

# **Evolutionary Philosophy: The Funny Thing About Reality**

by the human that calls its self Brad Slingerlend

"I've wrestled with reality for 35 years, Doctor, and I'm happy to state I finally won out over it" Elwood P. Dowd in *Harvey* by Mary Chase

"A sane person to an insane society must appear insane" *Welcome to the Monkey House* by Kurt Vonnegut

"Only try to realize the truth...there is no spoon" Neo in *The Matrix*

This essay is an attempted Copernican revolution in our view of reality and meaning. Copernicus proved that the Earth revolved around the Sun, destroying the mental model at the time that the Sun revolved around a fixed Earth. While everyone was trying to force solutions onto observable data of the skies assuming the Earth was the center of the Universe, Copernicus instead elegantly used math to prove the data instead fit the Earth revolving around the sun. Nothing had changed from the universe's perspective - the Earth revolved around the Sun before and after Copernicus found the truth - yet, everything had changed in humanity's perception. Whereas Copernicus dealt with objects in the universe, this paper deals with objects of the mind. This essay identifies the biological and environmental causes of unhappiness, the symptoms those causes create, and a potential solution. Theologians, philosophers, and scientists have fallen short in connecting the final dots between causes, symptoms and remedies for unhappiness, and I'll let you in on a secret early on - I don't know what I am talking about either. However, I think this attempted Copernican revolution has a shot at being a framework for the secret to happiness...so, here goes nothing.

If you have a general understanding of evolution and natural selection, it's fairly easy to see how plants and animals have adapted to their surroundings such that the fittest survive and produce offspring that pass on their genes. It is the genes themselves (the organism is just a means to an end) that are interested in replicating, and thus the genes that select for what is most likely to succeed in the natural world. Why is the color green right in the middle of the visible light that we see with our eyes and interpret with our brains? Because green represents food for us and for animals we would prey on, so eyes that are most sensitive to green and the subtle shades around it prevailed through natural selection. Most people tend to stop thinking about evolution at plainly observable physical traits, but it also applies to sensations, feelings, and all mental states including consciousness. This last point is important - natural selection didn't just select physical traits we can see, it setup everything in our biology including our perception of reality - of the real world around us.

Reality, as you think you know it, is an illusion. It's a wonderful and ingenious trick that natural selection came up with. Don't misinterpret me here - I believe there is a real physical world we think we live in, but that world is heavily filtered and edited by the brains that the process of natural selection arrived at. Our perception of reality is no different than giraffes that developed longer necks over time to reach higher branches - longer necks were an adaptation that helped giraffes survive. Consciousness, feelings, and perceived reality are tools that help the human race survive. Without a mental model (consciousness in the case of humans) and sensory input to make sense of it, the universe is completely black and totally silent. The fact

that we see, hear, smell, taste, have physical sensations, feelings, and thoughts is evolution's wonderful, but often deceptive mechanism to help ensure our genes propagate. What a relief, I thought I was warm, happy, and satisfied five minutes ago, and cold, hungry, and sad just now - turns out it's just a marvelously complex trick that drives us to seek homeostasis. Here is an intriguing description of how the brain creates consciousness from an otherwise sightless and soundless universe of pressure waves and electromagnetic radiation:

Consider a world without consciousness. The darkness is a bubbling cauldron of energy and vibrating matter, locked in the incessant dance of thermal agitation. Through shared electrons or the strange attraction of unlike charges, quivering molecules, not free to roam, absorb and emit their characteristic quantal packages of energy with the surrounding fog. Free gas molecules, almost oblivious to gravity but buffeted in all directions by their neighbors, form swirling turbulent flows or march in zones of compression and expansion, according to the dictates of oscillating substrates. A massive solar flux and cosmic radiation from events long past crisscross space with their radiant energy and silently mix with the thermal glow of living creatures, whose hungry metabolic systems pour their infrared waste into the chaotic milieu. But within the warmth of their sticky protein bodies, the dim glow of consciousness is emerging to impose its own brand of organization on this turbulent mix of energy/matter. The active filter of consciousness illuminates the darkness, discards all irrelevant radiation, and in a grand transmutation converts and amplifies the relevant. Dead molecules erupt into flavors of bitterness or sweetness, electromagnetic frequencies burst with color, hapless air pressure waves become the laughter of children, and the impact of a passing molecule fills a conscious mind with the aroma of roses on a warm summer afternoon.

-Victor Johnston, *Why We Feel*

Maybe I should back up a little - a few million years to start. Humans are determined by our genes, environment, and social memes (popularized by Richard Dawkins, social memes are cultural knowledge that survives and passes on generation to generation). And, our genes are guided by natural selection to ensure the species continues to reproduce and thrive. That means that over many generations our genes "select" through trial and error based on random mutations which aspects of our physiology are most likely to ensure we reproduce and stick around to raise our kids. The nervous system, including our brain and its connections to the rest of the body like the gut, the home of sensations and feelings and thoughts, has been subject to that same selection process. That means that feelings, sensations, and every thought that emerges in our consciousness from the result of complex inputs and chemical reactions has been constructed by the process of natural selection. We feel anger, joy, envy, shame, guilt, cold, hot, hungry, etc. because these feelings and sensations proved beneficial to our survival under various circumstances. It's even possible that what we think of as consciousness is

actually a very recent phenomenon, and that throughout most of human history, the voices in our head were not us, but perceived as some external force. Natural selection does not care whether humans are happy, natural selection is only concerned with the emotionless objective of increasing odds that genes are replicated. Where did these seemingly intense feelings come from?

