

The Limits of Science - A Generalist's View on Consciousness by Joshua David

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“The suppression of uncomfortable ideas may be common in religion and in politics, but it is not the path to knowledge, and there’s no place for it in the endeavor of science... and the history of the study of our solar system shows clearly that accepted and conventional ideas are often wrong, and that fundamental insights can arise from the most unexpected sources.” – Carl Sagan

Consciousness, what is it? There are many theories out there that range from purely mathematical and scientific like information processing theories in cognitive psychology, and as ethereal as panpsychism. Although these theories serve as good observations as to what consciousness may be; they are often overly scientific and too overspecialized to answer to such a gestalt concept, or they are so speculative that they end up being little more than religion dressed as science; thus they render themselves ineffective as a scientific theory. The scientific community has been chasing its tail concerning consciousness for quite some time.

My journey into the study of consciousness started almost 27 years ago when I started my education as a psychology major. I became a

psychology major because I had an intense interest in why people behave as they do and the neurobiological basis of it all. However, I was too much of a generalist thinker to fit into the mold of an overspecialized college education and workplace. I gave up and decided to inspire people by becoming a musician instead. Although I have begun to pick up where I left off some years ago to finish college and university, I gained priceless insight from being a high school graduate and artist that I know I will never find in higher education. 「一芸は百芸に伝わる」“Mastery of one art leads to the mastery of a hundred more,” is a Japanese proverb that describes my education quite well.

Although I did not seek education, I have always been a self-learner. I taught myself and practiced the arts of foreign language, musical performance and composition, photography, videography, and now writing. In recent years I have erred more towards science, delving into cognitive psychology, medicine, physics, and quantum mechanics. I thus consider myself a polymath; an interdisciplinary, broad-brush thinker that is well suited to tackle the theory of consciousness as any scientist would be. I personally see scientists as ill suited to tackle the gestalt concept that is consciousness because they are overspecialized and uncomfortable with ambiguity. They deal in hard rules and formulas, where I deal in abstract concepts and systems from a more macro perspective.

I decided to tackle this subject of consciousness as I am soon to head back to higher-education in order to learn more about the sciences, and I want to take a crack at this as a naive, common man with a rich imagination, before I become indoctrinated into their way of thinking. I am

a firm believer that the naive novice can sometimes stumble upon possibilities that the most educated experts among us simply gloss over. I believe that in the course of learning, just as a young child or baby, that more is learned in the initial period than in all the rest of the education combined. 「初心を忘れべからず」 "You should never forget your mind in the beginning." I have made a natural observation over the years that those great thinkers in history were predominantly natural conservationists, and not just university educated academics.

As such, I am confident that this article will be a fresh take on consciousness and blow the doors off of some in the debate by offering simplistic, yet imaginative ideas and assertions that may serve to fill in some gaps, or create an entirely new direction in our quest for the theory of consciousness. This book is my best attempt at this time to reconcile what is considered a highly technical and deeply philosophical topic. I am going to point to some glaringly obvious truths that science and academia simply gloss over due to their overspecialization and arrogance in striving to "name for fame." I believe that consciousness is not rocket science. I sincerely hope that you will either find my theories sufficient, or that you will be inspired to think for yourself; to feel empowered to answer this question for yourself without resorting to worshiping the grand priesthood of science that conveniently does it for you.

Lastly, I want to make an assertion to the entirety of science and academia that although specialist scientists are well suited to tell us the properties of something, they are not nearly as suited to connecting the dots

and generating theories as a generalist arts major can be. Arts majors are better with ambiguity and nuance, and it is precisely this more nuanced consideration that allows us to more readily fill in the blanks than an overspecialized scientist can. With this book, I want to implore science, academia, and the job market, to consider this and to return the funding that has been stolen from the arts and give arts majors more opportunities to do truly innovative works.

As we move from the classical sciences of old onto a newer, more advanced science, I believe that even many scientists can agree that they keep finding themselves squabbling over philosophy and logic more than science. This is not their forte. This new science is increasingly dealing with formerly abstract and fantastical ideas that will take the out-of-the-box thinking endowed to an arts major. Two heads are better than one, and we need to start combining these formerly segmented specialties in order to speed up innovation by making the jump to new concepts quicker by utilizing our total brain, and not just the left side. I hope that in the reading of this book that you will see what I am asking as valid, and that you will be inspired to seek the changes in science and academia to see that these changes happen for all of our benefit.

Defining Consciousness

Moving on, let's start by defining what is meant by "consciousness" for the purposes of this book. For the purposes of this article consciousness is going to have several definitions:

1. Our sense of being aware of the environment
2. Our sense of self that seems like an isolated observer of reality
3. Our ability to think, feel, and act with intent, in the environment

I am going to define consciousness as that sense of awareness that we experience that gives us a sense of self and allows us to think, feel, and act with intent. “Awareness” pertains to our awareness of ourselves and the environment; which we lose when undergoing anesthesia or while sleeping. “Thinking” is having a sense of time, and considering concepts and facts abstractly, subjectively, intersubjectively, introspectively, and objectively; any thinking. “Feeling” refers to all emotions and sensations, and “acting” is those behaviors which we choose in order to act in, and react to, the environment. As you will read, this article defines consciousness as a whole-person phenomena.

The way that I am going to approach consciousness here is to start with our environment and work inward through our bodies to the center-most core of our cognition and how this relates to our psyche. Then I will work back out again, and back into the environment. I will take this approach because human beings are not simply their brains. We are actively shaped by, and react back into our reality with our bodies; which our brains are a part of. In order to understand consciousness for what it is, we must also consider *how* we are. The article ends with the many cosmic considerations of *why* we are and *what* we may be. Without a purpose for it, what good is discussing consciousness at all? I will attempt to answer these questions in easily understandable terms as we journey through.

Consciousness is a subject that has been debated since our earliest times with ancient Greek philosophers and earlier. Spiritual philosophies, such as major religions, have attempted to hammer down the reason for why consciousness exists for millenia. Later in history, leading into the time of the scientific enlightenment, with thinkers like Descartes, science began co-mingling with philosophy in statements like, “I think, therefore I am.” In centuries since, many thinkers and scientists have come forward to try and crack the code of consciousness, culminating in our search for a conscious artificial intelligence (AI) in recent years.

As you will read later in more depth, some have come to define consciousness as a phenomena having to do merely with the overlap of our various senses and cognitive processes. Others speculate that consciousness is something outside of us, and that we experience consciousness more than we contain our own conscious mind. Yet others come out and say it is all an illusion and that we are all computer simulations in a computer as part of an advanced civilization’s attempt to create an “ancestor simulation.” Others claim that there is no such thing as consciousness. All of these theories and more will be explored later.

First, let’s begin our journey by considering the reality that we exist in for what it is.

“Man is condemned to be free: because once he is thrown into the world, he is responsible for everything he does.” – Jean-Paul Sarte

Do we have free-will?

The dichotomized free-will argument is a false dilemma. There is nothing that irritated me more growing up than listen to posh adults confidently telling us that “life is about choices,” that, “you make choices and you live with them,” as if to tell us that we have total free-will over our situations, and that any mistaken choices that we make are solely our fault and responsibility. In adulthood, I felt vindicated when I took my first social psychology and sociology classes where I learned that we do *not* have complete free-will consisting of infinitely accessible choices, but that we are hopelessly shaped by our environments from before we are even born.

The truth that I came to learn that is central to the study of consciousness, is the truth of “free-will.” What is free-will? Do we have it? It is true that humans have an ability to consider options and make committed decisions, but alas, a purely non-deterministic aspect of reality is flawed as an argument because we can only make those decisions of which we are aware of at any given time. Someone who ended up a drug addict and a criminal is a fabulous example. No person from a nurturing family wakes up one morning and thinks, “I want to be a drug addict and get into crime,” but those from unnurturing or abusive families commonly do.

This is because the hardware that we use to come to our conclusions and make decisions are formed most deeply in our young childhood. Attachment styles in relationships are formed from a very early age and they directly influence the way that we will act, lovingly or angrily towards

our spouse in late adulthood. The latest understanding of drug addiction points to childhood trauma as a major factor in whether or not someone starts experimenting with drugs or not later in life. They choose to experiment with drugs because the biology of their brains has been altered by neglect or abuse to a degree that they self-medicate in order to feel loved and content. How can childhood trauma and its aftermath be the fault or responsibility of the child that it happened to?

