the levels of melatonin production are far greater at night than during the day. This is but one function of the pineal gland; to regulate our day and night patterns.⁵³ Malpoux and his research team conclude that the

⁴⁸ *Ibid.*, at 321-322.

⁴⁹ M. Mila Macchi and Jeffrey N. Bruce, “Human Pineal Physiology and Functional Significance of Melatonin,” in *Frontiers in Neuroendocrinology* 25, no. 3 (2004):178.

⁵⁰ *Ibid.*, at 179.

⁵¹ *Ibid.*, at 180.

⁵² Benoît Malpoux, Martine Migaud, Hélène Tricoire, and Philippe Chemineau, “Biology of Mammalian Photoperiodism and the Critical Role of the Pineal Gland and Melatonin,” in *Journal of Biological Rhythms* 16, no. 4 (August 2001): 338.

⁵³ Macchi and Bruce, “Human Pineal Physiology and Functional Significance of Melatonin,” 182.

melatonin levels fluctuate from high at night to low during the day. The follow up research indicated something far more substantive to neuroscience. Melatonin secretions that follow photoreceptive behavior also venture into the world of neuronal activity. Melatonin ventures to the hypothalamus through two routes, a pineal-jugular-carotid-target called a circuitous peripheral pathway or through the third ventricle, a fluid induced cavity of the human brain.⁵⁴ From their, the pathway has brought the pineal secretion of melatonin directly in contact with the neurohormone GnRH, Gonadotropin-releasing hormone, which regulates the secretion of GnRH.⁵⁵ Conclusively, Malpoux and his team of researchers believe that the pineal gland creates melatonin that interacts with the cerebrospinal fluid, in part this occurs in excess for several species.⁵⁶ Again, much advancement in understanding the pineal gland and its relation to melatonin, serotonin, and the interaction with neurons has come within the past 60 years; still young in the adventure to discover more about the mysterious pineal. Philosophically, much of the discussion of the pineal gland has gone overlooked and unconsidered.

Why, then, would Dr. Rick Strassman venture backward in time to review this special secretory endocrine gland? As indicated, the pineal gland is not a part of the brain. Instead, and in connection with Descartes, the pineal gland does have easy pathways that connect to the cerebrospinal fluid channels.⁵⁷ To reiterate and quote directly, Dr. Strassman's position is clear: "One of my deepest motivations behind the DMT research was the search for a biological basis

⁵⁴ Malpoux, et. al., *Biology of Mammalian Photoperiodism and the Critical Role of the Pineal Gland and Melatonin*, at 342.

⁵⁵ *Ibid.*

⁵⁶ *Ibid.* See also, Robert Y. Moore, "Neural Control of the Pineal Gland," in *Behavioural Brain Research* 73 (1996): 125-130.

⁵⁷ Strassman, *DMT: The Spirit Molecule*, at 61.

of spiritual experience.”⁵⁸ Strassman’s first guess was that melatonin was the biological basis to explain spiritual experiences; melatonin was the spirit molecule.⁵⁹ In order for a chemical compound to be classified as the spirit molecule, Strassman believes that molecular structure would have to be similar to those of psychedelics. To get clear on what that term means, Strassman uses the term “psychedelic” to mean mind-manifestations. This is to be differentiated with “hallucinogen” or other terms that indicate an altered state of consciousness, or one that creates entities that do not actually exist. “Mind-manifesting” simply is the ability to dive deeper into consciousness, perhaps arriving at the subconscious level.⁶⁰ After studying melatonin, the only psychoactive effects that Strassman found were relaxation and sleepiness (as is typical in the over-the-counter use of melatonin as a sleep aid).⁶¹ Apart from this, melatonin is also of the tryptamine class of compounds, very similar to N, N-Dimethyltryptamine. Due to these findings, Strassman was not going to let go. Instead, he hypothesized that there is a DMT forming function in the pineal gland.⁶²

The precursor to melatonin is serotonin, which is very much part of the regular pineal functions. Strassman ponders if serotonin could be converted to other tryptamine compounds other than melatonin. Part of this is due to the enzyme methyltransferases, capable of methylating compounds. As indicative in N, N-Dimethyltryptamine, to be synthesized is would be a double methylate. Thus, the search for endogenous (forming within the body) DMT

⁵⁸ Ibid., at 56.

⁵⁹ Ibid., at 63.

⁶⁰ Ibid., at 31.

⁶¹ Ibid., at 66.

⁶² Ibid.

begun.⁶³ As the 2013 research by Strassman and his team has indicated, the rat pineal gland is functionally capable of generating DMT, and as hypothesized, is able to directly enter the cerebrospinal fluid.⁶⁴ Evidence from these projects are indicating that serotonin can and often does undergo a double methylation.

Dr. Strassman's Analysis

What Dr. Strassman has concluded is that DMT is the “spirit molecule” that is the biological explanation for spiritual experiences that are either religious or near-death. To specify further, Strassman believes that this hypothesis best explains the periods of our lives that are often an epiphany or burst of emotional excitement and distress; perhaps even the awareness of our unethical behavior. The nature of this hypothesis is founded by two important features.

The first feature worth discussing is the terminology that Dr. Strassman is using. As he stresses, there is a fundamental difference between the words “hallucinogen” and “psychedelic.” The psychoactive compounds of DMT have some naturally occurring feature, as the pineal gland synthesizes tryptamine compounds. The current medical terminology would refer to DMT as a hallucinogenic, specifically for its involvement in effecting the visual perceptions of the user. Strassman argues that the dichotomy of language may be a distraction from the spiritual insights, euphoria, and other emotional related issues.⁶⁵

Using a term like “psychedelic” may remove some of those tensions. Of course, the term “psychedelic” also infuses a negative connotation. The negative connotations would be

⁶³ Ibid., at 69.

⁶⁴ Steven A. Baker & et. al. “LC/MS/MS Analysis of the Endogenous Dimethyltryptamine Hallucinogens, Their Precursors, and Major Metabolites in Rat Pineal Gland Microdialysate,” In *Biomedical Chromatography* 27, no. 12 (December 2013): 1690-1700.

⁶⁵ Strassman, *DMT: The Spirit Molecule*, 31.

“radical,” “left wing,” and “countercultural.”⁶⁶ However, as Strassman wants to use the term, the definition should be “mind-manifesting.” This term is to indicate that there are hidden features of consciousness, the sub-conscious, that are attainable in some way.⁶⁷

Strassman’s analysis is promptly similar to John Searle’s analysis of the mind/body problem. The issue for Searle is that the old language inhibited us by polarizing the different answers to the mind/body problem. An enormous reason why substance dualism existed, was because we agreed with Descartes that the mind is one thing, containing mental events, and the brain was extended substance, containing physical brain events. Searle’s solution is to remove the polarization and speak of the mind as a feature of the brain, a position that incorporates the substance physicalist stance while retaining certain mental phenomena.⁶⁸ Similarly, Dr. Strassman wants to overcome the old language that places DMT in one radical boat and non-psychedelic explanations in another. Much of the negative connotation is the product of certain social and political factors that arose in the 1960s, 70s, and even into the 80s. Given the set and setting of the psychedelic intake, the results vary. Certain results may vary in degree from one day to another.⁶⁹ The variation in the amount of time indicates that these are not constant “highs.” In essence, overcoming the negative connotations that have developed will bring us closer to understanding how psychoactive compounds inform spiritual experiences, according to Dr. Strassman. Removing the negative connotation on hallucinogenic and psychomimetic

⁶⁶ Ibid., at 31-32.

⁶⁷ Ibid.

⁶⁸ This argument is one of the most foundational arguments for John Searle’s position on the mind/body problem. His argument is articulated in: John Searle, *Mystery of Consciousness* (New York: New York Review, 1997); *Mind, Language and Society* (New York: Basic Books, 1998), *Intentionality* (New York: Cambridge University Press, 1983); & *Mind: Introduction* (New York: Oxford University Press, 2004).

⁶⁹ Strassman, *DMT: Spirit Molecule*, 31.

activity should pave way for new hypotheses that will further the biological understanding of what goes on in the human brain when a spiritual experience occurs.

A second important feature of Strassman's work is that psychedelic experiences are similar to spiritual experiences that are religious or near-death. As Wesley Wildman comments, the very nature of these experiences and how they relate to the human brain gives us some insights into how brain chemicals give rise to certain spiritual experiences.⁷⁰ To corroborate, the study of the churches in the Amazonian area also indicates that this psychomimetic serotonin-like compound directly alters the previously low moral standards to a higher moral standard for a given person. Arguing further, Dr. Strassman describes that the observations of the religious and spiritual experiences help vilify this hypothesis.⁷¹ Likewise, the spiritual experiences that are described across "all denominations" are correlated to psychedelic experiences.⁷² There are at least some grounds that Strassman has to work with. After all, the transformative experiences of a Christian is quite similar to that of a new imam, a change from the previous life of wretchedness to one of righteousness. Whether the explanation can account for all spiritual experiences will be discussed in a later chapter.

To prevent the fanatical thieves from running and taking off with this kind of explanation, Strassman reminds us that his goal is simply to test the hypothesis in order to learn more about the biological nature of spiritual experiences. In an essay titled *Biomedical Research with Psychedelics: Current Models and Future Prospects*, Dr. Strassman reminds us that this chemical compound is not being used on a whim. Instead, DMT is the best molecule that could

⁷⁰ Wesley Wildman, *Religious and Spiritual Experiences*, 65.

⁷¹ Rick Strassman, *DMT: The Spirit Molecule*, at 68.

⁷² *Ibid.*, at 73. Strassman's wording here is quite confusing. By "all denominations" I imagine Strassman is taking into account the correlation between all spiritual experiences. These include all religious traditions in general, and including Western and Eastern practices.

give rise to the transformative experiences in life.⁷³ Relying heavily on psychoanalysis and Buddhism, Strassman has carried forth explaining spiritual experiences in light of a naturally occurring psychedelic known as DMT. DMT informs the brain that a spiritual or near-death experience is occurring.

Empirically, there is need to mention how the results favor Strassman's hypothesis. After observing countless subjects who have undertaken large doses of DMT intravenously, Strassman starts connecting the dots. The experiences are overwhelmingly similar to those of natural near-death and spiritual experiences, as explained by those participants. With the low-end dosages that were given to subjects, Strassman observes that the memories and feelings of those subjects were more vivid or had more clarity of specific content.⁷⁴ His research has discovered that there are neurophysiological factors at play during these transformative experiences. DMT, the serotonin cousin, interplaying with neurotransmitters, possibly carries with it causal phenomenological aspects. The subject is now able to become conscious of their own consciousness, vividly seeing more of their own psychological and emotional content.

The book *DMT: The Spirit Molecule* mostly focuses on the correlation and similarity between this psychedelic compound and the transformative nature of near-death and spiritual experiences. As the research continued further, in 2013 Dr. Strassman finally demonstrated that DMT is part of a double methylate process using serotonin, and this occurs around the pineal gland. Compared to melatonin and serotonin, Strassman's hypothesis has brought forth new discoveries in how the pineal gland may actually have something to do with certain spiritual

⁷³ Rick Strassman, "Biomedical Research with Psychedelics: Current Models and Future Prospects," in *Entheogens and the Future of Religion*, edited by Robert Forte (Rochester, VT: Park Street Press, 2012).