Let's start with the concept of pain. Imagine you are a child (of some branch in our ancestral tree) living in a relatively small tribe of 50-100 people in what we now call Africa many hundreds of thousands of years ago, or longer. You and a friend accidentally step on the nest of a previously undiscovered ground dwelling wasp species - one wasp stings you and it hurts like nothing you have ever felt before - you run screaming. However, your friend doesn't notice much more than an itch. While you run like crazy and survive, your friend looks puzzled and is subsequently stung to death by hundreds of angry wasps. You, luckily, had a mutation that made you very sensitive to wasp stingers - your genes are passed on, but your friend's never see the next generation. Your reaction was exaggerated - one wasp sting would not have meaningfully harmed your tissue, but the hyper-reaction allowed you to escape the potential of hundreds of stings. Your reaction (or more likely that of an even more ancient ancestor) was a happenstance - a mutation that made you sensitive to wasp stings. *Over time natural selection selects for exaggerated reactions - this is very important to understand. Mild reactions to negative stimuli or behavior might have put gene replication into jeopardy, but exaggerated reactions would pay off more times than not.*

Now, imagine again you are a child in this same tribe, more recently, say around 100,000 to 200,000 years ago around the time of the Cognitive Revolution for our species. You and a friend sneak into the seed storage and binge when no one is looking. Then, the tribal elders find out and confront you - you experience this extremely strong visceral feeling which we now refer to as guilt and shame, but your friend thinks nothing of it. You never steal seeds again, while your friend keeps sneaking back for more. You go on to partner up and have lots of kids. Your friend is identified as a cheater and is socially shunned and isolated, is never partnered up, and might eventually commit a crime that gets him or her cut off from the tribe. Unable to survive without the help of his or her fellow hunter/gatherers, he does not make it through the next draught and his genetic line is severed. While your friend's genetic line is over, your exaggerated emotions of guilt and shame lead to your genetic line continuing.

*Exaggerated sensations and emotions that arose through genetic mutations over the last few million years would lead to higher probabilities of reproduction. And so on and so on, until we get homo sapiens sapiens (that's us!) - the mammal that thinks and knows it is thinking - in other words - mammals with consciousness.* We have a unique meta cognition - we actually know that we know, whereas most other mammals likely know without much awareness. It turns out all of the five sense inputs (touch, taste, smell, sight, sound) plus the sixth sense organ, our thoughts (including our emotions), have been "selected" by natural selection over millions of years to make us who we are - laughing, crying, yelling, hungry, cold or hot, etc. We are simply reflecting an exaggerated state of sensation - the output of programmed chemical reactions and relays - causing more certain reactions to specific external stimuli which in turn increases the probability we seek homeostasis, survive, and replicate. Trivial nuisances can seem like

existential threats as a result of this exaggeration process in order to ensure genes are passed on. So thank your DNA next time you overreact to something!

Most of our emotions are driven by two concepts that evolutionary psychologists refer to as reciprocal altruism and social status seeking. Let's start with reciprocal altruism, which is more simply described as selfish selflessness. We tend to cooperate with people close to us (especially our kin because we share direct genes with them) - help them out so that in the future they will help us out when we need it. This sort of behavior is what selected for the feelings of guilt and shame I mentioned above. If we chronically cheat the system, we will feel guilty about our behavior which causes us to be more cooperative (remember the seed thief). We are programmed to seek pleasure and avoid pain. If we cooperate with others and they cooperate with us, we are going to reward that behavior and it would generate pleasant feelings. Neurotransmitters play a key role in our feelings of happiness, sadness, anxiety, etc. Behavior that wins in a strategy of reciprocal altruism - generosity, cooperation, kindness, avoidance of cheating and its associated guilt and shame - releases neurotransmitters associated with happiness, such as dopamine. If others chronically cheat the system and take advantage, this can have the opposite effect on us - causing anger, envy and jealousy which can negatively impact our happiness. We are therefore going to attempt to punish chronic cheaters and relieve these unpleasant feelings.

Reciprocal altruism is governed by the rules of game theory, where everyone is trying to maximize their personal utility - which, from the perspective of natural selection, is their odds of survival. It turns out we are programmed to overreact to cheaters, more so than we react positively to cooperators. An optimal outcome in this game theory would be one that rewards cooperation, punishes cheating, and makes both parties better off than if they had not interacted at all - this sort of outcome is a non zero, or positive sum outcome, in other words, a win-win. Natural selection selected for people that maximized positive sum outcomes for themselves and people close to them - this is reciprocal altruism.

In addition to reciprocal altruism, we evolved to seek social status. Social status is a moving target depending on the values of the society and time period you are living in. We are very well adapted to seek whatever society currently deems as high status at any given time. Under the models of liberalism, democracy, and capitalism (the current defining models of modern, Western society), material wealth accumulation and power are a couple of the symbols of status. In paleolithic times, it was likely hunting, healing or other non material skills that were relevant. Status is also very important to seeking a mate and thus reproductive success. Therefore, along with reciprocal altruism, status seeking behavior has guided human instincts for a long time. Both of these traits were sculpted and honed throughout an era when scarcity of resources dominated.