Another startling reality of our more advanced understanding of brain development is that not only are we deeply programmed in the first years of life, but the last thing to be perfected in our brain's development is our ability to make sound decisions, or executive function. Most people start experimenting with drugs as a young adult, before our brains reach their full development at twenty-five years old. We are not biologically "adults," and therefore are not fully able to exercise true consent, until we reach the age of twenty-five.

Knowing these things, can any one of us claim to have purely non-deterministic free-will? Are we right to blame the victim in this situation? Are we correct to lecture a drug user that, "life is about choices," "you make decisions and you live with them." Unfortunately in this particular situation for which people have traditionally forced personal accountability onto the addicted individuals, I would claim not. Not only are these individuals suffering from an altered neurological blueprint that was embossed on their brain in young childhood, but they most likely had to live the rest of their childhood and teens in the same traumatic environment that led to this tragedy.

It is easy to see that someone growing up with this much strife would also be drawn to crime as a means of survival if their situation was that dire or if they were in the wrong place at the right time. Just like someone in an impoverished and abusive home does not wake up one day and decide, “I’m going to go play tennis with Tanner and Buffy today, and then head over to the library to study quantum physics,” neither do *any* of us have purely non-deterministic free-will. Why did you go or not go to college? Why did you choose the job you have? Why do you get unhinged when your expectations are violated, or why are you always stoic? Why did you make that mistake in the past? Our choices are just as delineated by our environment as our will.

Of course there are people that beyond all odds have exploded beyond their life conditions and have been an inspiration to us all, but they are rare, for if we were all this way, we would all be celebrities. What these people had that the drug addict did not, was *somebody else* to give them information on help or inspire different possibilities. They had an influential figure in their life, or a role model that exemplified this principle of success to them; rising above one’s conditions. Without that, it is very safe to say that their risk of drug abuse and falling into crime would be much closer to each other.

This is why the old-school axioms of “life is about choices,” “you make decisions and you live with them,” however partially true, really only appropriately applies to those that are over twenty-five; and still, it only *partially* applies. As we have seen, this twenty-five is usually too late to

avoid addictive disorders, and it does not make sense to those who grew up in families that made poor decisions and shrugged personal responsibility in *their* lives. Which role model were they to have? Did they even know the value of a role model? Did they ever know that any other path was possible? They most likely did not, and most tragically, quite likely neither did you. We all have much less free-will than we want to think we do, but let's look at the other side of the spectrum; determinism.

Determinism in the context of the human experience states that all things that happen are direct results of things that have happened before them. "Garbage in, garbage out." But, as we have seen from the prior argument against purely non-deterministic free-will, this is also false. The idea that people are victims of absolute destiny, that somehow we were pre-determined to be either a successful Harvard post-graduate, or a drug addict and a criminal teetering on homelessness; and then hopelessly become that way; is nonsense. As aforementioned, we do have the ability to make conscious decisions based on available knowledge, but some knowledge is internally generated, allowing for agency. If we are just informed enough to have come to a different conclusion against all odds, then we can essentially alter our life course.

These are some examples of why I scoff when I hear about the passionate scientific debates concerning free-will, deterministic versus non-deterministic. I personally believe that both are correct and incorrect concerning the human condition depending on what we're talking about. Certainly, we all have a starting point that is predetermined concerning ourselves, but after we have enough cognitive development, introspection,

executive decision-making, and the influence of others on our side to escape or continue these conditions, we can. I think that by this point you can agree that we all exist in a *semi*-deterministic reality, that is neither purely non-deterministic nor purely deterministic.

It is this discomfort with ambiguity that I pointed out in the preface that makes scientists and academic philosophers poor judges of a reality in the sense that reality is not generated solely from mathematical rules or pure logic. These hypotheses are based on *our* myopic math and logic. There is just too much dichotomous thinking in these circles, and the deperosity for certainty that drove these individuals to science and academia to start with makes them self-serving and biased. Was this their destiny or was it a choice? I wonder what they would have to say for themselves in this situation? So here, consider for the purposes of this inquiry into human consciousness that we live in a *semi-deterministic* reality.

The Natural World

You have seen my argument for why our human paradigm is neither *purely* deterministic nor nondeterministic, now consider the natural world that we exist in. I believe that the natural world, consisting of inanimate objects; rocks, water, air, and fire, etc., is almost completely deterministic in nature. It is well known that deterministic systems like classical physics can very easily predict natural systems like the history of the cosmos, orbits, and the weather. Natural systems simply follow the laws of classical physics, and any interventions that we make only serve to alter the course

of these systems, and then they continue on with their deterministic properties. I am confident that the material universe is mostly deterministic, except for some very rare probabilities where quantum psychics take the helm. But again, this only alters the predominantly deterministic, natural flow of the macro, material world.

The earthly environment that we live in is a semi-deterministic ecosystem that includes both living and inanimate elements. It can be argued that inanimate substances bump and bang together to generate systems that are purely a result of cause and effect, like the atmosphere of the planet. However, we and other beings of agency in the form of flora, and animals co-exist in this ecosystem. Most living organisms have agency to willfully act in their environment and are deterministically influenced by the system, in what becomes a semi-deterministic paradigm as a result. We can choose to drill for oil, but we can't unless it is there to start with. If we extract all of the oil, then we need to choose to look elsewhere, and we can't drill it unless it has been pre-determined to be there by the gears of the natural world.

Thus, our living ecosystem is not *purely* deterministic, and can be seen as a deterministic system with *nuance*, as we too are only semi-deterministic. There is agency, sometimes predeterminate, at play in the universe, but it is only a small force relative to the material system itself. I assert that although the entire universe can be thought of as a deterministic system governed by the rules of classical and quantum physics; once life started anywhere in the cosmos, it became a semi-deterministic ecosystem; especially if the organism became

spacefaring. This can be thought of as “the spark of divinity” that life possesses, and is the reason that our universe now is not a deterministic system, but a semi-deterministic *ecosystem*.

So, what do we have here that concerns us specifically? We have living creatures that are wholly semi-deterministic, living in a nature that is nuancedly deterministic. This means that *both* the theories of pure non-determinism and predeterminism are flawed when speaking about the human condition and our place in the universe. We employ our own thinking and technologies into the world in order to alter its course for us in the name of our survival. In this paradigm, our survival is paramount among the mostly deterministic natural ecosystem, and among other living beings all trying to survive themselves. In ecosystems there is balance, and this includes determinism and non-determinism.

We are shaped by our natural environment by the need to survive in it. Our entire being has evolved to be able to counter the seemingly deterministic way that the natural world functions in order to survive in situations that would otherwise be impossible to weather or change. We do so with our *entire* person. Our minds and the brains inside our body, and the muscle that propels it, are all systems of survival in this paradigm. Humans developed tools in our environment according to our needs and to cover for our weaknesses according to what materials were available. As our understanding and our availability of resources evolved, iron replaced stone, and so on and so forth, until steel robots began doing our manufacturing for us.

The very makeup of our bodies *are* determined by the environment and our need to survive. This can be considered deterministic, but because of the divine spark of agency, the sliver of free-will of living organisms, the environment stopped being purely deterministic as soon as life showed up. Therefore, it could be said that the role of life in the cosmos is to act as a non-deterministic counter balance to the classical physics deterministic nature of the universe, as noted above. Both deterministic and nondeterministic dynamics are at play in nature, as in classical physics and quantum psychics. The environment shapes our bodies and we shape the environment.

How does an organism do this? With a nervous system, even single cell organisms use an electro-chemical system in order to sense, move, eat, and reproduce. This nervous system is how we register the surrounding environment and so it forms the framework on which we experience consciousness in the natural world. All life is based on this system, and this is what we will be exploring in relation to humans in the next chapter. The mechanics of this system is going to become very important for explaining the phenomena of consciousness later in the book, and so I will cover the pertinent basics here.

Our Body's Nervous System

The problem with science, as I wrote above, is that it places a heavy value on certainty in a cosmos that entails just enough uncertainty that it ultimately renders it inaccurate as an absolute authority. Time and time again, I see science chasing the tail of philosophy and philosophy being

demanding by science that it proves itself with the scientific method. For a new, more advanced science to develop, we need some that think well in abstraction and ambiguity mixed into the formula. Nothing in science exemplifies this merry-go-round of understanding and longing for more knowledge than the human body.