⁷⁴ Rick Strassman, *DMT: Spirit Molecule*, at 311-312.

experiences. Thus, the hypothesis carries with it an interesting but speculative explanation for spiritual and near-death experiences.

Conclusion: Sound Abduction?

Rather intuitively, there are some trivial methods involved in the scientific explanation Dr. Rick Strassman is looking for. The question of whether or not biologically our bodies have a physiological operation that make spiritual experiences and near-death experiences occur depends on a very specific form of reasoning that was developed in the early 1900s by the American philosopher and pragmatist Charles S. Peirce. As science has illustrated, the goal is essentially to formulate hypotheses that are testable and capable of bringing forth answers for the phenomenon of the physical world. The primary question, then, is whether Strassman has given an inference to best explanation with a biological account for spiritual experiences that explain the occurrence of near-death experiences, religious transformation, and the like.

To decide whether the explanation serves as an inference to the best explanation, there is need to review the method that Charles S. Peirce developed in regards to logic and the scientific method. As taken from Aristotle, there is a method of retroduction, or “abduction” as we describe it today. Abduction is an attempt to make inferences to new information not yet known. In other words, using the information that is already present one can make inferences that seem to be more probable than other inferences. Peirce refers to abductive reasoning as the art of “guessing.”⁷⁵ For example, use the information that your car has broken down. The inference that something inside the mechanical system of your car is broken is good abductive reasoning. Seemingly, abductive reasoning looks like common sense apart from “guessing.” In the more

⁷⁵ Charles S. Peirce, “The Logic of Drawing History from Ancient Documents,” in *Collected Papers*, Volume 7, ed. Charles Hartshorne & Paul Weisspage (Cambridge: Cambridge University Press): 136, Paragraphs 218-220. See also, “Kinds of Reasoning,” in *Collected Papers*, Volume 1: 28-29, section 10.

complex issues, especially those of physics and biology, there may be a number of finite guesses that one could examine. Oppositely, the method of logic known as deduction, as Peirce argues, is incapable of carrying us to new truths that are yet to be known. Hence, Peirce declares that abduction is the form of reasoning that makes a guess from the rationalization of a given empirical fact.⁷⁶ Within the scientific method, induction is used to illustrate the probability of a given explanation to have certain results. As Peirce describes, there is an underlying hypothesis in the method of abductive reasoning: the facts present to us “admit of rationalization, and rationalization by us.”⁷⁷ Alongside this underlying principle, a second could be argued. Philosophically, there is the assumption that there is a category known as truth, and ontologically, truth can be found (either in part or in full). Peirce discusses this similar aspect by describing a finite number of explanations that are available and attainable to the rationalizing person.⁷⁸ However, dually noted, the three forms of reasoning have specific tasks in the method of coming to empirical knowledge in science. First, abduction is the best guess we make towards an explanation for a given phenomenon. There are only a finite number of explanations we can come to know; and from that set of finite explanations, we can develop a test for the hypothesis. A method of testing an hypothesis is developed by the use of deduction. Logically necessary conclusions are developed from the understanding we already contain. These conclusions must have experiential consequences.⁷⁹ Finally, induction is to measure the likelihood of the hypothesis being true. Pure inductive methods are aiming to strengthen the hypothesis.⁸⁰

⁷⁶ Charles Peirce, *Collected Papers*, Volume 7, at 137.

⁷⁷ *Ibid.*

⁷⁸ *Ibid.*

⁷⁹ *Ibid.*, at 122.

⁸⁰ *Ibid.*, at 126-136

Abduction and induction are distinct practices of logic in the scientific method, but the two share the goal of developing a hypothesis that is more probable or necessarily true in the given circumstances.⁸¹

Given the explanation that the pineal gland has the ability to synthesize DMT within, as it is induced by the neurotransmitters, there are good reasons to accept this kind of hypothesis as a naturalistic and scientific explanation for the occurrence of spiritual experiences.⁸² As will be discussed in a later chapter, there is good reason to suggest that phenomenal concepts of consciousness present an enormous problem that needs resolved. For present concerns, methodologically this explanation serves as at least one of the finite explanations.

Strassman states strongly that this explanation is not to be attributed to a fanatical attempt to radically alter the human predicament, forcing a worldwide shift towards the use of psychedelic drugs as means of formulating spiritual experiences.⁸³ In fact, Strassman indicates further that life does not revolve around spiritual or mystical experiences alone.⁸⁴ The goal is for biology to explain spiritual experiences: an explanation that searches beyond the conventional, sheltered life of scientific explanations. Part of that, as discussed earlier, is due to the linguistic elements that lead to a negative attitude towards a psychedelic explanation.

There are several reasons why Strassman's hypothesis should be regarded as an inference to the best explanation. First, as the study of the Brazilian churches indicated, the *ayahuasca*

⁸¹ Ibid., at 136.

⁸² I use the term "occurrence" here simply because the term "existence" of spiritual experiences brings with it a few logical and metaphysical issues. First, to side with Kant's epistemic issue, what sense does it make to say "Spiritual Experiences exist." There is a redundancy present in that proposition. Second, the hypothesis explains how the brain is informed that these experiences are occurring, not that the items of visual experience actually exist. The feel is being studied, not the content itself.

⁸³ Rick Strassman, "Biomedical Research with Psychedelics: Current Models and Future Prospects," at 159.

⁸⁴ Ibid. at 159-160

plant containing compounds of DMT offered forth observable transformative experiences, described as spiritual. These kinds of transformative experiences are necessary to qualify a given experience as a spiritual experience. This sets a good foundation for the exploration of a DMT explanation and a theoneurological model. Second, as Strassman has indicated, the pineal gland was the first stop for discovering a neurological explanation. Given the tryptamine compounds found in the secretions of the mammalian pineal gland, there are good reasons to suggest the hypothesis that our bodies naturally synthesize and secrete DMT. These two empirical instances are good reasons to consider Strassman's DMT hypothesis as a proper abductive response for discovering a biological explanation for spiritual experiences.

Lastly, in a comparative analysis with Matthew Alper's *The "God" Part of the Brain*, Dr. Strassman's hypothesis is more concrete. Alper argues that there is a spirit function of the brain, the evolutionary mechanism that came to serve our species (perhaps, and reasonably, this function could exist amongst other animal species). Arguing from the universal picture of cross-cultural religious practices, Alper argues that there must be a specific site or sites in the brain that produce these occurrences.⁸⁵ Alper reasons that there is a brain process responsible for spirituality (belief in God, religious experiences, etc.). He only speaks of this in terms of a function.⁸⁶ How exactly does the body work in relation to these functions, the materialness that causes these spiritual occurrences? Dr. Strassman has researched and is concretely concluding that DMT is that molecular compound that produces these religious experiences, and possibly all of spiritual occurrences including belief in God. Definitively, this concreteness grants Dr.

⁸⁵ Matthew Alper, *The "God" Part of the Brain: A Scientific Interpretation of Human Spirituality and God* (Naperville, IL: Sourcebooks, 2006): 79-101.

⁸⁶ Alper does mention on pg. 155-158 that drug-induced spiritual responses are not too far fetched. Reasoning for this is that given that the psychedelic compounds amplify the experiences, they must have already been present in the brain to begin with. Of course, this assume synonymy of experiential properties between psychedelics and religious experiences, part of what will become the problems in the coming chapters.

Strassman more abductive strength. In accordance with Peirce, Strassman wins the day because the DMT explanation is more concrete, simple, and economical.⁸⁷

Conclusively, this serves a materialist a very noble hypothesis, an explanation for a biological explanation of spiritual experiences that is both creative and concrete. Initially, the science tends to illustrate the occurrence of DMT as a double methylated serotonin that is produced in the pineal gland, interacting with neurotransmitters, and sending information to the brain. This explanation is overlooked, for the most part. However, such is the way of materialists like Nancy Murphy and D.M. Armstrong to not give sufficient scientific explanations for brain processes as mental processes.⁸⁸ Wesley Wildman, a naturalist who is also looking for an explanation, quickly dismisses Strassman's hypothesis as overly speculative. With some positive attitude, Wildman also believes that this hypothesis has led to further development in the theory that brain chemicals offer forth explanations for certain religious and spiritual experiences.⁸⁹ The potency of DMT bursts in the pineal gland offers more than just a speculative response. A reason for this is the transformative experience that is quick and attainable by the conscious mind. There is more to say on the mind/body problem and how that relates to spiritual experiences. For now, there is a very high probability that Strassman has found a worthy hypothesis that will help develop our understanding of the mind and brain, and specifically, how those relate and inform the nature of spiritual experiences.

⁸⁷ See Charles S. Peirce, *Collected Papers*, Volume 7, "The Logic of Drawing History from Ancient Documents," at 136.

⁸⁸ Edward Feser makes this point known well in his excellent text, *The Philosophy of Mind: A Beginner's Guide* (Oxford: Oneworld, 2006).

⁸⁹ Wesley Wildman, *Religious and Spiritual Experiences*, at 65.

Chapter 3: The Demands of the Mind/Body Problem

Where the Mystical Meets the Mental

A rather intriguing state of affairs that are apparently of some form “mental” or “epiphenomenal” call into question the issues that relate the physical to those mental properties or events. Strassman’s biological explanation for the occurrence of spiritual experiences has us once again trapped within the minutia of contemporary philosophy of mind. In order for Strassman’s explanation to be completely understood, a mind/body analysis must be undertaken. One must consider the theory of a “spirit molecule” as either demonstrating the ability to account for phenomenal concepts, consciousness, souls, minds, higher-order phenomenon, and the like, or an inability to guarantee such “mental” events. Strassman’s contention is stated simply as a certain biological compound that is formed within the pineal gland, exemplifying “psychedelic” properties similar to that of serotonin. In Strassman’s earlier work, there are perhaps more dualistic terms that were being used. Later works, however, start using the more up-to-date terminology. These expressions will be expounded upon to discover exactly what theory of the philosophy of mind best accommodates Strassman’s explanation of spiritual experiences through biological compounds. As will be seen in the next chapter, the identification and acceptance of phenomenal qualities, that could be seemingly “higher-order”, brings Strassman into quite the tension that seems to have little resolution.

At this point there is need to develop and understand what one means by “mental event” and “physical event.”⁹⁰ To begin, a physical event is probably the easiest to define. Physical events, within the philosophy of mind, are brain processes or functions that one would equate with a given experience they have. For instance, consider the pinching of my arm. There are

⁹⁰ For an excellent discussion between the difference and variation of mental and physical events, see Charles Landesman, “Mental Events,” in *Philosophy and Phenomenological Research* 24, no. 3 (March 1964): 307-317.

certain physical events that take place allowing my brain to register the pinching that is occurring. C-fiber neurons travel through the neuronal passageways towards my brain that signify the pinching occurring on my arm. These kinds of brain processes are often identified within the field of neurosciences. Scientist now have an understanding of certain rods and cones that are used as receptors of wave lights that bring about the experience of certain colors. For these physical events, there are certain correlating mental events that are quite distinguishable in definitional analysis. The pain that occurs, sometimes what philosophers of mind call the “phenomenal feel” of experience or the “qualia,” can be identified as a certain kind of mental event. These events can be distinguished from the physical events, such that we can talk about the c-fibers that fire certain neuron transmissions, while at the same time not referring to the “feel” of pain itself.⁹¹ The contemporary mind/body problem attempts to reconcile these two into a systematic explanation. The initial struggle for the Cartesian dualist position is that there seems to be no explanatory power for the mental causing the physical, and *vice versa*.⁹² However, as was argued in the previous chapter, Descartes recognized this problem and seemingly unfolded into the medieval hylomorphic view, a position often unnoticed in the contemporary arenas.⁹³

The problem is particularly important in Strassman’s attempt to give an explanation of spiritual experiences through a naturally occurring compound known as DMT. The reason for

⁹¹ Saul Kripke, *Naming and Necessity* (Cambridge, MA: Harvard University Press, 1980): 97-99

⁹² E.J. Lowe, *An Introduction to the Philosophy of Mind* (Cambridge: Cambridge University Press, 2000): 26-29. Here, Lowe gives an excellent discussion of the causal closure problem. Simply, the issue with dualism is that it claims to acknowledge these interactions amongst the mental and the physical, yet for every mental event there are proceeding physical causes that lead to those sensations, thoughts, emotions, etc.