*But now it's the 21st century, and we have jobs, mortgages, bills, family, friends, traffic, technology that breaks down at the worst time, "social" networks, co-workers and thousands of interactions with people who might as well be perfectly anonymous strangers to us. So, what does this all mean? Well, it means we have a set of tools that are not only increasingly irrelevant, they can be destructive to our happiness and the happiness of others. These tools come from millions of years of natural selection, and also a set of mental models - ingrained neural pathways that have been developing in us since we were very young. The tools are*

massively over exaggerated and working against us as they portray our relation to the world and other people in a very misleading way.

Say someone cuts you off in heavy traffic and you are 20 minutes late to your kid's soccer game - natural selection has programmed us to react with righteous indignation - how dare they "steal" precious time from me?! Those cheaters, don't they know how important my time is?! The phony concept of indignation comes from reciprocal altruism - we overreact to small assaults because punishing cheaters was very important in an age of *scarce resources*. However, in today's reality, the person that cuts you off is also in a hurry - they are just like you and me wrapped up in the same illusion of independence and anonymity. Or, perhaps your neighbor does something that irritates you - they let their dog bark all day outside while they are at work...chances are they subconsciously see you as part of someone else's tribe (and certainly not as kin) - someone that they don't need to be nice to in order to survive because they can just stop by and get takeout on the way home and then sit in front of the TV with the volume turned up - they don't appear to rely on you for anything, so their brain treats you like you are from a rival tribe.

The transition from a world of scarcity to a world of abundance is a major shift for humans - you can get in your car, drive 5 minutes and buy 10,000 calories for less than \$10! That exaggerated hunger pain in the middle of the afternoon that would signal you to go on a long group hunt to kill a woolly mammoth is probably not that useful with a pantry full of cookies. In this day and age we simply have fewer reasons to form tribes, giving us an expanded population of outsiders to subconsciously treat as enemies. Yet, how many hundreds or even thousands of people and technologies go into a simple meal these days? You have land owners, farm workers, seed companies, fertilizer companies, tractors, harvesting, transport, store owners, store employees, gas stations and electricity plants, etc. Our lifestyle today is more dependent on others today than ever before.

*This misguided sense of independence (or individuality) and self reliance which gained a lot of steam following the Renaissance and the Enlightenment period has exacerbated our current interactions with each other. Suburban America is nearly the opposite of tribal, ancestral living.* Abundance of resources (space, food, leisure, etc.) combined with large amounts of anonymity feed a false illusion of independence. This fuels bad behavior such as lying and exploiting. As children we learn the dangers of lying - always testing what we can and cannot get away with. In a tribal environment it would be very hard to get away with lying and exploiting, but in an anonymous lifestyle of abundance, those tests we ran as children payoff, and bad behavior is reinforced. However, I would argue that we are all in this life together now - all seven billion of us on the planet are one big complex, interconnected tribe - more on that later. For now we need to dive into some physics...

### *Fighting Entropy: A History of Mental Models*

The long arc of evolution from the first nucleic acids and catalytic RNAs to modern humans has been a tale of fighting entropy. Entropy, defined in the 2nd law of thermodynamics, states roughly that without input of external energy, systems decay into increasing states of chaos or disorder (put more technically, they "cool down"). For example, it would take a lot of energy to force all the oxygen molecules in a room to one corner, then if you stopped applying

that energy, the molecules would disperse throughout the room. This dispersion is the vector of entropy. If we don't eat, our bodies decay. If we don't take care of our offspring, they do not survive. Everything you see around you - cars, buildings, society, governments, etc. are all examples of humans putting energy into the Universe to temporarily counter the process of devolving into chaos. Life as we know it is one big battle against entropy.

In the ancestral environment, emotion would generally beat out reason as a methodology for genes to replicate, and thus fight entropy. Strong emotional responses were important to reward good behavior and advertise who was cheating the system and then punish them. *After the agricultural revolution as scarcity started to be less of a problem, there was a developing sense that human emotion was irrational and causing problems.* This sense of disjointedness around irrational behavior seemed to come to a head around 2000 to 3000 years ago when several theologies and logic frameworks were formalized: 1) the historical Buddha developed developed a framework we now call mindfulness (also known as Vipassana, or *insight* meditation - more on mindfulness later); 2) Aristotle developed a framework for rationality based on reason and logic over of emotion; 3) Confucius and Laozi fleshed out a framework for living; and 4) many religious texts were initiated that culminated in the Torah, and eventually the Christian Bible, amongst other works.

The Aristotelian framework assumed rational behavior should be defined as maximizing a specific utility, such as wealth, and not based on things like emotions which were deemed irrational. However, if we understand emotions through the lenses of reciprocal altruism and status seeking behavior, they often seem perfectly rational from an evolutionary perspective (but, that does not make them logical in today's modern world). These wisdom traditions were all separate but related efforts around the globe during this time of civilization development - but synthesizing them offers some insights. *The ultimate goal then becomes to analyze our emotions as they rise and fall, combine them with reason and logic to create rational behavior based on a type of non dualism - a melding of emotion and logic. Instead of ignoring or fighting emotions as we are generally taught to do our entire lives, we can focus on their insight and how they might inform reason.*

I use Buddhism and Aristotelian thinking as shortcuts to represent Eastern and Western philosophies, but there are obviously various and more complex philosophical frameworks including Confucianism and Daoism in the East or more recent Western philosophers rooted in reason and individuality. Both of these schools of thought - East and West - were successful models for helping humans' fight against entropy - informing ways of using energy to create order that defers disorder to some future time. Unfortunately, today in the West our pre-eminent mental model system which came from Ancient Greece, was incomplete - more on that in a bit - so, *when we combine the governing system of reciprocal altruism (and the problems it creates for us in modern society) with the dualistic misunderstanding of the universe that began largely with Aristotle, we have some clues as to why we are not happy today.* How did this misalignment come about?