Our bodies have agency because of our nervous system. Without the nervous system, there would be no way to detect our external environment in order to think about moving, eating, or reproducing to start with. This nervous system comprises many anatomical areas that each serve a particular purpose. We will go over a brief overview of each to keep it simple, and the need for this simplicity will come into focus more and more throughout this chapter. I will list each anatomical nervous system starting with the outermost; that which is most in contact with the environment. To the innermost; that which is furthest removed from the environment and dictates our thoughts, feelings, and behaviors.

“Connecting one bone to another,” the anatomical systems of the human nervous system, from order of outermost to innermost, are as follows:

Sensory Organs and Receptors

The sensory organs of the body; the eyes, ears, nose, tongue, skin, and even muscles and internal organs all have receptors that are the receptacles by which we collect information about our environment; both externally and internally. They are the first step in a roadway system of nerves that carry this information to the brain and throughout the body for the purposes of our survival in the environment. The eyes use receptors known

as cones and rods to relay visual information. The ears use little hairs called cilia to sense the vibration of air. The nose has chemical receptors that sense the shape of volatile molecules. Tongue has receptors called papillae to sense taste. The skin and muscles are saturated with various receptors that sense temperature, pressure, pain; as well receptors for the position of muscles in the body. Receptors in the internal organs help us feel sensations like pain and hunger, among many others.

Sensory nerves leading from each sensory receptor lead back into the nervous system of the body, and they are what give us our sense of the world. They convey all of the information that we sense from our environment, or objective reality, but at the time that we sense anything, the mechanical limitations of our sensors, however sensitive, do not sense *everything* that is in the environment. These limited sensations are also influenced by our individual genetic makeup, and vary person to person. Some of us are considered “super-seers.” These individuals actually have an extra color receptor in their eyes that heightens their sense of yellow, in addition to the red, green, and blue ones that most of us have. There are those of us that are “color-blind,” and have one or more color receptors that do not function as well as the others.

Natural variance in sensory receptors is true for every individual and for every sense that we have. Not only this, but the makeup of the roadway of nerves that this information travels on is different for each individual, and this affects how we perceive the world. Not only this, but the makeup of our brains are completely unique, and this too changes how we perceive and process this information from the environment. We will come back to

this later, but this is the biological basis of why our experience of “reality,” or consciousness is different for every individual person. Now, as we move forward, try to imagine the complexity of our nervous system, and how much variance this can create for each individual’s sense of reality; or consciousness.

The Somatic Nervous System

The somatic nervous system is considered those outermost, for the purposes of our discussion, nerve fibers which connect to the sensory receptors, and to the collective sensory organs of our bodies. It is in this group of nerves that information flows from sensory receptors, to the central nervous system for information collection, and back to the skeletal muscles of our bodies for willful actions and autonomic reflexes. The somatic nervous system is merely a name given to this part of the total human nervous system. Each branch of the nervous system is named according to its function in various sections of the total human nervous system. The somatic nervous system is considered part of the peripheral nervous system, those nerve fibers extending out from the spinal cord, which is part of the central nervous system (CNS.) The acronym for the somatic nervous system, SNS, is the same as the sympathetic nervous system and so due to overlap, I will not abbreviate it here.

The Peripheral Nervous System

The somatic nervous system is part of what is broadly called the peripheral nervous system. The peripheral nervous system comprises all

nerves that are not a part of the central nervous system (CNS,) which is the brain and spinal cord. All of the other nerves in our bodies outside of these are considered the peripheral nervous system, as it is mostly located in the *periphery* of our body's nervous system. They are “closer” to the skin and internal organs than the spine and brain, and this is why they come before the CNS in this illustration working outward to inward. The acronym for the peripheral nervous system is the same, PNS, as the parasympathetic nervous system, and so due to overlap, I will not abbreviate it here.

The peripheral nervous system is composed of the somatic nervous system and the autonomic nervous system (ANS.) The ANS is composed of the sympathetic nervous system (SNS,) parasympathetic nervous system (PNS,) which both connect to and from the central nervous system, individual organs, and sensory receptors throughout the body. The ANS also comprises the enteric nervous system (ENS,) and the cardiac nervous system; that are the nervous systems of the gut and the heart respectively. These will be covered in more detail later in the book. We will not go in depth into the ANS because it is simply a name denoting the grouping of the cardiac nervous system, ENS, SNS, PNS that largely pertains to the autonomic, or automatic, largely unconscious functions of the body. I have not abbreviated cardiac nervous system in this section because of its overlap with the central nervous system (CNS.)

The Sympathetic Nervous System

The sympathetic nervous system (SNS,) is a branch of the autonomic nervous system (ANS,) that extends from the spinal cord and back, into the

musculoskeletal system and organs, those parts of the body that make our bodies move and function. The sympathetic nervous system is commonly called the “fight or flight system” and is predominantly utilized in all bodily systems in which excitation and arousal are necessary for functioning and survival. The SNS is simply those nerves in the peripheral nervous system that serve this purpose, but the SNS is also connected to the central nervous system, the CNS. However, anatomically speaking, the SNS is not considered part of the CNS.

The Parasympathetic Nervous System

The parasympathetic nervous system (PNS,) is part of the peripheral nervous system, under the umbrella of the autonomic nervous system, ANS. The PNS and SNS work in tandem. Whereas the SNS is called the “fight or flight” system, the PNS is commonly referred to as the “rest and digest” system of the body. The PNS is responsible for those functions which help us rest and digest, like calming down from an excitation produced by the SNS. The PNS helps the body digest food and aids in the functions necessary to repair the body. Although the PNS does connect to the central nervous system of the body, the CNS; like the SNS, it is considered part of the peripheral nervous system for anatomical purposes.

Cranial Nerves

There is a special system of nerves called “the cranial nerves,” which are large nerves that extend from the brain, midbrain, and brainstem of the central nervous system CNS, but are anatomically considered part of the

peripheral nervous system. There are twelve of these nerves in total which extend distances as short as the trochlear nerve, which controls the superior oblique muscle of the eye, and the vagus nerve which extends all the way to the abdomen. Later this large, vagus nerve will come into play into the theory of consciousness layed out later in the book.

The Central Nervous System

The central nervous system, or CNS, comprises the brain and the spinal cord. Almost all external sensory nerves connect to the spinal cord, which is directly connected to the brain. The spinal cord is the 2-way information superhighway of the human body that combines both large, myelinated nerves, nerves coated with a fatty substance for insulation; that are for fast data transfer; and smaller, unmyelinated nerves as the slow lanes on this information speedway leading from the peripheral nervous system. The spinal cord section of the CNS connects directly to the brain through the spinal column and brain stem which is composed of midbrain, pons, and medulla oblongata. The brain is the central processing unit of the brain which needs little description at this point. We will cover the brain in the next section.

One important fact to note for the purposes of this article is that, however segmented by terminology, the entire nervous system is *one system*. As I talked about in my first book, *The Power of Us*, our view of the human body is flawed as many of us consider it a unit with separate parts like a car or washing machine. Although it is true that the human body has various areas with particular functions, the *entirety* of the body functions in

tandem to live and to survive. No part of the human body is isolated from another. I want you to have two takeaways from this overview of the human nervous system: One, that the entire nervous system is in reality, one, singular system. We will come back to why this is important later. Two, that the nervous system is amazingly complex, and that its makeup varies significantly between individuals.

Now, if you aren't already dizzy enough from reading this very basic overview of the total human nervous system, and trying to comprehend that each of these systems is built differently for each and everyone of us, try to imagine how this might influence anyone's impression of reality. If you have not passed out yet, we are going to dive into the anatomy of the brain. Spoiler alert: We have not one, but *three* brains! These are the parts of the nervous system which processes all of these inputs from the environment, and work in tandem with each other, *after* they travel through the unique winding roads of our individualized nervous system. After this, I will discuss how this three-brain system influences our infinitely individualized psyche, *before* we even begin to consider what consciousness is all about.

The Anatomy of the 3-Brain System

Before we get into the astonishing truth that we, in fact, have three separate systems of organs that think autonomously, and send signals to the rest of the body on their own, just like the brain; we will go over the anatomy of the brain itself. The brain is considered to be the most complicated and technologically advanced computer that we know of at the time of writing this book. It is the core of our thinking and the cradle of our

consciousness. It receives input from the entirety of the human nervous system, collates and separates this data, makes impressions, makes decisions, and then sends signals out to the rest of the body; in *almost* real-time. We will come back to this time-delay later in the book.