⁹³ For an excellent discussion and argument of the hylomorphic mind/body position, see James Madden, *Mind, Matter, and Nature* (Washington D.C.: Catholic University Press, 2011). I would also suggest that panpsychism is just the modern version of Aristotelian Hylomorphism. However, a big strength in panpsychism is that it has the explanatory power to explain how consciousness is instantiated in the primal form or being of a person.

that is simply by the definitions above. Surely, one could point out certain physical processes that are occurring within the body. An issue arises where one starts distinguishing between the phenomenal experiences and the physical processes that are occurring. Strassman is keen on making the observation that his study of the effects of DMT on his patients begins and ends with the comparison of the phenomenal qualities in those experiences. He seems ready to accept that there are higher-order phenomena of consciousness that are attainable during the explosion of DMT in the pineal gland.⁹⁴ As is apparent, phenomenal qualities that are accompanying these experiences are essential to Strassman's study. Likewise, Strassman is also in search of a physical process that is accompanying these phenomenal qualities that are spiritual-like. Therefore, Strassman makes the distinction implicit in his work that there are mental events occurring with the correlate physical event of DMT production in the pineal gland. This seems to overcome the explanatory gap in the substance dualist position. Nevertheless, Strassman is not in the clear yet. His own position seems to have a tension with this psycho-physical correlation and interaction.

Life-force to Consciousness: Strassman's Dualism

Interestingly enough, Strassman does not contribute much of an analysis towards the contemporary philosophy of mind, due to his research expertise. As illustrated, the problem has an enormous amount of impact on Strassman's attempt to biologically explain how mystical and spiritual experiences occur. Explicit in his writing are some fascinating dualistic conceptions of persons. To reiterate, Strassman's contention is that the current model of *neurotheology* is inadequate to explain the enormously transformative experiences people encounter through

⁹⁴ Strassman, *DMT and the Soul of Prophecy*, 30-32.

mysticism, meditation, and other practices (qualifying as a spiritual experience, more to say on this later). Instead, the best accommodating model, according to Strassman, is of *theoneurology*, where God or a divine merely uses a physical brain to bring about these experiences of transformativity, enlightenment, and revelation.⁹⁵ The picture thus far is inferring a purely physicalist picture of the brain. Strassman's development of his terminology, however, has changed significantly between his two works.

In the earlier work, *DMT: The Spirit Molecule*, Strassman makes use of terms such as "soul" and "life-force." Terms like soul and life-force are typically associated with a dualist picture of persons and the distinctions between the mind and body. Prior to the "scientizing" of our terms, the term "soul" typically encompassed those attributes that were separate from the body, such as personhood, sensations, and the rational appetite. Theories of the soul typically encompassed what in modern times has become the mind or consciousness. Using such terminology, Strassman strongly insinuates some form of dualism, at least in an Eastern religious kind of sense. He argues that there are periods during the fetal stages of life where the life-force enters into the person. This strongly suggests a dualistic picture of persons, as personhood is not within the physical development of a fetus.⁹⁶

Writing in *DMT and the Soul of Prophecy*, Strassman introduces terms such as "consciousness" and "phenomenal qualities" to explicate the aggregate of our experiences, sensations, thoughts, and the inner workings of our mental lives.⁹⁷ Strassman seemingly brings about this definition so that there is sense to be made of the inner mental aspects of one who is undergoing a "spiritual experience." To understand this, consider John Locke's definition of

⁹⁵ Ibid., at 10-12.

⁹⁶ Strassman, *DMT: The Spirit Molecule*, at 68.

⁹⁷ Strassman, *DMT and the Soul of Prophecy*, at 20.

consciousness: “consciousness is the perception of what passes in a man’s own mind.”⁹⁸

Consciousness defined apart from the physical processes that are occurring in the brain.

Strassman considers the neurological aspects to be very important, but through definitions, he insinuates a distinction and a real explication of a dualistic picture of the person, mental and physical. The implication, however, is that there are properties inherent for each individual, mental and physical, while neither are reducible to each other. How the mental and physical work together is clearly not within the purview of Strassman, which is why the issue will be analyzed here.

Thus, Strassman favors some variety of dualism, though there is no specification as to whether this dualism is a property or a substance dualism. The earlier work demonstrates some type of Eastern religious dualism, while the later work implies a property dualism that is much more up to date with current terminology. There appears to be a more materialistic conception that Strassman is presenting. In the following section, I will argue that a specific materialist theory of mind carries forth a stronger model of explaining in Strassman’s theory.

Mind/Brain Interaction

One prominent theory in the contemporary philosophy of mind attempts to explain the brain and mind as one single unit. Namely, the physicalist notion becomes explicit when a given brain process is equivalent with the mental event that is occurring. Simply, the mind is the brain and the brain is the mind. Inevitably, this is a reductive argument in the philosophy of mind. Philosophers such as David Armstrong and Jaegwon Kim have argued in favor of this position. Intuitively, this theory of mind will come to serve Strassman’s analysis quite well.

⁹⁸ John Lock, *Essays Concerning Human Understanding*, ed. A.D. Woozley (Bergenfield, NJ: New American Library, 1974): 96.

U.T. Place's essay *Is Consciousness a Brain State?* is often regarded as the exemplar attempt to bring forth an identity theory solution to the mind-body problem. In essence, the idea Place argues for is that certain conscious features are identical with certain brain processes that are occurring. Much of Place's thesis is dependent on the scientific advancements up to 1950s. There possibly exists a casual connection between two phenomena, which are logically being observed as one whole event, with two different ontological entities. Empirically, think of a cloud with a large quantity of tiny particles that comprise the cloud. On the one instance, you can view the cloud as one object on its own, yet dive deeper to locate what composes the cloud. Likewise, in regards to consciousness, one may dive deeper to locate the brain functions that comprise conscious events.⁹⁹

The theory insists that there is a logical supervenience of the brain over the mind. Logically, there is a connection between the mental and the physical. Conclusively, mental events are dependent, or supervenient, on physical states. Donald Davidson was the first to introduce the concept of logical supervenience in the mind-body problem.¹⁰⁰ Jaegwon Kim has introduced a stronger, more sophisticated use of logical supervenience, distinguishing between the strong and weak versions.¹⁰¹ In essence, using Kim's strong logical supervenience, "Mental properties supervene on physical properties, in that necessarily, for any mental property M, if anything has M at time *T*, there exists a physical base (or subvenient) property P such that it has

⁹⁹ U.T. Place, "Is Consciousness a Brain Process?" in *Journal of Psychology* 47, no. 1 (February 1956): 47-48. Though J.C.C. Smart plays a big central role in the development of the identity thesis in "Sensations and Brain Processes," in *The Philosophical Review* 68, no. 2 (April 1959): 141-156.

¹⁰⁰ Donald Davidson, "Mental Events," in *Experience and Theory*, eds. L. Foster and J. Swanson (London: Duckworth, 1970).

¹⁰¹ Jaegwon Kim, *Mind in a Physical World: An Essay on the Mind-Body Problem and Mental Causation* (Cambridge, MA: MIT Press, 1998): 9. Also in Jaegwon Kim, *Physicalism, or Something Near Enough* (Princeton, NJ: Princeton University Press, 2005): 18-22.

P at *T*, and necessarily anything that has P at a time has M at that time.”¹⁰² To restate in laymen’s terms, when a said mental event occurs a particular physical event *must* also occur. For example, when one experiences pain there must be an instantiation of physical properties present for the experience of pain to occur. To use an example that is more relevant to the present analysis of Strassman’s work, when a spiritual or mystical experience occurs, so to occurs the process of the pineal gland producing the compound DMT that bring about these spiritual-like sensations and feelings.

At first sight, this appears to be the explanation that Strassman is presenting to us: the spirit molecule (DMT) [physical process] is or occasions the sensation or feel [mental process] of a spiritual experience. This implies a type-identity theory that holds to type-mental processes being equivalent to type-physical processes. Inevitably, this screams of “neuronal chauvinism.”¹⁰³ One fundamental issue with type-identity theories is that they are too strict in the analysis of mind and brain interaction. Specifically, to state that one brain process is responsible for the correlating mental process is missing the mark. One could easily conceive of instances where differing physical processes are responsible for a given mental process.¹⁰⁴ Take my belief that the Saint Louis Blues will finally win the Stanley Cup this year. Likewise, a good friend of mine holds this similar belief. The two of us could have completely opposing neurological states, stemming from differing areas of the brain, yet both of us believe that the Saint Louis Blues will win the Stanley Cup this year.

¹⁰² Jaegwon Kim, *Mind in a Physical World*, 9.

¹⁰³ Ned Block, “Troubles with Functionalism,” in *Consciousness, Function, and Representation: Collected Papers*, Volume 1 (Cambridge, MA: MIT Press, 2007): 87-90.

¹⁰⁴ For an excellent discussion on the type/token distinction, see John Searle, *Mind: A Brief Introduction* (Oxford: Oxford Univeristy Press, 2004): 59-61.

In relation to Strassman's postulation of a "spirit molecule," the model appears too strict of an analysis, nor could it accurately capture any sort of psycho-physical overlapping or causal interaction. Edward Feser rightly points out that for an identity theory to be true, the neurologist would need to just pick out each mental process from the brain, because type-physical event simply *is* a type-mental event. This is, however, ludicrous.¹⁰⁵ Strassman himself does not want to commit the same kind of "biological chauvinism," sort to say. He admits that his study is not attempting to portray DMT as the only element worthy of bringing about spiritual experiences. There could be other factors as well.¹⁰⁶

At this point, there is clarity in Strassman's conception of the mind/body relation, which appears to be a presuppositional attitude of dualism incorporated into the contemporary ideas of functionalism. Functionalism attempts to dissolve the errors of both type-identity theory and token-identity theory. Due to the chauvinism of identity theory, the next step in contemporary philosophy of mind is to deal with the nature of token-identity theories. Searle suggests that token-identity theories are not meant to make an implicit correspondence between mental states and physical states.¹⁰⁷ Instead, a varying number of token-physical states are associated with token-mental states. As James Madden phrases it, the token of pain, for example, is associated with not just one physical brain process, but with a token of c-neural networking, d-neural networking, e-neural networking, and so on.¹⁰⁸ Again, the issue arises as to what makes a set of

¹⁰⁵ Edward Feser, *Philosophy of Mind: A Beginner's Guide* (Oxford: Oneworld, 2006), here Feser points out the awkwardness of the identity theorist claim.