From our early days as hunters and gatherers living in small tribes, we made a couple of intermediate steps to arrive at the large nation state societies we have today (*see Appendix A at the end of the paper*). The first step was the shift from nomadic hunter/gatherer to agricultural based societies. This removed some of the scarcity (though still put us at risk of things like

weather, insects, viruses, and war -- in some ways making humans more fragile to extreme events) and allowed humans to start specializing and spending their time on things beyond the search for sustenance. This transition to a more homogenized diet also seems to have stripped us of the variety and microbes required to sustain healthy, long lives, and may have contributed to our increasing disconnect with a simpler, primal lifestyle that carried a deep appreciation for nature. It seems that rather than domesticate crops and animals, the crops and animals domesticated us - more people were living and reproducing, but under backbreaking circumstances - of course, this is acceptable from natural selection's perspective as we multiplied in number! The second intermediate step was the creation of early nation states. The most impactful nation state, to which we can trace many of our now incomplete mental models was Ancient Greece followed by Ancient Rome. The Agricultural Revolution and the more recent Industrial and Technological Revolutions have produced our primary governing mental models for society such as democracy, capitalism, liberal humanism, and free markets. These models all rely on humans being independent, wealth maximizing, rational decision makers - where rational is defined as logical in the context of wealth maximization.

How did the Greeks set us up for 2500 years of misguided social evolution? There is an important factor of mental models which exacerbates the illusion of reality that our brains create. First, let's explore mental models - have you ever tried to get on an escalator that was broken and not moving? Even though you see it's not moving, your brain cannot help but throw its mental model of "moving stairway" at it. And, even when you reach the end and step off and firmly know the escalator is not moving, the brain is still relying on that incorrect mental model. Unfortunately we have a lot of these mental models, most of them based on faulty modern mental models we've learned since we were just a few years old. We see every form in the world - every object, substance, thought and feeling with mental models we have developed throughout our lives. The good news is we can easily retrain these models - more on that later.

Earlier on I mentioned that genes, environment, and social memes impact our survival. Natural selection impacts genes on very long, multi-generational, time frames, but cultural learning and social knowledge - memes - impact us on shorter time horizons. And, here is the bad news - as I've indicated, we took a wrong turn about 2500 years ago when it comes to our application of learning and reasoning. That is when Aristotle created his very influential type of thinking in Ancient Greece that elevated reason -- the use of logic to understand things and make predictions -- to a dangerous level. Don't get me wrong, I love reason, but reason forced us into seeing things as objects and subjects, i.e., created dualities in an attempt to make logic a superior reasoning system, later setting up and reinforcing individualism (which finds its routes in the doctrines created 2000-3000 years ago, in particular the Abrahamic traditions). This reasoning system is dependent on language. Language is an incredibly important tool (it's how we short circuit evolution and create change on shorter time horizons), but it also influenced by the way we consciously perceive forms in the world. Written words also have a large influence on us, and much of writing revolves around compartmentalized concepts and bureaucratic ways of thinking in contrast to holistic thought. With much of our language rooted in ancient Greek and Latin, it's no wonder we often seem to employ logic where it might not apply. For example, logic alone will never be sufficient when emotions are involved, and emotions are logical when viewed through an evolutionary lens. We apply reason and logic without correctly interpreting

the logic of emotions almost ubiquitously to arrive where we are today in modern society - these have been our primary tools in fighting entropy for 25 centuries, or approximately the last 100 generations.

We also gravitate toward trying to predict the future because natural selection has chosen humans that worry about the future as having better odds of surviving. Worrying, which takes place in the large frontal cortex of our brains is highly correlated with trying to predict future events. This anxiety might cause us to store more food for a potentially harsh winter, etc. But, predicting is hard and often brings more anxiety than it is good for. Our natural toolbox for predicting is filled with the instruments of reason and logic from our upbringing, which causes even more anxiety. However, there were a couple of ways to fight entropy that existed for millions of years before the faulty over-application of Greek concepts of reason and logic.

Prior to the elevation of reason alone as the ultimate goal of human brains, we tended to see things much more holistically - to use an Eastern term, non-dualistically. Dualism is an influential concept that seemed to start with Plato's distinction of soul and body. This went on to inform various religious doctrines, and reached a crescendo with Descartes' ill informed *cogito ergo sum*, I think therefore I am, representation of mind and matter as two separate things - subject and object. This is a disembodied way of viewing ourselves and our environment. Modern science and many modern philosophers have demonstrated the flaws here, notably Damasio in *Descartes' Error* and Dennett in *Consciousness Explained* and *Darwin's Dangerous Idea* (the latter book title refers to how correct and important Darwin's findings are, posing a threat to the way we perceive the world, i.e., a danger to our prior mental models). Prior to Plato there seemed to be a more holistic philosophy with respect to mind and matter. Many of the Eastern traditions express a nonduality in an attempt to establish the connection between mind and matter, subject and object. The idea of reason and logic as the determinants of what is rational and irrational created many amazing and useful inventions (like when Copernicus realized the Earth revolves around the Sun!), but also many unsettling things that cause what the Buddha referred to 2500 years ago loosely translated as "suffering" - the feeling that something about modern society just doesn't feel right to us - an uneasiness as we go through our days, a sort of disjointedness.