Neurons

First, in order to understand the brain, you need to understand neurons. Neurons are those nerve cells that differ from nerve fibers in that they have a nucleus, or soma, the cell body containing the nucleus. The soma is a cell body that accepts a signal from a neighboring neuron and then either stops, or relays a message forward to another neuron. Protruding from the soma is an axon that connects to neighboring neurons via dendrites, small nerve fibers protruding from both the axon and the neighboring soma. Neurons group together in order to form a chain of neurons that each send electro-chemical impulses to the next and so on.

The difference between neurons and nerves is that neurons can “think.” They take in electro-chemical stimuli and choose whether to send the signal further or stop it there. Through a network of neurons, these signals cascade throughout the brain and other other organs that also contain neuronal nervous systems. These other systems, the intrinsic cardiac nervous system (ICNS,) and the enteric nervous system (ENS,) will be discussed later.

The Brain

The brain comprises some 100 billion neurons, sharing some 100 trillion connections. It is considered to be the most advanced calculation device in the world at the time of writing this book. There are supercomputers that match the processing power of the brain, but they are not nearly as small and use much more electrical power to operate. The brain is responsible for gathering, filtering, labeling, and processing information from the environment. It then makes comparisons of this information in relation to memory and generates thoughts, feelings, and then actions back into the external environment. The brain is also responsible for regulating most of the functions of the internal organs of the body. The brain is truly a wonder of nature.

The brain does this by utilizing various areas of the brain. For simplicity's sake; this will only be a brief overview of the larger areas of the brain, so that you can gain a sense of how it works without getting too technical. In recent years, our knowledge of the brain has grown to a degree that you could easily compose an entire encyclopedia of its anatomy and functions. This very macro map of the brain will be sufficient enough when describing the function and location of specific areas of the brain, which will be discussed later. Here, we are going to go over the most basic dissections of the brain in order to gain a sense of how information flows through it. The order from outward to inward will be maintained as we did with the total human nervous system overview.

The Spinal Cord

The spinal cord is where all of the nerves mentioned in the last section on the general nervous system collate to be fed into the brain stem, and back out into the peripheral nervous system to the entire body. As mentioned earlier, the spinal cord is like the information superhighway of the body, akin to a fiber optic network that carries large amounts of information at a high bandwidth. The spinal cord also learns and processes information as an extension of the brain. Both the brain and the spinal cord together comprise the central nervous system, CNS, and can generally be thought of as one unit in this sense.

The Brain Stem

The brain stem refers to a system of areas in the base of the brain known as the midbrain, the pons, and the medulla oblongata. The midbrain and the pons largely collate and relay data to various areas of the brain and body, and the medulla oblongata receives information from the internal organs that serves to regulate involuntary, or autonomic functions of the body such as; heart rate, blood pressure, and swallowing. Although the functions of the brain stem are primarily that of a server in a digital network, the makeup of this system can influence the way one processes their view of reality and thus affects conscious qualia.

The Limbic System

Stacked on top of, and innervating with the brain stem are the neurons of the limbic system. The limbic system can be thought of as the identification and orientation system of the brain. It labels and timestamps information that is coming in from the spinal cord and sends it to various larger areas for processing, and then receives this information in order to generate our subjective feelings and emotion, as well as memory. The limbic system is central to our experience of consciousness because it produces those effects that cause us to *feel* about our environment and internal conditions.

The Cerebral Cortex

The cerebral cortex (CC,) is that top layer of the brain that twists like intestines that we are all familiar with. It is the layer that we see first when we look at a whole brain. The CC is the processing center of the brain made up of various lobes that process our different senses and decide to influence the emotions that we feel and the actions that we take. The lobes of the CC from outward to inward are: the occipital lobe, predominantly used for vision; the parietal lobe, used mainly for our sense of touch and orientation in the environment; the temporal lobe, used primarily for processing of emotions, memory, sound, and language; and the frontal lobe, used to collate information from all of the areas of the brain in order to think, make decisions, and take action.

The Cerebellum

The cerebellum is a kind of “add-on,” specialized area of the brain that looks almost like a coral as opposed to the spaghetti of the cerebral cortex, and the alien engine of the limbic system. It can be thought of as the raw calculation center and fine tuning mechanism of the brain which lends to correcting fine motor skill, adjusting posture, coordinating muscle movements, recognizing patterns, and playing a role in mathematical abilities of the individual. The cerebellum is largely made up of neurons that have the greatest number of connections to neighboring neurons that differ from other areas of the brain, lending to its unique appearance.

The Vagus Nerve

This anatomical overview ends by returning back to the pons area of the brain stem, where cranial nerve nuclei, or the connection points of the cranial nerves are largely found. There are twelve cranial nerves in total, that serve a variety of functions and are direct connections of various parts of the head and body. Of these, the vagus nerve is the largest of the cranial nerves and travels from the brain to the abdomen, making a stop at the heart on the way. For the purposes of the three-brain theory, the vagus nerve is essential as it connects directly to the intrinsic cardiac nervous system (ICNS,) of the heart, and the enteric nervous system (ENS) of the gut; the stomach, intestines, pancreas, and gallbladder.

What many of us don't know, that is increasingly being proven by current research, is that we have two other “brains” in the body besides the

brain itself. These are the intrinsic cardiac nervous system (ICNS) of the heart, and the enteric nervous system, ENS, of the gut. This part of the article will be largely speculative as there is no verified proof that these areas function as a brain, but it will include some astonishing truths about these areas that support the speculation. The reason that I touch on these cutting-edge subjects is because, as you will read, I assert that consciousness is not simply a phenomena produced by the brain, but *the entire body* as a single system.

The Heart, Our Second Brain

There are only two other areas of the body that have their own intrinsic nervous systems that contain neurons that are identical to some found in the brain. The understanding is that these systems of neurons not only allow for autonomous function of these areas individually, but that they also “think” by processing information and learning on their own as well. I assert that in the coming years, perhaps with the publishing of this article, it will be discovered that the nervous system of the heart and the gut both play a central role in the consciousness phenomena.

The journey begins here with the vagus nerve that we discussed in the last section of the anatomy of the brain. As noted, the vagus nerve is the largest and longest of the cranial nerves and extends from the brain, to the heart and down to the abdomen. The vagus nerve, like the spinal cord, is a two-way system that both sends signals from the brain and receives information from the heart and gut; among others like the lungs and liver. The vagus nerve is often the focus of relaxation techniques for the body, as

it is part of the autonomic nervous system, and because it serves as a direct connection to the axis of the brain, heart, and gut.

The Cardiac Nervous System

The heart has two overlapping nervous systems; the cardiac nervous system, and the intrinsic cardiac nervous system, ICNS; which both connect to the vagus nerve. The main function of the general cardiac nervous system is to regulate the beating of the heart directly and while taking direct input from the CNS, the vagus nerve, the peripheral nervous system, and the ICNS. All nervous system divisions meet at the heart. This is because without a beating heart, the brain and body cannot function, and so it is the highest priority organ in the human body outside of the brain. Without the heart and its central nervous system, the heart cannot speed up or slow down in response to external stimuli and internal signals from the brain and body.

This is not to say that without the brain and body that the heart cannot beat. The heart is one of only four areas of the body which can function on their own; the brain, the heart, the liver, and the gut. The brain can only function for a limited time on its own, but the heart will continue to beat much longer, even when it is completely removed from the body! The liver and the gut essentially lose functionality when completely removed from the body, but the gut has its own nervous system like the heart and brain, and the liver has a lot of anecdotal data claiming that it plays a role in emotion, particularly angry ones! Of course, when all of these

systems run out of oxygen, they cease to function. Yet, they can act independent of the body's larger nervous system.

The Intrinsic Cardiac Nervous System

We start this journey into the other three “brains” of the body with the intrinsic cardiac nervous system, the ICNS. The ICNS contains approximately 40,000 neurons that allow it to send information to the brain, concerning sensations of the heart. It connects to the brain via the autonomic nervous system including the vagus nerve and those other nerves containing the sympathetic “fight or flight” nervous system, and the “rest and digest” parasympathetic nervous system. The ICNS is what allows the heart to beat on its own when completely removed from the body as it acts as a pacemaker.

Recent research into the ICNS shows that it is influenced by and influences the emotions that the body feels. This is easy to imagine as the sensation of a racing heart is often part of the feeling of anxiety or excitement, a slowly beating heart is associated with relaxation, and a heavy heart is associated with emotional pain and depression. In these ways, I assert that the heart is central in adding a quality of *realness* to our consciousness. Simply feeling emotions in the brain without having physical sensations to accompany them would essentially leave us feeling *empty* emotional states, dissociated emotional states.