¹⁰⁶ Strassman, *DMT and the Soul of Prophecy*, 14.

¹⁰⁷ Searle, *Rediscovery of the Mind*, 39-41. See also, Madden, *Mind, Matter, and Nature*, 116-122.

¹⁰⁸ Madden, *Mind, Matter, and Nature*, 117.

token neural networks *mental*.¹⁰⁹ So far, using the supervenience principle, there is nothing that grants us an understanding of what makes a type or token physical state supervene on a mental state. Terence Horgan argues that one would have to move from supervenience to a “superdupervenience” giving an ontological account, in materialistic terms, for higher-order phenomenon.¹¹⁰

Functionalism attempts to explain this phenomenon by pointing out, as the title suggests, the functional roles of each of these token episodic events that lead to behaviors and mental states.¹¹¹ Again, the room for consciousness and the consciousness of these experiences of sensations, thoughts, colors, and external beings that are implied to be mystical, on Strassman’s account, tends to fall short. Chalmers’ argues that a major problem of the functional analysis is that it refrains from ever explaining directly these sensations of experience.¹¹² Specifically, consider the desire to eat. Surely, the desire for you to eat is caused by a shrinking of your stomach after previous digestion, resulting in signals being sent to your brain indicating that it is time to receive more nutrients. The experience of being hungry, of getting up from your chair to have a pastry, and the taste or flavor of that pastry are not all accounted for on the functionalist picture. All that has been said is that you exhibit such behaviors that you acquired through certain causes and effects. Nothing is directed towards the experience of being hungry, the *what it is like* to eat a pastry, etc. Undoubtedly, the nature of qualia [the raw-data of experience] will

¹⁰⁹ Searle, *Mind: a brief introduction*, 61.

¹¹⁰ Terence Horgan, “From Supervenience to Superdupervenience: Meeting the Demands of a Material World,” in *Mind* 102, no. 408 (October 1993): 577-582.

¹¹¹ Searle, *Rediscovery of the Mind*, 40. See further, Hilary Putnam, “Mind and Machines,” in *Mind, Language, and Reality: Philosophical Papers Vol. 2* (Cambridge: Cambridge University Press, 1975): 364-366. Putnam gives an excellent argument in relation to the “knowing” that you are in pain and how the Turing machine analogy illustrates the difference between a logical state and a mental state, on 370-373.

¹¹² David Chalmers, *The Conscious Mind: In Search of a Fundamental Theory* (Oxford: Oxford University Press, 1996): 15.

become a central issue in the next chapter. For present purposes, it would suffice to demonstrate how even the functionalist analysis has troubles with the fundamental components of consciousness. Functionalism fails to discuss the uniqueness of privilege access of our experiences. The first-person, phenomenal characteristics are indifferent to a functional analysis.

For Strassman, there are only two routes to take: (1) reformulate the definition of consciousness to help fit his DMT model into either an identity theory or a functionalist theory, or, (2) opt out for a biological naturalism or some other version of emergentism that seeks to capture consciousness as a byproduct of the brain. As noted, (1) is all together guilty of either being chauvinistic with identity statements, or merely not discussing consciousness at all with the functionalist analysis. The remaining option is to consider emergent concepts of consciousness.

John Searle attempts to reconcile the mind/body problem by demonstrating an almost illusory bifurcation of terminology, generally related to Descartes' conceivability argument for dualism. The terms "physical" and "mental" ought not to be considered as completely opposing terms, not ontologically compatible for the real world. Consciousness is more or less a physical thing; similar to how liquidity is a physical feature of H₂O.¹¹³ Examples such as liquidity, solidity, magnetism, etc., are all features of the world that seemingly are emergent properties from material substances. These byproducts of the natural, physical world give us clarity on the neurophysiological ability to have consciousness. Emergentist theories are an enticing attempt to explore compatibility of physicalism and phenomenal concepts of consciousness without revolving into a dualist picture of minds that are floating up and beyond our physical bodies.

¹¹³ John Searle, *Mystery of Consciousness* (New York: The New York Review of Books, 1997): 17-18.

Initially, emergentism is a promising theory of the mind. However, the problem of complexity becomes an issue once more. Galen Strawson argues that items such as liquidity and solidity are physically emergent properties that we see everyday, but when we look towards experience, phenomenal concepts, and the mind, there appears to be no readily apparent analogy that one can make.¹¹⁴ The other issue at hand deals with the reducibility of conscious properties to neurophysiological systems. There appears to be on Searle's view certain neurophysiological properties that are responsible for phenomenal concepts. In the end, a neuroscientist would be able to point out all the properties that are physical and lead to consciousness, conscious states, or other phenomenal qualities. Liquidity is exemplified in the combination of Hydrogen and two Oxygen molecules. Structurally, these items can be located on a physical level. In what way does the mind differ from the identity theorist or functionalist accounts in light of this? In lieu of the emergentist response from Searle, there still exists the problem of describing these conscious elements as physical. Instead of making mind/brain identity, functionalist and emergentist accounts compatible with conscious elements such as thoughts, feelings, sensations, etc., their conclusions create further complexities in deriving causal systems to explain a set of token-mental states. Again, trying to change the linguistic understanding of these terms does not remove the overall impact of Strawson's recognition that phenomenal properties seem fundamentally different from physical properties we observe.

The purpose of this analysis is to demonstrate how difficult the brain-to-mind functioning, or emergence, really is. Essentially, the current discussion in the philosophy of mind is plagued by an ontological prioritization of neurosciences over theoretical explanations. There is great degree of reasonableness to conclude that the mind is in some way explainable by

¹¹⁴ Galen Strawson, *Real Materialism and Other Essays* (New York: Oxford University Press, 2008): 63.

the neurosciences, thus making the matter physical. Strassman has to suffer these consequences as well. The problem rests in the statement:

- (1) DMT (physical) causes mystical/spiritual experiences
- (2) Consciousness is the aggregate of experience (phenomenal concepts)
- (3) Therefore, a neurobiological process causes phenomenal concepts that are mystical/spiritual.

How does this happen? As we have seen, phenomenal concepts are so radically different from physical or neurobiological processes. The physical explanations of identity theorists, functionalists, and physical emergentist fall short in giving the explanatory power necessary for the explanation of phenomenal properties such as sensations and thoughts.

Strassman recognizes the importance of consciousness in his exploration of a biological explanation for spiritual and mystical experiences. Consciousness is the only way to give a real and metaphysically rich profoundness to spiritual experiences. The explosion of sensations, deeper abstract thought, and even a transcendental element is only explicitly possible with some form of consciousness that is radically different in mode and operation from the physical brain. Confusingly, however, Strassman makes the claim that a simple organic compound gives rise to very complex qualitative sensations and thoughts. Often times, this objection has proven to be fatal to the panpsychist theory of the mind. Panpsychism holds that proto-conscious elements are the most basic features of reality and thus the existence of consciousness is derived from these proto-conscious elements.¹¹⁵ Humans, however, have the ability to make abstract thoughts about particulars such as “the bike is green” or “Billy finds that quesadilla to be incredibly tasty.” James Madden points out this intriguing and complex problem (in relation to emergent and panpsychic theories): one does not need to understand the universal or concept of “pain” or

¹¹⁵ An excellent discussion on panpsychism can be found in Thomas Nagel, *Mind and Cosmos: Why the Materialist Neo-Darwinian Conception of Nature is Almost Certainly False* (Oxford: Oxford University Press, 2012): 37-65.

“blue” in order to experience these concepts. In essence, and I believe the objection stretches across any physicalist picture of consciousness, there is nothing to explain the actual acknowledgment of these sensations.¹¹⁶ Experience itself is curtailed. Strassman must tackle with this issue as well, because nothing within biology, as of yet, will give us this unique ability to decipher the particulars of experience. Therefore, the understanding of the spiritual experience is clearly distinct from any neurobiological processes that are occurring.

The issue remains as to what necessarily follows from Strassman’s theory. From the different contemporary theories examined, there are but three options. Strassman is stating either:

- (1) The physical process of DMT production is a spiritual experience [Identity]
- (2) DMT, along with other processes, is a set of token-mental states that function as spiritual experiences [Functionalism]
- (3) DMT is a brain process part of the aggregate of brain processes that are system-level features capable of bringing about the feature of consciousness [physical emergentism]
- (4) DMT is a brain process that is an extension of proto-conscious elements that are already present in nature, causing consciousness of spiritual experiences [panpsychism]

In many ways, (2)-(4) veer off the initial track that Strassman brings us down. Proposition (2) would lead Strassman to lessen his biological explanation, concluding that other elements may have lesser or major roles in producing spiritual experiences. Also, (3) and (4) grants us consciousness but reducibly to the physical, which has proven itself a troubling path. Strassman could resort to his initial conception of dualism, but this needs to be defended as a philosophical/metaphysical position underlying his study. If this route is taken, then DMT really has no explanatory power with spiritual experiences because one could easily have an immaterial mind, conscious of immaterial, spiritual like substances, without any concern of a neurobiological process occurring. Presumably, this could paint Strassman as a DMT zealot,

¹¹⁶ James Madden, *Mind, Matter & Nature*, 203-209.

which is clearly not the hedonistic, drug-inducing path Strassman was looking to take. The interaction problem seems to find a way to push Strassman to accept one of these contemporary theories of the mind.

These reasons leave us with proposition (1), that Strassman's DMT explanation is a chauvinistic attempt to state the proposition that "DMT is Spiritual Experience." The problem of course is that all of these elements of consciousness, sensations, thoughts, epiphenomenal characteristics, and other psychological features that Strassman wants to hold onto contradict this position as well. The way the brain and mind interact is an enormous issue with Strassman's analysis. After an *ad reductio* analysis, there seems to be only one plausible option: mind/body identity. As argued throughout this chapter, this comes at quite the cost.

Theoneurology: Dualist and Naturalist Responses

To conclude, there is need to demonstrate proper responses to the theoneurological model, which states that the brain is used to communicate spiritual, divinely revelations to persons. The previous explication of the mind/body interaction problem has already left the theoneurological model with an enormous amount of tension. However, there are a few points worth bringing out in regards to both those who hold to substance dualism for religious purposes and those who hold to naturalism for anti-religious or atheistic reasons.

First, the dualist could respond favorably to a neurobiological process that has some connection to spiritual experience. J.P. Moreland argues that if any non-physical entity were to exist, then dualism is necessarily true. Thus, if God existed, then dualism would automatically follow, because God is not a physical entity (from the traditional understanding at least).¹¹⁷ A

¹¹⁷ J.P. Moreland, *Scaling the Secular City: A Defense of Christianity* (Grand Rapids, MI: Baker Book House, 1987): 80. Moreland argues that at the worldview level, physicalism would fail if a God were to exist.

theoneurological model that points out various processes that are capable of bringing about spiritual experiences is to be expected. DMT production (along with other psychomimetic production perhaps) is but one physical process and God interacts causally with the brain using such processes. There is no reason to throw out the baby with the bath water because of the fact that DMT is a physical substance. There is still, inevitably, a dualistic picture of nature. Such interaction is expected from a dualist point of view, or at least the process that is occurring is of no concern to the dualist, if God is in fact communicating to persons through a biological means.