What is the big problem with using reason and logic alone to fight entropy? The goal of reason is to determine permanent truths and maximization models, which can then be used to predict the future. We developed reasoning a long time ago (well before the Greeks formalized it and indoctrinated logic to such a point that your parents and the institutions you were educated in taught it to you). Before the Greeks, reason likely took cues from learning and emotion, attempting to make predictions about what we should do next - where we should look for food, how hard the coming winter would be, how we should expect someone else to react to something we do (that goes back to helping us understand reciprocal altruism). Reason also integrated the natural world around it, rather than treating it like a separate entity which the ancient Greeks postulated. There was a sense of the constant changing and hard to predict environment inherent in pre-Greek reason, an innate appreciation of nature - of the unpredictable nature.

Reason and logic in the Greek world depends on rational decision making being defined by *personal* utility - material wealth and power, i.e., how much money can I make if I choose this



decision over another - this further isolates us from other people, whether they are in our tribe or not. Economists often call humans irrational, because they think a rational human would maximize things like money as a utility, but in fact we often make emotionally informed decisions. Emotionally informed reason is not irrational, in fact it is quite rational in the context of evolution and reciprocal altruism. But, the world is vastly more complex now - we are not 50 people working together for mutual benefit in a tribe with only a few things to accomplish throughout the day. We are each an agent in a complex adaptive system.

A complex adaptive system is any set of agents (in our case humans) functioning and evolving together which demonstrates emergent properties. In other words, our interactions influence each other's behavior and that creates new unexpected behavior. And, our environment - the planet - is also a complex adaptive system. And, so are our nation states, economies, etc. We are part of multiple sets of complex adaptive systems that interact with each other creating one giant complex world. The odds of accurately predicting anything are astronomically low in this type of complex adaptive system! Therefore, Greek Reason and many modern social memes are tools trying to predict things that are unpredictable! Greek Reason may work in a system of permanent and limited variables where "If this, then that" logic plays out. However, in complex systems the variables are infinite and logic like this is frequently a fool's game. *This paradox of trying to predict the unpredictable frequently leads to unhappiness and anxiety.*

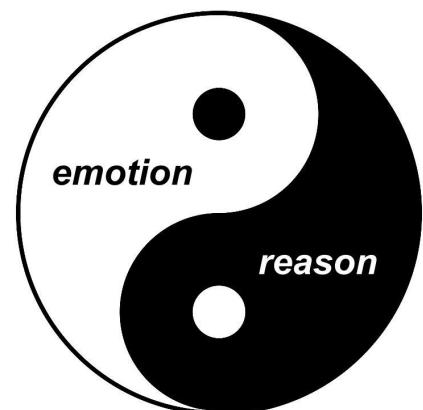
Everything is changing in a complex adaptive system - over short and long time horizons - but, reason tries to pin things down as permanent. It is this paradox of searching for permanence in an impermanent, always changing world that causes much of our dissonance and disconnect with the way things are. Yearning for permanence is a deep, human instinct - religion offers permanence in the form of gods while modern liberal humanism offers it as a goal of ever expanding progress. If we try to define things as permanent, this makes us cling to them. But, how can we cling to something that is always changing and never the same? We cannot - we must admit that permanence is one of those ingrained mental models that is simply incorrect. We need to re-learn that everything is impermanent - that time goes in one direction for us and we cannot go backward. When we realize that everything is changing, we are forced to appreciate everything for what it really is. If we know we will die, other people will die, flowers will wilt, the Sun will explode (lucky for us, not for a few billion years!) and, everything is in a constant state of quantum flux, we can appreciate every single moment we have with people and things for the precious time it represents. Once the present moment passes, it is gone forever - there is no permanence, there is no going back - each second that passes is a unique opportunity.

If we believe things are permanent, we run into an even bigger problem fighting entropy. When we use mental models of reason to fight chaos, we make things even worse. But, there is a different type of mental model which unites subject and object - mind and matter - in a way that creates a more harmonious battle with entropy.

*Instead of using reason alone, we can strive for learning that uses creative tinkering and a deep sense of the connection between subject and object - part logic and part emotion. This type of thinking uses an understanding of emotions as rational informants of reason and logic (in the context of our evolutionary history of reciprocal altruism and social status seeking). I view*

this as a definition of art. Magician and Philosopher Penn Jillette has said that “art is the collision of the intellectual and the visceral.” I see that insightful definition of art as very similar to logic and emotion informing each other. Going forward in this paper, when I mention art, this is the specific definition I intend to evoke. This definition is also consistent with the elusive Quality that Prigogine searches for in *Zen and the Art of Motorcycle Maintenance*. In the book, Phaedrus struggles to meld ancient philosophy with emotion and modern society, ultimately suffering a complete breakdown. And, it’s important to understand this “art” or quality can be anything and everything - you can tie your shoe artfully. Any idea, behavior, action, etc. that involves the thoughtful combination of reason and emotion, or intellect and visceral feeling can be elevated to art. Learning and creating that leads to the elimination of dualities is a higher art way of doing things than formal logic and reason alone which can accentuate dualities. Reason alone will often be the highest art solution when strict mathematical rules apply, or when we are solving for rational self interest or advancing pure science. But, more often than not, simple math is not the right governor of a solution, in which case we would want to seek out art - emotion and logic together. *Creativity and learning driven by the combination of emotion (viewed with the lens of natural selection) and reason enables higher artistic innovation and progress*. If we can take things we are interested in, cultivate passion and turn them into art, we create art. And, the good news is that art is really contagious - emotionally-driven thinking and inventing and creating that unites mind and body is beautiful and creates a sense of balance and peace that touches everyone who experiences it.