Dissociated emotional states, as in those that happen during trauma can be thought of as a separation of physical sensation to the emotions

generated in the brain as a way to protect the body, including the heart, from the *physical* impacts of trauma. It is a fact that the body dissociates in a state of trauma, and that this is to protect the brain-body from damage from such an event. The sheer signal volume generated by the central nervous system, including the brain, may damage the body, and the brain itself. I assert that the deep connection to emotional states are what makes the heart the *feeling* center of our consciousness. The heart is what makes emotions *real*, visceral.

The heart's relation to emotion relates to all emotions. It is widely known that individuals that spend most of their emotional time in a "fight or flight," sympathetic state, will commonly come down with chronic high blood pressure, and various heart diseases as a result. "Stress kills," and it is no joke. The same holds true with the opposite feelings of depression and despair. There is a heart condition first discovered in Japan that is called *takotsubo* cardiomyopathy. This is a heart condition that often precedes heart failure and heart attack. The name *takotsubo* comes from the shape that the heart takes in this state that resembles a pot that is used to capture an octopus for eating.

It has been proven that the heart assumes this altered shape after prolonged periods of chronic depression and despair, and so it also has the name "broken heart syndrome." This happens for *all* emotions produced by the human brain. Emotions don't only affect the heart, but the *entire* body. However, because of the heart's intricate wiring to every nervous system of the body, the heart takes the brunt of the damage. It is by these facts that I dub the heart "the *feeling* brain" of the body. It can also be noted that the

healthier the individual is, the better that they deal with emotion because they have a stronger heart, and a healthier total body. Although abstract, it can safely be said that a healthy heart equals healthy emotional response and vise-versa.

There is anecdotal evidence baked into our language that has pointed to the heart as our center of emotion with sayings like, “follow your heart.” This is proof that some truths can be self-evident even before they are proven facts by science. More and more the connection between the heart and the brain are becoming clearer and clearer. If I have not made a sufficient enough case for you here, I am confident that this information will one day be scientifically verified with absolute certainty in our final model of consciousness. It isn’t just the heart which influences our emotion but the gut as well. Let’s take a tour of the gut.

The Gut

Traveling along the vagus nerve, we exit the heart and make our way to the enteric nervous system, ENS, or the gut. The ENS contains even more neurons than the heart, approximately 400 million! Ten thousand times more than the heart! This system controls peristalsis, or the contractions of the intestines to move food through them; and it controls other functions like monitoring the state of the digested food and secreting the appropriate enzymes in order to get the job done. It can sometimes be a morbid wonder standing over a toilet, thinking of how in the world delicious food can turn into feces. It is the close monitoring and processing of the ENS that makes this dark magic possible.

Recent research has shown that beyond digestion, the gut produces almost all of the neurotransmitters that our brains use to process data, emotions, and thus our conscious experience! All of the major neurotransmitters are present, dopamine, gamma-aminobutyric-acid (GABA,) glutamate, and serotonin. Serotonin is the most predominant of these neurotransmitters in the gut. Serotonin has a broad range of influences that include things like feelings of well-being, hunger, sex drive, and it also promotes healing in the body. The gut is the neurotransmitter factory of the body.

The way that the gut influences consciousness is that, like the heart, it adds a quality of reality to our emotions. Emotions by themselves only exist in the brain, so if it were not for our body's *viscera*, our emotions would not have the *visceral* quality that makes them real to us, as noted above. I assert that the gut is the intuition center of our consciousness, as "gut feelings" of suspicion, hunches (guesses,) and dread, "a sinking stomach," are made real in the gut. As is the case of the heart, whenever we feel the movement of our internal organs in relation to cerebral feelings, we have a tendency to react with certainty, or a conviction that they are true.

Scientific evidence for this brain-gut connection can be found in the hypothalamic-pituitary-amygdala (HPA) axis of the brain. The HPA axis is most heavily influenced by serotonin, and most serotonin is produced in the gut. The HPA axis controls the labeling system of our brain and sends out signals to the rest of the brain on how to react to it as quickly and relevantly as possible. From this simple fact, it is easily imaginable how our

gut's ability to produce serotonin can influence intuition by essentially "oiling" the machine well. Those with low serotonin levels experience run-away intuition, and will often be hostile because malfunctioning in the HPA axis creates confusion about the way things are.

Furthermore, having a high concentration of serotonin oiling the machinery of the HPA axis will cause it to function more optimally, increasing its sensitivity to stimuli and increasing the processing speed, leading to a stronger and more accurate intuition. It is in these ways that I dub the gut as "the *guessing* brain." Along with the ever-growing body of scientific evidence that this is indeed the case, our language also points anecdotally that this is true, "a gut feeling," "butterflies," and "a sinking stomach." As you are beginning to see, our experience of life, or consciousness is not only generated in the brain, but is generated by the *entirety* of the body as a whole. We experience life with *all* of our being.

The Liver

Although the liver is not one of those bodily systems that contains its own nervous system, I include it in this list because of the large amount of anecdotal evidence that we have for the function of the liver in emotions, particularly anger. In eastern medicine, it is said that anger resides in the liver and it is a western medical fact that anger produces more bile to be produced, manifesting in bitterness in the mouth. "Don't be bitter." It is also noted that unhinged anger and irritability are signs of liver dysfunction. Although the connection in this section on the liver is kind of a stretch and purely causal, these data further drive home the fact that we *feel*

our reality with our *entire* body. Our bodies are what give our consciousness a sensation of reality. Could the liver be the seat of anger? Time and further research will tell.

To sum up the importance of these major organs in our formation of consciousness, particularly our feeling that we are real within our consciousness; I want to share an illustration that I thought of when I first decided to write this article. I just sat and meditated, then opened my eyes, and tried to experience consciousness for what it was in that moment. I noticed that our consciousness “heads-up display” is dominated by sight. But, I realized that my sight has no emotion or thought, it is just what it is. Then I realized that *all* of my senses were merely senses. The emotion comes at a miniscule delay, then the sensations of those emotions all come later. I didn’t need to go to a top research university to know that consciousness is not confined to our brain.

We will come back to the mechanics of a whole-person consciousness later in the book, but I would like to note here that I think this is what is wrong with most theories of consciousness until now. They are narrow-minded and only consider factors of the brain in their scientific model. Again, this is more proof positive that broad-brush thinking generalists and arts majors can be essential to the acceleration of our scientific understanding; and that our education system is doing us all a *disservice* by underfunding the arts in lieu of science, technology, engineering, and math (STEM) majors. But I digress and will revisit this later in the book. Now let’s continue our journey through consciousness to the seat of it all, our psyche!

The Psyche

Coming out of the nervous system of our physical bodies, through the brain, heart, gut, and liver, we will now journey to our subjective experience of reality that is collated in our psyche. The psyche is where all of the information comes together and is considered and acted upon according to our thoughts, feelings, and actions in the environment and reactions to the environment. This is also where we can go back to the theory of free-will and note that it is by our psyche that we are able to get in between the processes of the deterministic universe and non-deterministic agency. We both react to the environment and act back into it, and a large portion of this is in our minds, not our brains.

In this section, we will continue the journey starting from the outermost and into the innermost. As the largest portion of our conscious psyche is that which contains all of the information that we are not consciously aware of; our bodily functions, the totality of our sensory experience, and subtle cues and nuances in the environment. We are going to start with the *unconscious*, then work our way through the subconscious, and then into the conscious mind. The unconscious and the subconscious influences our conscious world, our consciousness, in ways that we are still just beginning to understand, and their effects are enormous. In this section, we will visit Carl Jung's ideas of the unconscious, my idea of the subconscious, and Sigmund Freud's tripartite theory of the conscious mind.

The Unconscious

Carl Jung was a student of the father of modern psychology, Sigmund Freud. One of Carl Jung's novel ideas that built on Freud's model was the ideas of the collective unconscious and the personal unconscious. The collective unconscious is described by Jung as those impressions, instincts, and symbols which influence the conscious mind without the conscious mind having the ability to access it. Jung claims that the elements of the collective unconscious are passed down from generation to generation. I like to think of it as a kind of epigenetic firmware, or operating system that our minds utilize that is edited and passed down to us from our ancestors with each passing generation. The personal unconscious shares many parallels with the concept of the subconscious, and so we will visit it next as the next level up; the subconscious.