Naturalism, however, is mostly reliant on a neurotheological view: God is simply an idea that is a byproduct of our functional roles as psychological beings. For instance, Sigmund Freud has argued extensively that God is the product of our psychological lives due to the parent-child structure of life that nature has bestowed upon us.¹¹⁸ The psychoanalysis goes a step further, as Freud also argues the God idea to be in part the product of our inner desire to always have accountability of those who go unnoticed in their good or evil deeds. Society survives if the idea of God is always present to actually force one to do good deeds or to hold the evil ones accountable.¹¹⁹ Apart from the natural psychological features of having God ideas, Matthew Alper argues that because every culture seems to have ideas of God and spiritual matters, the brain may operate some function that results in these ideas.¹²⁰

Similarly, if there are spiritual experiences that encounter qualia of spiritual nature, then there are different substances that are not physical.

¹¹⁸ Sigmund Freud, *Totem and Taboo*, ed. A.A. Brill (London: George Routledge & Sons, 1919) : 30-40. Freud also speaks of the justification of certain religious conceptions that are deeply inherited in a sub-conscious element.

¹¹⁹ Sigmund Freud, *The Future of an Illusion* (Garden City, NY: Anchor Books, 1964), 1-91. See also, Sigmund Freud, *Moses and Monotheism*, trans. Katherine Jones (New York: Vintage Books, 1967).

¹²⁰ Matthew Alper, *The "God" Part of the Brain: A Scientific Interpretation of Human Spirituality and God* (Naperville, IL: Sourcebooks, 2006): 79-101.

These illustrations merely point out that ideas of God, spiritual beings, angels, and transcendental realities are ultimately reducible to the natural, physical world. In part, this is the correct analysis to hold. Naturalism wins the day here because there is no reason to hold that the brain is actually communicating with God. The experiences are hallucinatory, as psychedelic compounds typically cause hallucinatory patterns of thought. Strassman's theoneurological model reduces back to a neurotheological model simply because there is no reason to posit that these "God ideas" are in fact real. The explanation of spiritual experiences through DMT merely extends the thesis that God ideas are hallucinatory, features of our brains caused by our natural environments.

Conclusively, the inability of the brain to give explanations to phenomenal concepts that are of a different nature comes out in this analysis. Given that the brain has no way of explaining the existence of consciousness, phenomenal concepts, or the existence of an objective God only serves to collapse the theoneurological model back into a neurotheological model. In the future, if neuroscientists acquire the ability to reproduce consciousness, or find consciousness to be physical, then the theoneurological model may be a relevant avenue to consider. For theists who are materialists as well, a theoneurological model is a helpful model to explain certain experiential phenomena of the spiritual kind. However, the causal interaction problem becomes an immensely troubling issue that must be considered in the metaphysics of spiritual experiences.

Chapter 4: Theoneurology, Spiritual Experiences, and “Spiritual” Qualia

The Problem of Spiritual Qualia

Rick Strassman’s theoneurological model that postulates an explanatory biological process for spiritual experience struggles with an enormous problem in the contemporary philosophy of mind. In this chapter, however, the causal interaction problem will come into focus with what I refer to as the “problem of spiritual qualia.” Though the problem of qualia is specifically related to the issue of phenomenal qualities having different ontologies from the physical brains giving rise to those subjective qualities, Strassman’s explanation will likewise suffer from a problem of a specific type of qualia: spiritual qualia. This chapter aims to discuss the nature of qualia, mystical experiences, and the relationship between spiritual qualia and mystical experience. The perplexing question that revolves around the theoneurological model that uses a psychedelic compound such as DMT to explain mystical experiences is whether spiritual qualia is reducible to physical explanations. If spiritual qualia are not reducible to the physical, then Strassman’s theoneurological (DMT) model is of no use in the causal relatedness between brains, consciousness, and the mystical or spiritual adjective added to the type of consciousness in this discussion.

What is this Qualia We Speak Of?

For our everyday experiences, there are distinguishable properties that consciously we identify with. Let us consider the items in front of me as I type these words. There is a table, with a cup of coffee, and a laptop for writing. The table has a circular property. In addition, there is an orange tent adhered by the table (somewhere between orange and red). The table itself is about 3 feet tall. These are features of my personal experience that I am conscious of.

Each property “feels” a certain way. Qualia are those properties, or the raw-data of experience. The colors red, green, orange, etc., all have a phenomenal quality accompanied with a subjective feel. As one reads the beautifully written literature of J.R.R. Tolkien, there is a subjective quality for each individual. The way I read *The Lord of the Rings* and how that feels to me is not necessarily the same as how my friend experiences this great tale in Tolkien’s mythology. The necessity changes because “Shaun’s experience of *The Lord of the Rings*” is not identical to “Joe’s experience of *The Lord of the Rings*.” In fact, Joe often complains that he struggles to enjoy the tale because it is merely a story of just walking and destroying a ring (though, I would argue that he misses the point).

Thomas Nagel famously argued that physicalism struggles to answer the *what it is like*” to have an experience question.¹²¹ Nagel asks us to consider the experiences of a bat. A bat is able to travel using echolocation, bats are nocturnal, they consume different kinds of foods, etc. The experience of a bat is highly complex yet vastly different from our own. Nagel argues that if the experience is only experienced from the first person point of view, then it would be trivial to try and give a physical explanation for that experience.¹²² This demonstrates an important phenomenon of our world, the subjective phenomenal quality (SPQ) of our experience. SPQ has everything to do with “spiritual” type experiences, and the “spiritual” type qualia that accompany those experiences. If we follow Nagel down the rabbit hole, Strassman’s biological explanation is reveling in the troubles between qualia and the physical, non-conscious brain processes that cause them.

¹²¹ Thomas Nagel, “What is it like to be a bat?” in *The Philosophical Review* 83, no. 4 (October 1974): 435-450.

¹²² *Ibid.*, at 442.

A trivial thought experiment illustrating how qualia impacts our understanding of consciousness can be seen in John Locke's famous inverted spectrum problem.¹²³ Perhaps a perplexing issue that is often shared amongst friends: Is the *blue* you see the same *blue* I see, or do we merely agree on the conventional use of the term *blue*? There appears to be no conventional theory to resolve these phenomenal concepts. Strassman's contention is to merely jot down the similar reports of those phenomenal qualities and measure them against those claimed in the major religions. For instance, Moses seeing a burning bush and hearing the voice of God constitute two different phenomenal qualities of that experience. First, there is a sensation and feeling of a burning bush in front of Moses. Second, there is a thunderous, or maybe a subtle and gentle, auditory sensation. Thirdly, Moses has a bit of a transformation of thought and reason, as he now obeys the commands of that voice and leads God's chosen people out of bondage. From the report, there are three phenomenal qualities: color, sound, and a transformation of psychology or an awareness of new knowledge. Are there other necessary qualitative conditions for these spiritual/mystical experiences? This would require an exploration into what constitutes a mystical experience.

Mystical Experiences

The necessary experiential data that comprises a mystical experience can be an epistemic dilemma if experience itself is solely a subjective matter. However, from the detailed studies of William James and W.T. Stace, one could arrive at an objective conclusion over most of the qualitative and phenomenal properties of a mystical experience. The details of recorded mystics such as Saint John of the Cross, Saint Teresa, Ramakrishna, and perhaps those of the Amazonian

¹²³ John Locke, *Essays Concerning Human Understanding*, 246

region who partake in *ayahuasca* rituals, give us an interesting glimpse into the properties and characteristics of mystical experiences.

Strassman takes a similar approach in his study. Having research patients under the influence of DMT, Strassman records the qualitative aspects of their experiences. For example, Rex recollects the euphoric feeling of the presence of some sort of being(s), though the feelings are not reciprocated back to those beings. All that Rex records is the sensuous feeling of those beings. Rex states that the feeling “came on real strong.”¹²⁴ Another patient, Cleo, recollects the enlightened feeling of perceiving God in every living cell. God was in everything.¹²⁵ Already, in these two patients, there is the similar quality of a being present or reportedly present to the subject.

Interestingly enough, the research patient Sean gives a much more rich and descriptive account. Sean records that he was “devoid of self, of thought, of time, of space, of a sense of separateness or ego, or of anything but the white light.”¹²⁶ Sean’s recollection gives us a glimpse at the similarities these three patients have. First, there seems to be a sense of a light, typically of a lighter color such as white. Second, there is the presence of a being of some kind, with the sense that the being is of a divinely nature or a connection with the self. Third, there is an enlightenment that takes place where the former self gains new knowledge, typically of the divinely being (as is the case with Cleo) or a development of deep moral apprehension.

Strassman stresses that his study utilizes the similarity of phenomenal qualities to make his case for his biological explanation. However, the argument becomes, as W.T Stace has

¹²⁴ Strassman, *DMT: The Spirit Molecule*, 208-209.

¹²⁵ *Ibid.*, at 238.

¹²⁶ *Ibid.*, at 244.

noted, whether a “universal core” of mystical experiences exists.¹²⁷ Stace argues that the reliability of the testimony of innersubjective experiences is much lower than those experienced through sense perception.¹²⁸ Thus, there is quite the dilemma over the nature of mystical consciousness because all mystical reports are taken from those who recollect their experiences.

The psychologist William James took a keen interest in the observation of mystical experiences. James notes that one of the central characteristics of mystical experiences is the ineffableness of that experience.¹²⁹ Mystics who return from their mystical state are unable to communicate with conventional language the exact nature of their experience. The experiences contain a specific noetic quality that is only present for the one who experiences the mystical state.

Strassman has an epistemic dilemma in his search for a spirit molecule. If the experiences are ineffable and, more detrimentally, unreliable, then the correlation between the recorded experiences are not conclusive enough to grant Strassman what he is looking for. Richard Gale may be able to shed some grace on the issue. Gale argues that the color yellow is as indescribable and ineffable in conventional language like that of a mystical experience.¹³⁰ The color yellow is hardly an easy quality of experience to explain to someone else. Does this mean the color yellow existing is in contradiction with our inability to describe our experience of yellow? By no means is this contradictory. Gale argues further that the true reason a mystic

¹²⁷ W. T. Stace, *Mysticism and Philosophy* (Basingstoke, UK: Macmillan Press, 1960): 41-47.

¹²⁸ *Ibid.*, at 59.

¹²⁹ William James, *The Varieties of Religious Experience: A Study in Human Nature* (New York: Barnes & Noble Classics, 2004), 329.

¹³⁰ Richard Gale, “Mysticism and Philosophy,” in *The Journal of Philosophy* 57, no. 14 (July 1960): 473-474.

claims ineffability of the experience is simply out of sheer value and significance the experience has for the mystic, on a personal level.¹³¹

All of this suggests that Strassman's comparative analysis is a proper method for obtaining an understanding of how DMT may bring about mystical types of experiences. If those qualities align with the universal core of mystical experiences, then those experiences are equally of a mystical nature. The only issue that remains is whether DMT production in the brain is equivalent with a mystical experience. To demonstrate the issue further, consider the following scenarios:

- (1) DMT is produced in the pineal gland and causes mystical qualities.
- (2) DMT is not produced in the pineal gland and mystical qualities occur.
- (3) DMT is produced in the pineal gland and a mystical experience occurs, but DMT is not causally related.
- (4) DMT is produced in the pineal gland but no mystical experience occurs, only hallucination of one.