Art is thus simply the melding of rational thinking with emotional thinking. Eliminating the dualistic mental model that these are separate concepts, or that one is superior to the other. The conscious mind is a filter that runs whatever the mental model memes of the time are - logic and reason today - to maximize reproductive success. The conscious mind is sneaky, it deceives us. It puts the individual at the pinnacle often at the expense of others or the environment around us. You can learn to let the unconscious mind, or the connected gut-brain-nervous system, which is home to many important feelings, inform the conscious mind. This dichotomy goes by other names - hot and cold cognition, Daniel Kahnemans’s type 1 (emotional shortcuts) versus type 2 (rational paradigms) thinking, Kirk versus Spock, etc. The key is to let these two mental paradigms both work in tandem, informing each other as one decision engine. We can learn to mindfully help our hot and cold, emotion and reason, come together to create art. The traditional yin and yang symbol is historically a negative paradigm - showing how the striving for pleasure leads to disappointment and more striving yields more disappointment. Perhaps a better yin and yang would be the interconnected circle of emotion and reason informing and reinforcing each other.



Fortunately, humans are highly adaptable creatures, and it is within our power to create new mental models on short time scales to help resolve the problems that arise from discord between our genetically-acquired traits and modern society. *Building new mental models is a*

*backdoor natural selection left open - the back door is intended to help us adapt to shorter term changes in our environment - but, now we can learn to use it to turn reciprocal altruism on its head and use those millions of years of evolution to our advantage to achieve happiness. To quote Richard Dawkins in *The Selfish Gene*, "We, alone on earth, can rebel against the tyranny of the selfish replicators." The technique described below helps create the awareness that leads to art - emotionally informed reason.*

### *Mindfulness - How to Learn Happiness*

Coming back to the illusion of reality discussed earlier on, I've saved the hardest to grasp illusion for last - on top of reality and consciousness being an illusion - the idea of "self" is also a trick of evolution. If you sit quietly and try to focus on questions like "who is cold?", "who is hungry?", "who is angry?", "who is thinking these thoughts, reading this paper?" etc., you will eventually see that there is no answer. There is no entity that answers to "who" inside your brain - it is simply a moment to moment reflection of chemical signals from the brain representing exaggerated feelings and sensations designed to marginally increase the odds you have kids and raise them to independence. This is consciousness - the sphere of awareness that encompasses all of the signals processed in our neurons. Consciousness is not you, it's just a mirror reflecting these feelings and sensations which are illusions themselves because they were created by natural selection!

Consciousness is the sphere of awareness of sensory input. Visual signals of light and color from eyes, sounds from ears, smells from the nose, tastes from the mouth, sensations from the skin and body, and emotions and thoughts from the mind. *All 6 of these inputs come together and our awareness of all 6 is consciousness.* We are not our thoughts or emotions any more than we are what our eyes see or our ears hear. *We are the thing that is aware of our thoughts, emotions, hearing and eyesight. We are not those inputs, we are simply aware of those inputs.* I can't choose to not see something I am looking at. I can't choose to not hear something in my presence. I can't choose to not taste food in my mouth. Similarly, I cannot choose to not have thoughts or feelings. But I can choose to be aware of all these things in consciousness. *None of the inputs are real in any objective sense.* We see electromagnetic waves and hear pressure waves, but those are simply filtered representations of the actual Universe. *The self that is constructed from the constant stream of thoughts and emotions is simply a sensory input like vision - a sixth sense designed to help us interpret the world around us just like any other sense. We aren't the "self," we are that which is aware of the stream of senses. Our thoughts are not us, but we are that which is conscious of our thoughts.*

The illusion of self is further exacerbated by our hectic, decision filled days where we are constantly shifting between defense and offense trying to use broken mental models of reason to maximize our personal utility (often without art as the end goal in mind). As we go throughout our day under constant stress - constant attacks by people who have been tricked by evolution into thinking they are in different tribes, trying in vain to worry about and predict the future, our instinct is to protect the self.

We are fooled into thinking there is a self so that we protect it and allow it to think it is reproducing more "selves" in its image. This is just another form of clinging to something impermanent - how can we cling to something that is constantly changing? When you realize

there is no self, it's actually a huge relief. *When you realize your ego is a trick, an outcome of the success of evolution over millions of years of trial and error, you can begin the journey to genuine happiness - you can begin to discover art.*

Some of these statements are jarring enough to break the ground under your feet. Realizing that some of our most sacred beliefs are simply a beautiful product of the tricks our brains can play on us can be disorienting. It's like our world is constructed on a thin sheet of glass, and when we look down to find firm footing, we break right through it - reality shatters.