The collective unconscious is made up of primordial psychological impressions of our distant ancestors and edited in the way that epigenetic code in our DNA is edited over a lifetime, and in real time; and then passed down to us. This ancient psychological firmware that is updated from generation to generation contains impressions of what symbolic, archetypal figures in our society and within ourselves mean, and contains instincts like child rearing and survival. The symbolic archetypes described by Jung are "The Great Mother," "The Hero," and "The Shadow," just to name a few. These names are simply for explanation purposes, but can be thought of as our impressions of what it means to be nurturing, supportive, or evil respectively.

Jung postulated that these impressions and meanings derive from ancient ancestors, and are filtered through the life experience of our more recent ancestors like our parents. Jung believed that below the personal unconscious, which shares much similarity to the idea of the subconscious, lay this primordial mentation that influences who we are as a person; unconsciously. This could include personality traits and propensities for modes of mental activity that can also be considered mental illness in this modern age. It is this collective unconscious that is shared by every human being at the deepest level, but is personalized for the individual depending on who their ancestors were and the type of life that they lead.

The evidence for this system can actually be found in our genetic code, DNA, which undergoes epigenetic change throughout our lifetimes and is passed on to us by our parents. It has been noted that mental health conditions like attention deficit hyperactivity disorder (ADHD,) bipolar disorders, and schizophrenic spectrum disorders, among others often run in families. I believe these are excellent examples of the collective unconscious at work. Someone whose family were immigrants or lived a foraging lifestyle as opposed to a pastoral lifestyle are commonly thought to present with ADHD in later generations.

Although this ideology is commonly considered pop-psychology, it offers a clear illustration of how the lives of our ancestors can influence the way we behave in the future in a largely unconscious fashion. The same can also be said of the propensity of those that fall into the bipolar and schizophrenic spectrums to be more creative and passionate than their peers, or to have a knack for abstract thinking. Of course many other factors

come into play in the development of novelty seeking behavior, creativity, and abstract thinking, but these offer a clear illustration of the type of epigenetic firmware passed between generations that Jung is referring to.

I believe that there would be much controversy over the last two paragraphs, and so I feel it is important to double down that these are merely illustrative generalizations based on pop-psychology. However, I also want to interject my personal beliefs as noted in my other two books, *The Power of Us*, and *Self-Discovery Therapy (SDT)* that is yet unpublished. As a long time student of psychology and sufferer of mental illness, I assert that there is some yet undiscovered truth to these statements. I assert that what is commonly considered mental illness in this modern era were the natural cognitive make-up and modes of mentation that facilitated technological, artistic, and medicinally gifted individuals like Leonardo Divinci, Mozart, and shamanaic medicine men of tribal cultures.

Therefore, as I do not claim that these observations are sufficiently studied enough to call them fact; I must note that there is a growing body of evidence that claims that this is indeed the case. I believe this is well illustrated in another unpublished work of mine, *Mental Diversity*. In the book, I call out the irony of the fact that the medicine men, or shamanaic spiritual leaders of indigenous tribes; are in this day and age; having their traditional duties of doctor, pharmaceutical researcher, and psychological or spiritual counselor divided up among a medical establishment that diagnosis them as having one of the most stigmatized and debilitating of all mental illnesses; schizophrenia.

In *Mental Diversity*, I make the assertion that perhaps that's what nature purposed them to do, and this was their natural place in society before pathology-based, economically-driven, normalist medicine essentially hijacked their original societal roles, artificially creating mental illness for the medicine man; and dividing up his job in the process. I claim that this is also the same with bipolar individuals that end up more in prison than on the stage, and with children with ADHD that are having their imaginations dulled out by drugs that mimic ecstasy, to make a terribly frustrating world, easier to handle. It is not the child with ADHD that is deficient, but the world around them.

Here, I digress, but want to point out that at least in theory, this is an actually brilliant illustration that describes the collective unconscious and its real-world application. In theory.

The Subconscious

Moving a level up from the collective unconscious, we have the personal unconscious. Jung's concept of the personal unconscious is largely similar to the concept of the subconscious, and so I am going to refer to both as the subconscious in this section.

Psychologically, the subconscious is largely thought to be that information that we are not consciously aware of that influences our thoughts and feelings but not our actions. This is because actions are our conscious interface with the world and so they belong in the realm of the conscious mind. Although our actions are largely delineated by conscious

planning in the executive processing areas of the brain, like the frontal lobes, these actions are influenced by our gut feelings and by the direction of our heart, which I assert are active on all levels. Even if one is not paying attention to their gut feeling or their heart consciously, the two definitely have a role in our conscious decision making. I believe it is through these alternate brain-areas that the lines between the unconscious, the subconscious, and conscious intersect.

Going deeper than the gut or heart, that we may not yet be paying attention to for a deeper understanding of ourselves, there is a dumbfounding amount of data being shuffled about in our subconscious. The subconscious mind is aware of *everything* at once, and it is only after we become conscious of those items in our subconscious that we are able to generate the conscious thoughts, feelings, and actions that make them real. I assert that the subconscious is where our impressions of the world are first registered before they enter our conscious mind. I remember I once had a dream when I was about three years old where I was able to read clearly, “Mayflower,” on the side of a container truck on the highway before I even knew how to spell with the alphabet.

In this same way, and as backed up by great psychological thinkers like Carl Jung, the subconscious is mostly made up of symbolic understanding more than details and logic; though I assert that these, all things, are present in our subconscious. The reason for this is because our subconscious is the raw collation of *all* of our sensory input and parameters of our environment, and physical bodies combined. It is all things in our conscious mind, and all things that we registered, yet filtered out of our

conscious perception at the time of process because the data was just not pertinent enough yet. As such; things like “aha moments,” or sudden realization, or a moment of total understanding; like an epiphany; are those moments when our subconscious information is accessed by the conscious mind.

I made up a saying one day that goes, “God cooks by first putting in the seasoning,” to describe this phenomena. Have you ever wondered about a subject for a long time and have bits and pieces of information concerning it, but once you see the central truth to it all, it all comes together like a lightning flash in your mind? This would be the phenomena of the subconscious making a connection and translating that still esoteric information into the forefront of consciousness. This is generally how the subconscious works, but in relation to everything we think, feel, know, do, and are. It is often noted in self-help books and new age spiritual texts that to connect with your subconscious is key to knowing oneself on a deep level, owing to a higher degree of success.

The subconscious knows all, and the conscious merely processes what is pertinent in the moment, or in conscious experiences related to the past and assumptions of the future. By this measure I claim that the old analogy of the iceberg coined by Freud is one of the few things that Freud got right. This can be backed up by the enormous potential that meditation has for clarity of thought, and finding out truths that may be obscure to the conscious mind. When we meditate, we are essentially shutting down the brain to a degree that we stop thinking about the information, and begin to

let the totality of the reservoir of information within us come to the forefront.

This phenomenon has been documented in athletes and artists in relation to the state of *flow*. A state of flow is characterized by becoming so engrossed in the moment of performance or creativity, that time seems to speed by as we are in a state of near hypnotic focus concerning what we are doing. Researchers looked at the brains of athletes and artists like musicians and recorded brain activity with an fMRI machine, functional magnetic resonance imaging. What they found was that when one enters a state of flow, a counter-intuitive phenomena happens where the frontal lobes, needed for planning and solid execution, actually shut *down*. This shut down of the frontal lobes correlated to the accuracy of free-throws and the ability to perform musical talents at a higher level than with the executive centers of the brain operating at full.

It was found that by shutting down the frontal lobes, professionals are able to perform tasks without over-thinking them. Without being self-conscious, leaving it to the more informed subconscious, that they were able to achieve more quality performance and not less. The subconscious is indeed powerful, and as stated above, having a stronger connection or better access to the subconscious by shutting the conscious mind down, actually leads to better results[1.] So what does this have to do with consciousness? The subconscious is a larger part of the consciousness than the conscious mind because all things that we are conscious of, first we must be unconscious of. Therefore, the subconscious is the first level of consciousness.

The Conscious

There is a myth that people can see a common reality. Knowing all of the things that you have learned so far in this book, all of the systems involved in receiving, transmitting, and generating thoughts, feelings, and actions of the conscious mind; it is easy to understand, and modern science supports the idea that there is no such thing as a “common” objective reality shared among all people. Not only does the genetic and homeostatic makeup of all of these systems come into play for the individual in their experience of reality, but there are other factors to consider like attention, lighting, timing, or point of view and field of view.