Each proposition is a logically conceivable scenario (using Kripkean semantics to demonstrate how identity statements are only possibly true, apart from necessarily true).

The actual problem of mystical consciousness is not within the ineffableness of these experiences, nor within the measurement of similar reports. Contrary to these issues, mystical consciousness struggles to accurately capture the similarities amongst phenomenal qualities. Strassman's true dilemma rests in the ability to accurately capture *authentic* mystical experiences. Though the reports between research patients share similarities, such as sensuously perceiving white lights, divine being(s), and a noetic quality of enlightenment, those similarities do not immediately entail that the qualia of that experience is truly mystical or spiritual. Using a theoneurological model would be well served by a physicalist explanation of qualia. If qualia

¹³¹ Ibid.

were not physical, then a theoneurological model would suffer greatly in the quest of being a proper model for mystical/spiritual/religious experiences.

Is Qualia Physical?

Metaphysically, physicalism struggles with the very nature of phenomenal qualities. On a more materialistic physicalism, where science is the pure arbiter of authentic knowledge of the true world, there is no means by which one could analyze and observe those qualities of consciousness that are innersubjective, incorrigible, and personal. To emphasize the problem, let us track with the vast amount of practicing philosophers who focus on *colors*.

Colors offer forth the best illustration of the qualia problem. First of all, what are they? Are they in our brains? Do things in the world have color? John Locke argued that the properties of colors, scents, and sounds were secondary qualities. Primary qualities consists of properties like shape, size, number, and motion.¹³² The colors of red, green, and blue are secondary qualities of objects external from our minds. External objects have the power to formulate “ideas of red, ideas of green, and ideas of blue.”¹³³ Dennett argues that Locke’s view “has become the standard layperson’s interpretation of science.” Locke’s distinction leaves us with a very troubling question, according to Dennett: what does “an idea of red” look like.¹³⁴ On an empirical understanding, seeing the “idea of red” is far from a possibility, as Nagel makes clear (see above). In the study thus far, this demonstrates a methodological problem Strassman has to resolve. Comparing imaging is perhaps a possibility with the recent advances in neuroscience, but actually experiencing the feel of the phenomenal qualities at the subjective

¹³² John Locke, *Essays Concerning Human Understanding*, 110-119.

¹³³ Ibid.

¹³⁴ Daniel Dennett, *Consciousness Explained*, 371.

level is outside the means of scientific exploration. The discovery of the universal core of mystical consciousness remains impossibly viable to our empirical understandings.

From Dennett, we get the conclusions one would more than likely draw from the materialist understanding of qualia: qualia do not exist, but do exist at the same time. To address the latter half first, Dennett recognizes that there are qualities such as colors, but they are not epiphenomenal qualia that philosophers of mind theorize. Instead, the existence of, by conventional language, color distinctions are demonstrations of our current functional dispositions to distinguish amongst different objects (no different from how Dennett's artificially intelligent robot distinguishes between two different objects with different properties).¹³⁵ The wavelengths and measurements of physical "color" are always present in objects. The qualia we claim to envision, however, is not this epiphenomenal Cartesian mythical stuff, according to Dennett. Addressing the first part of the statement now, Dennett's rejection of phenomenal qualities, Dennett argues that one should never confuse and conflate the contents of experience with the brain processes that occur. Consider Dennett's example of Chase and Sanborn. Both work for Maxwell Coffee, as coffee tasters, to ensure the quality of the product. However, out of the blue (or maybe red, yellow, or green), both come to work describing that they no longer appreciate or find all too great the taste of Maxwell Coffee. Chase states that he has acquired finer tastes. Sanborn states the opposite, and argues that something physiological has changed in the past day.¹³⁶ Dennett argues that this discussion of qualia, the way things feel to someone like Chase, are seemingly confusing and incoherent. Chase thinks equivocally when he thinks of his prior tastes of Maxwell Coffee. However, he has no resources to make a "finer distinction"

¹³⁵ Ibid. 373-374

¹³⁶ Daniel Dennett, "Quining Qualia," in *Consciousness in Modern Science*, eds. A.J. Marcel & E. Bisiacha (Oxford: Oxford University Press, 1988): 52-54.

between his current tastes and his prior tastes.¹³⁷ Discussion of these intrinsic, incorrigible, self-owned qualia are nothing but descriptions of the ability to re-identify internal functional mental states.¹³⁸

If Dennett is correct, then all sensations of any kind are merely dispositions of discriminate functional roles in the brain. Applying this materialist denial of qualia, Strassman's mystical consciousness (and mystical consciousness as a whole), along with the theoneurological model to account for mystical consciousness looks quite promising. First, theoneurological model seeks to explain the brain as the primary communicator a divine being uses to communicate revelatory information. Secondly, the disposition to discriminate amongst natural qualia and spiritual qualia becomes quite easy and natural with a functional brain, even though qualia itself is an epiphenomenal quagmire that is irrelevantly raised, and convolutedly argued. However, materialists would agree that there is not really a spiritual import into these experiences, apart from subjective meaningfulness.¹³⁹ In addition, these subjectively meaningful mystical experiences are compatible with James' and Stace's notion of a mystical experience. If Dennett is correct, and these qualities of experiences remain "brain oriented," then there is a uniformity of nature that comprises a universal core of qualities for these experiences.¹⁴⁰ The experiences, however, do not and need not contain anything epiphenomenal.

Thus far, the materialist's handling of the existence of qualia is trivial. The arguments for the existence of qualia are stronger than Dennett's. Frank Jackson, devotedly a "qualia

¹³⁷ Ibid., at 62.

¹³⁸ Ibid., at 74.

¹³⁹ See Wesley Wildman, *Religious and Spiritual Experiences*, 261-264.

¹⁴⁰ W.T. Stace, *Mysticism and Philosophy*, 22-29. Building off of a completed physics (speculative as that may be), all natural causes and effects are accountable within this closed physical space.

freak,” examines the exact character of phenomenal qualities in his famous knowledge argument. Conceive of Mary, the neuroscientist who has a perfectly functional brain with excellent cognitive processes, is in a room where she only sees black and white. She has all of the information of the physical processes that occur in the brain (given by her profession). Let us say that Mary leaves the room and then, once outside, experiences the color red. Jackson argues that because Mary ascertained all of the physical information, and learned something new once experiencing the color red, that there is something more to phenomenal qualities than just brain processes.¹⁴¹

Another version of the irreducible qualia argument against materialism, perhaps in a contemporarily more exciting fashion, is the zombies thought experiment. David Chalmers expresses this argument as a logically conceivable scenario. Conceive of a world with beings that are physically identical to us. These beings we will call “zombies” (but not to the effect that our physically identical zombie twin’s appearance resembles those of Hollywood zombies). These zombies have all of the features that our functional brains have. The neurons, synapses, and transmitters are present. Functionally the zombie twin is identical. Psychologically the zombie twin is identical. Yet, all is dark. These zombies have no conscious experience. Thus, the zombie twin conceived of in this scenario is phenomenologically inept.¹⁴² Chalmers argues that this logically coherent scenario is enough to demonstrate that phenomenal qualities are not supervenient on the physical.

A counter argument to Chalmers’ thought experiment is to analyze the logicity of the zombie twin thought experiment. The question for the jury is whether a zombie world is

¹⁴¹ Frank Jackson, “Epiphenomenal Qualia,” in *Mind and Cognition*, ed. William Lycan, 2nd ed. (Oxford: Blackwell, 1999): 441-442.

¹⁴² David Chalmers, *The Conscious Mind: In Search of a Fundamental Theory* (Oxford: Oxford University Press, 1996): 94-99.

conceivable, as epiphenomenalists argue. If not, then the zombie argument is guilty of a wishful state of affairs where qualia are not physical. Robert Kirk argues that the inert nature of qualia does not grant the power to come into epistemic contact with qualia. As Kirk argues, knowing qualia requires some causal connection between our cognitive processes and the qualia itself. All of us can refer to our experiences. However, the very moment one refers to those experiences one requires having epistemic contact with the referent. Thus, the zombie argument hinges on the conceivability of an epiphenomenal world where unconscious structures must always cause each other to make epistemic contact. The “E-world,” as Kirk describes, is unable to explain this rather important epistemic feature in the conceivability of zombies and irreducible qualia.¹⁴³

Kirk rests the argument on the idea that conscious experience is not a necessary condition for the epistemic connection with qualia.¹⁴⁴ Questionably, however, Kirk’s counterexample of cranial currents sent through the brain as a replacement for phenomenal concepts is a long shot. The distinction still is and must be maintained; that there is a subjective ontology that is not representable by the third-person, objective ontology. Using physiological counterexamples does not hamper the real existence of qualia, being a special feature of the world. The epiphenomenal world is still conceivable because one can easily ensue both subjective and objective ontologies to categorize the existence of qualia, while retaining the causal connectedness between the referent and the referrer.

These arguments seek to explain that there are certain real features of the world that are innersubjective and personal. In the subjective frame of reference, there is knowledge of these

¹⁴³ Robert Kirk, “The Inconceivability of Zombies,” in *Philosophical Studies* 139, no. 1 (May 2008): 73-89.

¹⁴⁴ *Ibid.*, at 80-81.

phenomenal qualities that do not equivocate to the third-person, observational objective world. The knowledge argument and zombie argument are two of the most successful qualia arguments that utilize the reasoning of Saul Kripke. At this point, there is no question that qualia is better served as an ontologically real feature of the physical world, whose property is unquestionably special and not physical.

For Strassman's theoneurological model, using a biological compound to explain mystical experiences, the epiphenomenal ontological prowess of qualia is detrimental to his project. This shapes what could be Strassman's bane: the hardest problem of mystical consciousness. As argued, phenomenal qualities are not irreducible to the physical world. Equally, any adjective added to phenomenal qualities will be questionable as well. In this case, "spiritual" qualia, the phenomenal concepts essential to measuring the universal core of mystical experiences, faces several struggles that not only demonstrates Strassman's explanation to be flawed, but also the model of theoneurology to be susceptible as well.

The Hardest Problem of Mystical Consciousness

Thus far, we have seen the immensely hard problem of consciousness. Making sense of causal, non-conscious phenomenal properties is not an easy task. The harder problem of mystical consciousness becomes of vital interest then. Strassman's contention that there are mystical or spiritual aggregates of experience, that are empirically verifiable and best explained by simpler compounds, such as DMT, that exist by way of biological means, interacting with brains, and allowing our brains to be susceptible to mystical moments is philosophically unsound. From several arguments presented in favor of irreducible qualia, a couple of solid arguments are to be used against biological explanations of this sort.

One worth looking at is the nature of spiritual import. Strassman claims that DMT, as a physical compound part of this physical world, contains strange causal properties that allow or minds to gravitate towards mystical consciousness. However, the argument rests on the idea that phenomenal qualities are physical. From the knowledge argument and the zombie argument these phenomenal qualities are not reducible to the physical. Kripkean semantics demonstrate that there is an ontological difference between the brain processes and the feel of experience itself. Thus, an ontological difference is dispersed amongst all experiences, as the case has been made for irreducible or non-physical phenomenal qualities. An ontological distinction is made between a mystical experience (the feel of a spiritual experience) and the brain processes that occur when one has the experience.