Another illusion worth shattering is the ideology of individualism. Individualism seems to be a concept that has cycled through history during periods of instability. The Dionysus religion in Ancient Greece is one example. Christianity elevated the individual to a new level. The Italian Renaissance in the 16th century propelled individualism forward with another boost from the Romantics, and we haven't looked back since. Liberal humanism, the dominant and growing theology of modern humans views the individual as sacred. Everything we seem to do in modern society seems to reinforce the sacred individual and their human rights. But what are human rights? The shared illusion of the sacred individual from liberal humanism has its roots in the free and eternal soul of Christianity, however, human individuals are not sacred, the *Universe does not care more about humans than other species*. Humans are objects of hormones, genes, and neurons - nothing special or sacred - and yet through art we can inspire passion and embrace something very powerful..

These shared illusions combined with the hectic modern world makes it very hard to be mindful. When our brains are under siege, we become subject to a vast array of symptoms known as cognitive bias - tricks that our brain uses to help us survive, to just get to the next meal, the next meeting or the next few hours of sleep. Most of these tricks are based on reciprocal altruism and the illusory concepts of self, consciousness, emotions, and thoughts.

To see the illusions and break free from cognitive bias, we have to break our default thinking. Default thinking is driven by bias, driven by shortcuts the brain takes. With default thinking we tend to seek rewards like money, power, vanity, intellect, etc. One of the best ways to break free is to acknowledge the illusions, and choose to worship our own ignorance instead. The three most important words are "I don't know" - this is where all creativity, innovation, and love can come from - "I don't know" inspires art and quality. Worshipping a god is like saying "god knows, so I don't have to." But worshipping ignorance is accepting our ability to create art despite the randomness of the Universe. This is how we can move past reason dominated frameworks and instead combine reason with emotion and embrace impermanence.

Wow, this is like a big baseball bat to the head - "I" am not real? My feelings are not real? Human rights and other shared human fictions are not real? I am not hungry or cold or depressed or elated or proud or guilty or envious or angry!? This may as well be a simulation like in *The Matrix*!? Our life is like a video game, and we can choose how we want to play it, and what it means to win or find meaning. OK, so the what are we supposed to do next?

It turns out there is an elegant trick we can use to fight back against the illusions of thoughts, emotions, the self, and shared human fictions. *Just like a skilled magician takes advantage of our built in biases and distractions, we can leverage those same faults to our advantage. One such process known in the West as mindfulness is cultivated through the practice of meditation* (Vipassana, or insight meditation, is one of the original and most rigorous

and analytical frameworks for mindfulness, but there are many other schools of meditation and philosophy, e.g., mantra based practices, Dzogchen, Zen, Daoism etc.). Once we realize that consciousness is simply the awareness of the 6 sense inputs (including thoughts and emotions) we can begin to forge new neural pathways - new mental models that better prepare us to deal with the world as it stands today. It sounds hard, but functional MRI studies from the field of neuroscience show that neural pathways are highly malleable, and we can rather easily move the density of function in our brains away from the primitive brain near the top of the spinal cord, and toward frontal lobe patterns associated with increased happiness and compassion and less anxiety over the past, present and future.

It's important to understand a bit about the brain - a few hundred thousand years ago we improved at cooking our food, making more nutrients available which allowed natural selection to shift more resources to our big frontal cortex of our brains away from our digestive tract (the brain's volume has doubled over the last couple of million years and while it is a few percent of our body mass, it consumes 25% of the energy we take in!). That frontal cortex demonstrates plasticity, or the ability to change. This is the important backdoor evolution left open which allows us to adapt over the short term. The more we realize that feelings and sensations are exaggerated by our more primitive brain area that sits on top of our spinal cord, and instead focus on healthy thoughts and artful mindfulness, we can actually shift mental activity to this area of the brain. We can learn that trying to paradoxically make predictions in a complex world based on false beliefs in permanence is no way to live. If we try and use Greek style logic and reason alone to make seemingly "rational" predictions - this is highly associated with anxiety in the brain - this makes us unhappy. *But, we can create new mental models that are better equipped for the universe we find ourselves in. This is good news, because by forging new pathways in the brain, we can dramatically increase happiness and compassion! Fostering creativity, happiness, and compassion can help create meaning.*

Now the sharp reader will have already figured out that "meaning" (why are we here? what does it all mean?) is also a trick of evolution. *Sorry, there is no "meaning of life" - the question itself becomes an anachronism, losing relevance in a mind that becomes aware of natural selection. The more accurate question is "what is the intention of natural selection?" This question has a simple and straightforward answer: natural selection intends to replicate genes, and in the process it is ambivalent to the happiness of the animals those genes sit in. Further, natural selection is also ambivalent to a "true" version of reality, constantly distorting our views in order to promote its primary intention of gene replication. Natural selection just tricked us into thinking there was meaning! So, isn't any "meaning" we find now using our minds just going to be hollow and empty? Luckily the answer to that is no. Why is that? We can still be robots, or video game players in a simulation and still create meaning. Because we still have learning and adaptability - that behavior I mentioned that influences our progress as a species over shorter periods of time - it's a big short circuit on the aspects of natural selection that are ill-equipped for our current modern times - we can say "F#@# you natural selection!" and instead learn to create art. Instead of reciprocal altruism and status seeking leading toward sub optimal behavior, we can learn to leverage what natural selection has left us with as a tool to happiness. We can learn to be happy just like we learn to read and write, and if everyone can learn to be happier, then we can make the planet better. We can learn to merge emotion and logic into a*