The exact same video seen by a group of people in different seats in an auditorium will leave each person with an entirely different take on what happened in the video. Depending on whether or not they were paying attention at which moment, and from which seat, will completely skew each person’s version of what happened. These observations made by each individual are processed through their infinitely varied, unique nervous systems which will process the information differently, sending some items to the subconscious and some to instant conscious processing. The way that it is processed in the brain also is infinitely variable. More than objective reality, we each see our own mosaic of impressions of that reality, and only that piece of reality that we are focused on.

Furthermore, after our information is registered by our brain and filtered to either the conscious or the subconscious, it is then experienced and further processed in real time in the conscious mind; that psychological

phenomena which is consciousness. It should now be no mystery that each and everyone of us have our own version of reality, and that it is experienced in completely individual ways that have to do with anything from the number of color receptors in our eyes, to the way our inner ear is shaped, how dense our nerve fibers are, to the way in which we think out the information; our mentation. We all have our own completely individualized sense of reality, and an even more diverse experience of it through time.

To make more sense of this complexity, I am going to offer a brief overview of the conscious mind as described by Sigmund Freud in his tripartite theory of the conscious mind. This is all the stuff that we learn in an introduction to psychology class in college and is quite simple, but it gives structure to understand the considerations that the conscious mind makes when understanding and utilizing information. The process of mind is quite convoluted as it has various considerations that act in tandem or contradict each other. This can give us clarity into why people act on impulse, are afraid to be impulsive, or suffer from cognitive dissonance that can manifest in mental illness.

Freud's theory of the conscious mind had three levels; the ID, the ego, and the superego. These categories refer to the different perspectives that our conscious mind can take when considering any information registered in our conscious mind. First we have the ID, which basically encompasses "the four F's of human motivation;" fight, flight, feed, and; reproduction. It is the considerations that we consciously make concerning our primordial instincts that we have in order to survive. The ID is the first level of

consciousness. The ego entails the conscious considerations that we make in relation to our sense of self and the ID. The superego, are those considerations that we make about ourselves in relation to others in our societal group, while also considering our ego and ID. All of these layers act primarily in the conscious, but extend into the depths of the subconscious and the unconscious as well.

For the sake of simplicity, I am not going to go deeper into each category, but from this we can see that there are many considerations going into the formation of our conscious thoughts, feelings, and decided course of actions. Each one of these subcategories of the conscious all have a mountain of data that corresponds to each. The way we were raised, our basic survival needs, our image of ourselves, and both our actual societal role and status; and desired role and status; among many other considerations, come into play in each of these perspectives of consciousness. This gives us clarity as to how astonishingly messy the business of consciousness can be.

As conscious and steadfast in our perception of reality that we may feel we are, we *are* basing our awareness and confidence in a hallucination that is unique to us. What does this mean? Are we all delusional? Will we ever know what objective reality is? Well, yes and no. Although we are not delusional to ourselves, if enough people are asked, someone is bound to call us delusional. Although we have an amazing capacity for sensing, thinking, feeling, and acting in our environment, the systems by which we do this are naturally diverse organic systems that are unique to the

individual. It is a firm scientifically verified truth that all of us experience and understand reality completely differently.

By now, having toured the hardware, firmware, and software of the levels of consciousness from external stimuli originating in the environment to the conclusions that we come to in order to act back into the environment, the diverse nature of consciousness should be apparent. It is here that I want to pause for a moment of reflection on the fact that we often try to pigeonhole consciousness as being one, universal experience for all people. Yet, looking at the data and insights of the last sections, we can see that it is anything but. I believe that this is the second mistake that science is making in its quest for consciousness.

The first mistake is that commonly, science focuses solely on the brain when trying to comprehend the mechanics of consciousness. As we have seen, consciousness is most accurately and scientifically thought of as a *whole-body-experience*. The second mistake that I note here is that science keeps trying to standardize consciousness when the nuances of it are as diverse as the entire universe. I believe that when all of the factors comprising consciousness are considered, we will find that consciousness indeed takes many forms other than an ethereal feeling of sentience or that of a floating spirit. I believe that in taking these two considerations seriously, that science can advance our understanding of consciousness both more rapidly; and dramatically.

Next, we are going to complicate matters further by raising up yet another level into the metaphysical aspects of consciousness. There is more

to reality than meets our myopic eyes. Our senses are locked into the third dimension. It is a scientific fact that other dimensions exist beyond the third, and perhaps for millenia, science may never be aware of the dynamics at play in our lives, in this section of the natural world that we do not currently have an ability to assess. I believe that there are dynamics at play in life that we cannot see. It is here that we will enter the purely speculative world of the metaphysical in concerns to the phenomena of consciousness.

Into The Aether

I already described a functional framework for how to best approach the study of consciousness, as the noted concepts are all on the verge of being entirely scientifically verifiable fact. Consciousness is a subjective and immeasurable phenomena, and all of the quantum physics in the world will never be able to completely describe it. This is the third mistake of science and academia. It is an impossible task for science to define consciousness with scientific accuracy by itself. There is so much that is undiscovered, may never be *discoverable*, and invisible in our natural world. Just like Freud's analogy of the iceberg in the water, what we are able to see and measure is just the tip of the whole-reality iceberg.

There are also a lot of philosophies that deal with consciousness, but these have more to do with how to wield or understand the purpose of our consciousness, live our lives, more than they are explanations of how or why it exists. Examples of the dominating philosophical principles would be existentialism, absurdism, nihilism, and optimistic nihilism. All of these

have to do with the *meaning* of conscious life, agency, and free-will, and how to navigate this life. Although this is not the focus of this book, except for the end, I will introduce you to a brief overview of these, so that you can better prepare yourself to make an informed judgement on what *you* think how, and why consciousness is for.

Going in order from most engaging to most dismissive of the role of consciousness in our lives is existentialism, optimistic nihilism, absurdism, and raw nihilism. Briefly, existentialism is based on free-will, and it is the idea that there is more to life than we are aware of, whether dualist or monist, and so it behooves us to engage in the living process and we should use our free-will responsibly. This is similar to the basic philosophy of most major religions. Optimistic nihilism is similar to existentialism in that it encourages the positive use of free-will, but differs in that the world has no inherent meaning. However lacking a meaning for life, the philosophy of optimistic nihilism can be interpreted as found in Christianity and Buddhism; “the world is hevel (vaporous in nature)” and “life is but an illusion” respectively.

On the darker side of philosophy we have absurdism and nihilism. Absurdism is basically the idea that the nature of the world is absurd as it does not have an inherent meaning, that there is no way to understand this absurdity, and that fighting to create order in an absurd world only creates chaos. The positive side to this is, like optimistic nihilism, that absurdism leaves room to go easy on yourself in life, and not try too hard, or judge yourself too harshly; as you too are an incomprehensible absurdity. Then there is nihilism, which is often wrongly paired with atheism, that states

that our lives are meaningless. The universe is without purpose. That our life means no more than a worm's. One minute we're here, and one minute we're not. When we die, it goes black. I believe that they are all correct, depending on what we're talking about.

Although there are others, I believe that these four philosophical considerations form a nice gradient from meaningful to meaningless. Although they do not answer for us how or why consciousness is, they do offer up philosophical assertions as to *what* consciousness is, and how we can navigate living a conscious life. While these perspectives on life do not directly impact a scientific understanding of the phenomena, I believe that they are valuable to the discussion, because framing the context in which we approach our study of consciousness could have reverberating impact concerning what aspects of it we decide to study, and at what point science can claim that it has all be figured out and that there is nothing left to see.

In order to generate a complete understanding of consciousness, a “theory of everything” befitting a gestalt and abstract concept like consciousness, we must consider all; not just *how* it arises, but *why* it exists at all, *when* we call the study of consciousness complete, and perhaps most important to the ethics of it all; *who* will benefit from the knowledge discovered from the study of consciousness, and *when* we should use this knowledge and when we should not. There is more to this aether of knowledge concerning consciousness, but let's downshift to the pragmatic meaning of consciousness in our lives before this survey.

Back Into the Environment

We are now going to remove our heads from the clouds and come back to Earth. This is the last leg of our journey that began with external stimuli in the environment that was detected through our senses, internalized through the nerves in our bodies, collated in our central nervous system, filtered, stored, processed, and felt; and created an awareness of it all, which we call consciousness. We also looked at several philosophical perspectives as to how and why this is. Now we will look at why it is useful, and what its impact is back into the environment. What do we do with our consciousness? In order to fully understand consciousness, we need to understand why and how it is used. This is what this section is about, and it brings the phenomena of consciousness full circle.