To make matters a bit more difficult (for any physical explanation of spiritual experiences really) there is confusion in how the spiritual import takes place. Questionably, spiritual attributes are of a different ontology. Strassman's psychological perspective may persuade him to look for a contemporarily scientific explanation, but these fall short due to the inability to explain the spiritual import that takes place for those experiences. By spiritual import, I merely mean the occurrence of an experience that one can know to be "spiritual." Taking experience X and adding the mystical/spiritual attribute of Ψ signifies that there are qualities to that experience that are unique to the experience itself. Let us say that experience X is the experience of white lights. Thus, X(Ψ) means that the experience of white lights is spiritual/mystical. Spiritual import into the experience creates the problem of differentiating amongst qualities that are spiritual and qualities that are not spiritual. To demonstrate the confusion, consider the report of the divine white light that the patient experiences. The white light I experience as I sit at this desk is mystical, or even prophetic, so long as there is spiritual

import. The problem is I am safe to say that I know the white light is not some divinely communication. If a brain process occurs simultaneous to a $X(\Psi)$ experience, there is nothing necessary in the brain process that entails the spiritual import. The brain process is just the causal, non-conscious event that occurs due to being in a world of closed physics. Zombie twins conceptually describe the possibility that these brain processes occur with no mystical consciousness available to the zombie twin. Since qualia is of a different ontology (namely, non-physical), then safely we can assume that spiritual/mystical aggregates are of a different ontology as well.

The final problem is the lack of evolutionary value in a material world that develops mystical consciousness. Given experience $X(\Psi)$ occurs, in what sense does a species develop from a mystical/spiritual import into that experience, especially if the import is more or less psychologically illusory, as Freud proclaims? Alongside qualia, spiritual qualia would have no real evolutionary value. Nature could be as such that qualia (and spiritual qualia) did not exist. Assuming there is a possible mystical consciousness brain process, like Strassman's DMT, the problem that persists is the intrinsic value of that process. Empirically and rationally, there is instrumental value for a nature that has mystical experiences. However, because that value alone is instrumental, the evolutionary use can seemingly change in the future (when we finally discover the illusory nature of spiritual experiences by locating all the relevant brain processes). Second to this, biological explanations for spiritual experiences struggle to account for *authentic* spiritual experiences. The experience, being solely the workings of the functional brain, as stated before, is unable to import that truly *authentic* spirituality to the experience. Without *Spiritual Authenticity*, any experience could be labeled a spiritual experience, so long as it meets the criteria of qualities shared by the volunteers (white lights, divine voices, a journey, etc.).

Everyday experiences can have those qualities. Nature's evolutionary way has no ability to grant that authenticity of spirituality to those qualities.

Concluding Remarks

Chalmers and Clark argue this, "Cognitive processes ain't (all) in the head."¹⁴⁵ Likewise, mystical/spiritual experience ain't all in the head either. The theoneurological model collapses when the nature of qualia is irreducible to the physical. The knowledge and zombie arguments demonstrate the ontological difference between the subjective experience and the objective brain processes that accompany that experience. Explaining experiences that are spiritual in nature is difficult and dumbfounding at times, as the ineffableness characteristic of these experiences causes these epistemic squabbling. Finding empirical, scientific explanations for these experiences is likewise a difficult task. The contemporary debate in the philosophy of mind seems to stretch the issue a bit further, demonstrating how physical brain processes are not capable of giving us the complete story of experience.¹⁴⁶ If qualia one day can be definitively dealt with in the physicalist ball park, then DMT's causal influence in mystical experiences is back on the table for possible brain solutions to a very intriguing, illusory experience. At that point, Strassman will not be able to preserve any meaningful spiritual import into those experiences. Trying to have your cake and eat it at the same time, leads eventually to not having a cake at all.

¹⁴⁵ Andy Clark & David Chalmers, "The Extended Mind" in *Analyses* 58, no. 1 (January 1998): 8.

¹⁴⁶ This challenges Wesley Wildman's claim that somehow the dualistic and materialist conceptions can handle a neural mediation hypothesis. I argue that the dualistic conception grants a more conceivable model for authentic spiritual experiences, apart from the type-materialist attitude toward qualia. See, Wesley Wildman, *Religious and Spiritual Experiences*, 261-264.

Bibliography

- Alper, Matthew. *The God Part of the Brain*. Naperville, IL: Sourcebooks, 2008.
- Alston, William J. "The Autonomy of Religious Experience." *International Journal for Philosophy of Religion* 31, no. 2 (1992): 67-87.
- _____. "The Epistemology of Religious Experience." *Philosophy and Phenomenological Research* 56, no. 1 (1996): 235-238.
- _____. "Religious Diversity and Perceptual Knowledge of God." *Faith and Philosophy* 5, no. 4 (1988): 433-448.
- _____. "Religious Experience and Religious Belief." *Noûs* 16, no. 1 (1982): 3-12.
- Aquinas, Thomas. *Summa Theologica*. Translated by Fathers of the English Dominican Province. Westminster, Md.: Christian Classics, 1981.
- Armstrong, David M. *A Materialist Theory of Mind*. London: Routledge, 1968.
- _____. "The Thermometer-Model of Knowledge." In *Knowledge: Readings in Contemporary Epistemology*, edited by Sven Bernecker, and Fred Dretske, 72-85. Oxford, 2002.
- Audi, Robert. *Epistemology: a Contemporary Introduction to the Theory of Knowledge*. 2nd ed. New York: Routledge, 2003.
- Axelrod, J., "The Pineal Gland: A Neurochemical Transducer". *Science* 184, no. 4144 (June 1974): 1341-1348.
- Barker, Steven A., Jimo Borjigin, Izabela Lomnicka, & Rick Strassman. "LC/MS/MS Analysis of the Endogenous Dimethyltryptamine Hallucinogens, Their Precursors, and Major Metabolites in Rat Pineal Gland Microdialysate." In *Biomedical Chromatography* 27, no. 12 (December 2013): 1690-1700.
- Block, Ned. *Collected Papers*. Cambridge, MA: A Bradford Book, 2007.
- Bonjour, Laurence. "Externalist Theories of Empirical Knowledge." In *Knowledge: Readings in Contemporary Epistemology*, edited by Sven Bernecker, and Fred Dretske, 178-198. Oxford, 2002.
- Bonnay, Denis and Paul Egge, "Inexact Knowledge with Introspection". *Journal of Philosophical Logic* 38, no. 2 (2009): 179-227.
- Bowers Jr., M., and D.X. Freedman. "'Psychedelic' Experiences in Acute Psychoses." *Archives of General Psychiatry* 15, no. 3 (September 1966): 240-248.

- Broad, C.D. *Religion, Philosophy, and Psychological Research*. London: Routledge, 1953.
- Chalmers, David J. *The Conscious Mind: In Search of a Fundamental Theory*. New York: Oxford University Press, 1996.
- Chisholm, Roderick. *A Realistic Theory of Categories: An Essay on Ontology*. Cambridge: Cambridge University Press, 1996.
- _____. "The Indispensability of Internal Justification." In *Knowledge: Readings in Contemporary Epistemology*, edited by Sven Bernecker, and Fred Dretske, 118-127. Oxford, 2002.
- Corbett, L., S.T. Christian, R.D. Morin, F. Benington, & J.R. Smythies. "Hallucinogenic N-methylated indolealkylamines in the Cerebrospinal Fluid of Psychiatric and Control Populations." *The British Journal of Psychiatry* 132, no. 2 (February 1978): 139-144.
- Craig, William Lane, and J.P. Moreland. *The Blackwell Companion to Natural Theory*. Chichester, UK: Wiley-Blackwell, 2009.
- Deliganis, A.V., P.A. Pierce, & S.J. Peroutka. "Differential interactions of Dimethyltryptamine (DMT) with 5-HT1A and 5-HT2 Receptors." *Biochemical Pharmacology* 41, no. 11 (June 1991): 1739-1744.
- Dennett, Daniel. *Consciousness Explained*. New York: Black Bay Books, 1991.
- _____. "Quining Qualia," in *Consciousness in Contemporary Science*, edited by A.J. Marcel and E. Bisiach. Oxford: Clarendon Press, 1988: 42-77.
- Descartes, René. *Discourse On Method & Meditations*. The Barnes and Noble Library of Essential Reading. New York: Barnes & Noble Books, 2004.
- _____. *The Philosophical Writings of Descartes*. Translated by John Cottingham, Robert Stoothoff, Dugald Murdoch, & Anthony Kenny. Cambridge: Cambridge University Press, 1984-1991.
- Dretske, Fred. *Knowledge and the Flow of Information*. Cambridge: MIT/Bradford Books, 1982.
- Evans, C. Stephen & R. Zachary Manis. *Philosophy of Religion: Thinking About Faith*. 2nd ed. Downers Grove, IL: Intervarsity Press, 2009.
- Feser, Edward. *Philosophy of Mind (A Beginner's Guide)*. Revised ed. Oxford: Oneworld Publications, 2006
- Flew, Anthony, and Alasdair MacIntyre, eds. *New Essays in Philosophical Theology*. New York: SCM Press, 2012.

- Forte, Robert, ed. *Entheogens and the Future of Religion*. Rochester, Vt.: Park Street Press, 2012.
- Gatch, Michael B., Margaret A. Rutledge, Theresa Carbonaro, & Michael J. Forster. "Comparison of the Discriminative Stimulus Effects of Dimethyltryptamine with Different Classes of Psychoactive Compounds in Rats". *Psychopharmacology* 204, no. 4 (2009): 715-24.
- Gillin, J.C., J. Kaplan, R. Stillman, & R.J Wyatt. "The Psychedelic Model of Schizophrenia: The Case of N, N-dimethyltryptamine." *The American Journal of Psychiatry* 133, no. 2 (February 1976): 203-208.
- Hasker, William. *Metaphysics*. Downers Grove, IL: Inter-Varsity Press, 1983.
- Hick, John, & Arthur C. McGill, eds. *The Many-Faced Argument: Recent Studies On the Ontological Argument for the Existence of God*. Eugene, OR: Wipf & Stock Publishers, 2009.
- Holland, George Adam. "Doxological extended cognition." *Zygon* 42, no. 3 (September 2007): 749-766.
- Hollister, L.E. "Chemical Psychosis." *Annual Review of Medicine* 15, no. 1 (February 1964): 203-214.
- Jacquette, Dale. "Chisholm on Persons as *Entia Successiva* and the Brain-Microparticle Hypothesis." *The Modern Schoolman: A Quarterly Journal of Philosophy*, 70 (1993): 99-113.
- _____. "Kripke and the Mind-Body Problem." *Dialectica* 41, (1987): 293-300.
- _____. *Philosophy of Mind: the Metaphysics of Consciousness*. London: Continuum, 2009.
- _____. *Philosophy, Psychology, and Psychologism : Critical and Historical Readings on the Psychological Turn in Philosophy*. Dordrecht, Netherlands: Kluwer Academic Publishing, 2003.
- _____. "Psychologism Revisited in Logic, Metaphysics, and Epistemology." *Metaphilosophy* 32, no. 3 (April 2001): 261-78.
- _____. "Searle's Antireductionism." *Facta Philosophica* 4, (2002): 143-166.
- _____. "Searle's Intentionality Thesis." *Synthese* 80, no. 2 (August 1989): 267-275.
- James, William. *The Varieties of Religious Experience*. New York : The Modern Library, 1936.