What is it to be human?

In the mid 2000s, I was in Japan at a funeral service for my ex-wife's grandfather. He was a very candid, yet loving man who fought against The United States in World War II. I was reminiscing about how he very vulnerably opened up to me over family dinner one night. For the first time to anybody, including his family at the dinner table, he recounted a heart-wrenching story about how we, *ame-ken* "the American dogs," bombed a hospital that had his friends in it right in front of his eyes. This had happened while he bravely fought a losing battle against us in the jungles of the Philippines. Feeling beset by the cruelty of life, and disinhibited by the alcohol in my blood, I impulsively and impishly asked the Buddhist priest leading the ceremony, "What is the meaning of life?"

He paused for a moment, as if internalizing just how impactful his answer would be to me, and with a slight grin, he looked into my eyes, and in a matter-of-fact way, he answered, “to eat.” At first, I laughed because it unconsciously blew my mind so profoundly that I didn’t know how to react. I returned to my seat to take another sip of my beer, and leaning over to my then wife, I quipped, “I asked him what the meaning of life was, and he said ‘*to eat!*’” She then looked over to the inebriated priest and slyly replied, “no, to drink!” We both giggled it off, and continued chatting with the extended family scattered about the reception hall.

Now, nearly 20 years since that day, I continue to process the profoundness of that answer. At first, I thought it was a comical, indirect sleight referring to *my* drunkenness that actually meant, “you should shut up and eat.” Now, after two decades of processing it, I have come to understand how much of a serious answer that truly was. He wasn’t referring to the meaning of life so much as the *purpose* for our being alive. The scientific, evolutionary consensus is that *survival* is what humans do. In order to do this methodically, we have consciousness. Survival is at the root of all of our motivations, and it is the reasoning behind why we strive to be good and resort to evil. In order to survive, we must first *eat*. Without eating we cannot fight, we cannot flee, and we cannot reproduce; because we will die. In order to live at all, first, we must eat as a top priority.

I have pondered what the scientific and philosophical implications of this statement are, and time and time again, it rings true as the best and most elegant answer to the purpose of life, meaning of life question that I

have yet to hear. When I entered “what is the meaning of life” into an AI-powered search engine, I got, “finding a sense of purpose unique to yourself.” I suppose most people would probably propose the same. But, it isn’t. When considering that the meaning, or purpose, of life is to eat, this “finding a sense of purpose unique to yourself” sounded so spoiled, and far removed from basic reality, that I felt worthy of sharing a Nobel Prize with that drunk Buddhist priest.

When I entered, “what is the purpose of consciousness,” an AI-powered search engine answered,

“The purpose of consciousness is generally understood as enabling flexible and intentional responses to stimuli, allowing organisms to plan, make complex decisions, and actively engage with their environment beyond simple reflex reactions, ultimately enhancing their ability to survive and reproduce by directing attention and actions towards what is most important for them; essentially, it facilitates a more nuanced and adaptable way of interacting with the world compared to purely automatic behaviors.”

This is the classic scientific textbook answer.

If our default mode of operation as a living organism is survival, as is understood by science, and that in order to survive at all, we must first plan in order to eat; I am going to assert that the astonishing truth about the pragmatic purpose of consciousness is; to eat. This is wildly different from the information processing answer that I got that is so indicative of science overthinking things and missing the ultimate point. Our science is

phenomenal at hitting anything *but* the bullseye from a 1000 yard distance, with pin-point accuracy.

We do not live to in order make, “flexible and intentional responses to stimuli, allowing [ourselves] to plan, make complex decisions, and actively engage with [our] environment beyond simple reflex reactions, ultimately enhancing [our] ability to survive and reproduce by directing attention and actions towards what is most important for [us]; essentially, [to facilitate] a more nuanced and adaptable way of interacting with the world compared to purely automatic behaviors.” We have this ability as an evolutionary advantage, to more effectively *eat* as a top priority. *This* is the literal purpose of consciousness, or stated loosely, “the meaning of human life,” as we can understand it at this time.

Here, I cleverly revise Rene Descartes, “I eat, therefore I am,” when considering the question of “how do we know with certainty that we exist?” Merely thinking does not prove our material existence, since our purpose for thinking is a function of procuring food in a material existence. Our *interaction* with the environment proves our material existence. I am not without eating, and I think because I must eat. If I think too long and do not eat, I will think no more. I will not be alive long enough to ponder how I am. I will die, hopelessly pondering why I didn’t eat before considering my existence. Keep reading, the accuracy of this assertion will come into better focus in the last chapter of the book.

The entirety of our consciousness exists at all so that we can eat in order to survive, survive so that we *can* think deeply, think deeply so that

we can have self-awareness, and have self-awareness in order to thrive. Any form of thriving that we do beyond surviving is all only *gravy*; it is irrelevant to the evolved purpose of consciousness. We did not evolve from single-celled organisms in order to be vain and narcissistic in our success; to gloat at our intellectual prowess, philosophical insight, military might, and glowing complexions. We did not evolve to win The Nobel Prize and brag for our clever revision of Descarte. We did not evolve to do anything besides eat.

"True humility is intelligent self-respect which keeps us from thinking too highly or too meanly of ourselves." – Ralph Sockman

This brings us to the meaning of consciousness.

How We Use Our Consciousness, and What is the Meaning of Consciousness, of Life?

The true *meaning* of consciousness in the material world is something that none of us will ever know with absolute certainty, until the day that our species ceases to exist. Only on the last day of the life of the last man standing, will any one of us ever know for certain. The ultimate meaning of consciousness is ever evolving. It will become whatever meaning we attribute to it through our thoughts, feelings, and especially our behaviors. This evolution will be finalized by the last man's final breath in this material realm. "What did it all mean?"

However, this is assuming that there is no after-life; a salvation, a reincarnation, or a celestial purpose for humanity beyond the grave. It is counter-intuitive to consider that the ultimate meaning of consciousness may already be known to our past ancestors, that is, if they live on. Here, locked into this three-dimensional, material universe, we cannot know the answer to the ultimate meaning of consciousness for certain. Science will never be able to answer this all-important question unless it can prove consciousness exists or does not exist beyond a state of bodily death and decay. As can be expected, however close it may come, science will always be off by 21 grams. If “I die, therefore I am” is the correct answer to “how do we know we exist for certain,” then its implications for humanity are *profound*.

There is as much potential for the study of consciousness to become a panacea for humanity’s ills, as there is for the study of consciousness to make global humanity ill, enslave it, or even erase it altogether. *All* questions must be answered for there to be a truly functional and accurate understanding of what the ultimate meaning and purpose of consciousness truly is; in order for us to make rightly guided decisions in utilizing this understanding. *All* humans must be allowed to freely participate in these conversations; for ultimately it is *our* consciousness that we are talking about. For ethical accountability, *all* data concerning the study of consciousness must be in the public domain before we decide to use it technologically.

A concrete and comprehensive scientific understanding of consciousness is intertwined with, and is as terrifying as the hype of the

scientific promises of immortality. We could easily become a race of immortal beings whose ultimate purpose was actually to die, as part of our natural development as a sentient being. Mortal humans could also be exterminated to make room for an entire race of cloned immortals, with its slave-driving overlords holding the key to its consciousness. In these eventualities, we would not realize glory and be freed of the chokehold of death, but would become a race of undead organisms with stunted development that would only serve to pervert the natural order of the universe, never realizing our true and intended purpose, and leave only destruction in our wake. These technologies are almost perfected, and cloning is already an old technology.

Coming back to the three-dimensional, material space, we have just enough agency to willfully attribute meaning to our lives through our thoughts, feelings, and behaviors. Although the former examples may seem like science fiction, we are nearing the perfection of these technologies, and without proper ethical oversight over the use of these technologies, they are a very real and imminent existential threat to life as we know it. There needs to be more research into the metaphysical, and science needs to “science-up” what it now dismissively claims as pseudoscience and myth. We must embrace holistic design. If science truly wants to innovate rapidly and dynamically, we must find a way to fit arts majors, generalists, and interdisciplinary thinkers into the calculus as well.

This article was written by a pop musician and high school graduate.

“*True* glory consists of studying what deserves to be done, and doing what deserves to be studied; and in so doing as to make the world happier and better for *all* our living in it.”

Citations

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