- Kant, Immanuel. *Critique of Pure Reason*. Translated by Norman Kemp Smith. London: McMillan, 1929.
- Kim, Jaegwon. *Mind in a Physical World: An Essay on the Mind-Body Problem and Mental Causation*. Cambridge, MA: MIT Press, 1998.
- _____. *Philosophy of Mind*. Boulder, CO: Westview Press, 1996.
- _____. *Physicalism, Or Something Near Enough*. Princeton, NJ: Princeton University Press, 2005.
- Klein, D.C. & J.L. Weller. "Indole Metabolism in the Pineal Gland: A Circadian Rhythm in N-acetyltransferase." *Science* 169, no. 3950 (September 1970): 1093-1095.
- Klein, D.C. & R.Y. Moore. "Pineal N-acetyltransferase and hydroxyindole-O-methyltransferase: Control by the Retinohypothalamic Tract and the Suprachiasmatic Nucleus." *Brain Research* 174, no. 2 (October 1979): 245-262.
- Klein, D.C., J.L. Weller, & R.Y. Moore. "Melatonin Metabolism: Neural Regulation of Pineal Serotonin: Acetyl Coenzyme A N-Acetyltransferase Activity." *Proceedings of the National Academy of Sciences of the United States of America* 68, no.12 (December 1971): 3107-3110.
- Klein, D.C., R. Smoot, J.L. Weller, S. Higa, S.P. Markey, G.J. Creed, & D.M. Jacobowitz. "Lesions of the Paraventricular Nucleus of the Hypothalamus Disrupt the Suprachiasmatic Nucleus Spinal Cord Circuit of the Melatonin Generating System." *Brain Research Bulletin* 10, no. 5 (May 1983): 647-652.
- Kripke, Saul. *Naming and Necessity*. Cambridge, MA: Harvard University Press, 1972.
- LaRock, Eric. "From Biological Naturalism to Emergent Subject Dualism." In *Philosophia Christi* 15, no. 1 (June 2013): 97-118.
- _____. "Why Neural Synchrony Fails to Explain the Unity of Visual Consciousness." In *Behavior and Philosophy* 34, (2006): 39-58.
- Leftow, Brian. "Is God an Abstract Object?" *Noûs* 24, no. 4 (September 1990): 581-598.
- Lehman, M.N., E.L. Bittman, & S.W. Newman. "Role of the Hypothalamic Paraventricular Nucleus in Neuroendocrine Responses." *Brain Research* 308, no. 1 (August 1984): 25-32.
- Lehrer, Keith. *Theory of Knowledge*. Boulder, CO: Westview Press, 1990.
- Leibniz, G.W. *Discourse On Metaphysics and Other Essays*. Indianapolis, IN: Hackett, 1991.

- Lewy, A.J., T.A. Wehr, F.K. Goodwin, D.A. Newsome, & S.P. Markey. "Light Suppresses Melatonin Secretion in Humans." *Science* 210, no. 4475 (December 1980): 1267-1269.
- Locke, John. *An Essay Concerning Human Understanding*. Edited by A D. Woozley. Bergenfield, N.J.: New American Library, 1974.
- Lowe, E.J. *A Survey of Metaphysics*. Oxford, UK: Oxford University Press, 2002.
- _____. *An Introduction to the Philosophy of Mind*. Cambridge: Cambridge University Press, 2000.
- _____. *Philosophy of Religion: An Introduction*. 4th ed. Belmont, CA: Wadsworth Publishing, 2007.
- Lycan, William G. *Consciousness*. Cambridge, MA: Bradford Books, 1987.
- _____. *Consciousness and Experience*. Cambridge, MA: A Bradford Book, 1996.
- Macdonald, Cynthia, "Introspection and Authoritative Knowledge". *Erkenntnis*, 67, no. 2 (2007): 355-372.
- McGinn, Bernard, ed. *The Essential Writings of Christian Mysticism*. Modern Library Classics. New York: Modern Library, 2006.
- McGinn, Colin. *Consciousness and Its Objects*. Oxford University Press, USA, 2004.
- Moore, Robert Y. "Neural Control of the Pineal Gland." In *Behavioural Brain Research* 73, no. 15 (December 1995): 125-130.
- Moore, Robert Y., Joan C. Speh, & Rehana K. Leak. "Suprachiasmatic Nucleus Organization." *Cell and Tissue Research* 309, no. 1 (July 2002): 89-98.
- Moser, Paul K. *The Elusive God: Reorienting Religious Epistemology*. Cambridge: Cambridge University Press, 2009.
- Nagel, Thomas. *Mind and Cosmos: Why the Materialist Neo-Darwinian Conception of Nature Is Almost Certainly False*. New York: Oxford University Press, 2012.
- _____. "What Is It Like to Be a Bat." In *The Philosophical Review* 83, no. 4 (October 1974): 435-450.
- Nakamura, G.R. & N. Adler. "Psychotoxic or Psychedelic?" *The Journal of Criminal Law, Criminology, and Police Science* 63, no. 3 (September 1972): 416-426.

- Newberg, Andrew. *Principles of Neurotheology*. Burlington, VT: Ashgate Publishing Company, 2010.
- Noll, Richard. "Shamanism and Schizophrenia: A State-Specific Approach to the 'Schizophrenia Metaphor' of Shamanic States". In *American Ethnologist* 10, no. 3 (August 1983): 443-459.
- Pereboom, Derk. *Consciousness and the Prospects of Physicalism*. New York: Oxford University Press, 2011.
- Perner, Josef, Daniela Kloo and Elisabeth Stöttinger, "Introspection and Remembering". *Synthese* 159, no. 2 (2007): 253-270.
- Peterson, Michael L., ed. *Philosophy of Religion: Selected Readings*. 4th ed. New York: Oxford University Press, 2010.
- Plantinga, Alvin. *Warranted Christian Belief*. New York: Oxford University Press, 2000.
- Putnam, Hilary. *Mind, Language, and Reality: Philosophical Papers Vol. 2*. Cambridge: Cambridge University Press, 1975.
- Richards, William A., "Entheogens in the Study of Religious Experiences: Current Status". *Journal of Religion and Health*, 44, no. 4 (2005): 377-389.
- Rios, Marlene Dobkin De. *Hallucinogens: Cross-Cultural Perspectives*. Albuquerque, NM: University of New Mexico Press, 1984.
- Ripinsky-Naxon, Michael, "Hallucinogens, Shamanism, and the Cultural Process: Symbolic Archaeology and Dialectics." *Anthropos* 84, no. 1 (January 1989): 219-224.
- Rockwell, Teed. "Extended cognition and intrinsic properties." *Philosophical Psychology* 23, no. 6 (December 2010): 741-757.
- Rowe, William L. *Philosophy of Religion: An Introduction*. 4th ed. Belmont, CA: Wadsworth/Thomson, 2007.
- Russell, Bertrand. *Religion and Science*. London: Oxford University Press, 1935.
- Saavedra, J.M. & J. Axelrod. "Enzymatic-isotopic Micromethods for the Measurement of Biogenic Amines in Brain Tissue and Body Fluids." *Journal of Psychiatric Research* 11 (1974): 289-291.
- Searle, John R. *Brains, Minds, and Science*. Cambridge, MA: Harvard University Press, 1984.
- _____. *Intentionality*. New York: Cambridge University Press, 1983.

- _____. "Minds, Brains, and Programs." In *Behavioral and Brain Sciences* 3, no. 1 (1998): 417-457.
- _____. *Mind, Language, Society: Philosophy in the Real World*. New York: Basic Books, 1998.
- _____. *Mind: Introduction*. New York: Oxford University Press, 2004.
- _____. *The Mystery of Consciousness*. New York: The New York Review of Books, 1997.
- _____. *Philosophy in a New Century: Selected Essays*. New York: Cambridge University Press, 2008.
- _____. *The Rediscovery of the Mind*. Cambridge, MA: MIT Press, 1994.
- Schultes, Richard Evans & Albert Hofmann. *The Botany and Chemistry of Hallucinogens*. 2nd Edition. Springfield, IL: Charles C. Thomas, 1980.
- _____. *Plants of the Gods: Origins of Hallucinogenic Use*. New York: McGraw Hill, 1979.
- Stace, Walter T. *Mysticism and Philosophy*. New York: J. B. Lippincott Co., 1960.
- Stein, Dan J. *Philosophy of Psychopharmacology*. Cambridge, UK: Cambridge University Press: 2008.
- Strassman, R. J. "Human Hallucinogenic Drug Research in the United States: A Present-day Case History and Review of the Process." *Journal of Psychoactive Drugs* 23, no. 1 (January 1991): 29–38.
- _____. "Human Psychopharmacology of N, N-Dimethyltryptamine." *Behavioural Brain Research* 73, no. 1 (December 1995): 121-124.
- _____. "Endogenous ketamine-like compounds and the NDE: If so, so what?" *Journal of Near-Death Studies* 16, no. 1 (1997): 27–41.
- _____. *DMT and the Soul of Prophecy*. Rochester, VT: Park Street Press, 2014.
- _____. *DMT: The Spirit Molecule*. Rochester, VT: Park Street Press, 2001.
- Strassman, R. J., & C. R. Qualls. "Dose-response study of N, N-Dimethyltryptamine in humans. I. Neuroendocrine, Autonomic and Cardiovascular effects." *Archives of General Psychiatry* 51, no. 2 (February 1994): 85–97.

- Strassman, R.J., C.R. Qualls, & L.M. Berg. “Differential Tolerance to Biological and Subjective Effects of Four Closely-spaced Doses of N, N-dimethyltryptamine in Humans.” *Biological Psychiatry* 39, no. 9 (1996): 784–795
- Strassman, R.J., C.R. Qualls, E.H. Uhlenhuth, & R. Kellner. “Dose-response Study of N, N-dimethyltryptamine in Humans. II. Subjective effects and preliminary results of a new rating scale.” *Archives of General Psychiatry* 51, no. 2 (February 1994): 98–108.
- Strassman, R. J. & M. Galanter. “The Abhidharma: A Cross-cultural Application of Meditation.” *International Journal of Social Psychiatry* 26, no. 4 (December 1980): 283–290.
- Tribus, Myron. “Consciously Thinking about Consciousness.” *Journal of Science Education and Technology* 13, no. 3 (September 2004): 343-351.
- Tye, Michael. *Consciousness Revisited: Materialism without Phenomenal Concepts*. Cambridge, MA: MIT Press, 2009.
- U. S. Bureau of the Census, “Computer and Internet Trends in America.” <http://www.census.gov/prod/2005pubs/p60-229.pdf> (accessed June 16, 2014).
- Van Inwagen, Peter & Dean W. Zimmerman eds. *Metaphysics: The Big Questions*. Malden: Blackwell, 2004.
- Warren, Johanna, Pallavi Dham Nayyar, & Jacob Alexander. “Recreational Use of Naturally Occurring Dimethyltryptamine – Contributing to Psychosis?” *Australian and New Zealand Journal of Psychiatry* 47, no. 4 (April 2013): 398-399.