*new definition of “rational” behavior and quality. Learning through adapting and tinkering, getting your hands dirty, and really deeply understanding problems and their solutions is a beautiful, rewarding and truly joyful process. But, we can only do that after we realize what we perceive to be reality is an illusion. Once we make this leap we can not only improve our own happiness, we can help improve the happiness of everyone else on the planet. The only way we can be devoid of meaning - i.e., nothing having any meaning at all, a nihilist point of view of purposelessness - would be if you believe there is no difference between happiness and unhappiness; or in other words if you think pain is no different than pleasure. I hope we can all agree that happiness is better than unhappiness - that is all you need to believe to create meaning.*

All meaning is still some form of delusion, and I don't expect you to let me off the hook. But, what we believe matters - seeing the truth of our situation allows us to meld reason and emotion, accept that everyone else is in the same boat as us. By syncing up our definition of meaning in this way, we can continue to improve the conditions for life on earth. Victor Frankl, author of *Man's Search for Meaning*, calls this the *will to meaning*. The backdoor that evolution left in our ability to see the illusions we live with allows us to define our own meaning and avoid what Frankl calls the existential vacuum.

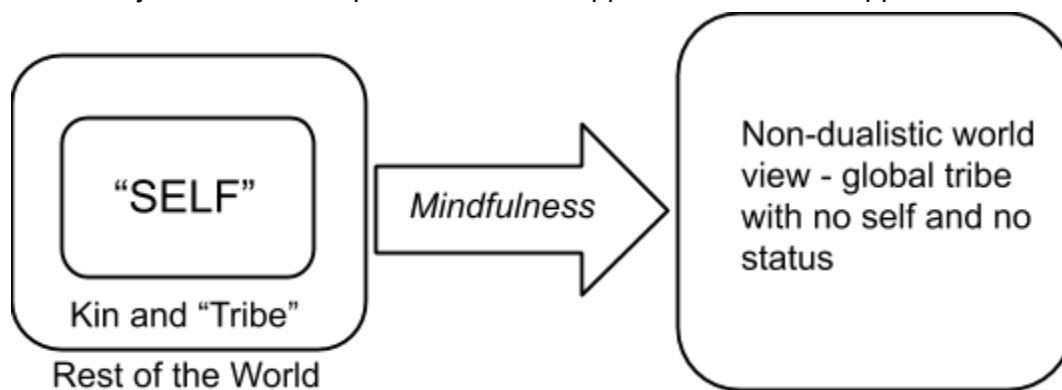
*Mindfulness, one such way to hack evolution, is simply the disciplined act of paying attention and realizing that we are not our thoughts and senses, we are that which is aware of our thoughts and senses. Mindfulness is the pause of attention that helps keep the brain from taking over our actions and executing natural selection's agenda. As we've seen, natural selection is ambivalent to our happiness, so we need to intercept its motivating factors and mental models in order to start learning how to be happy. We can think of our genes, our upbringing, mental models like logic and reason, and cultural norms as conditions on our awareness. All of these various influences condition our perception. By paying careful attention and being fully awake, we can catch these conditions and decondition them, leaving us with a more pure representation of reality. Meditation or mindfulness or just paying attention, however you choose to characterize this concept, helps us to understand that our sense of self is an illusion - there is no thinker behind our thoughts and emotions, and there is no “free will.” We can show through imaging of the brain that our nervous system makes decisions before we become consciously aware of them. Further our decisions are often informed not just by our genes and nervous system without our conscious awareness, but they are also informed by our upbringing and social environment - the hand we are dealt in life.*

*Using this context, there can be no “free will” as we generally think of that concept - every action we take has been determined by our genes and our upbringing (which we had little if any ability to impact). However, we can achieve something close enough to free will using meditation (or a similar discipline) to develop the skill of mindfulness. Mindfulness gives us the awareness of our thoughts and feelings - those tools that natural selection uses to manipulate our speech and actions - and allows us to intercept them before we act on them. If we are awake and mindful, we can cultivate the ability to pause between our awareness of thoughts and our actions. This pause gives us the ability to compare our actions against our long term intentions. If we mindfully set our intentions, and then mindfully behave in a way consistent with those intentions, then we can approximate choice and free will.*

*This framework elevates intentions to the most important guiding influence of our behavior. Therefore we must very mindfully set these intentions. Our intentions must be thoughtful and driven by compassion, kindness, our own happiness, and the happiness of others. The meaning we create resides in our intentions. A lot of people are good at setting intentions, but terrible at following through on them. One of the reasons for that is natural selection getting in the way pushing us toward unskillful and thoughtless behavior that might help us reproduce, but also makes us miserable. By paying attention, being truly awake and present in each and every moment, we can see our intentions through.*

*Once we realize that free will is an illusion like many other things that enter our consciousness (although mindfulness allows us to control a good approximation of free will), it becomes very hard to remain cynical of the behavior of others. Everyone else is in the same boat - influenced by natural selection. We can and should maintain a healthy skepticism, but cynicism is a hard belief to hold onto (however, we can still be cynical of natural selection's intentions!). If you let go of cynicism, you naturally let go of unrealistic expectations that other people will have good intentions and act in a way that supports those good intentions. This naturally dissolves feelings of anger. Instead of being untrusting and cynical, we should focus on treating everyone we interact with, and everyone in the world as people just like us, as part of our tribe, suffering under the same sub optimal mental models.*

*There is a special type of easy to practice meditation called Metta - by hoping for others to be happy and seeing that everyone else is just like us, we forge new neural pathways which has the result of making everyone in the world part of our tribe, thus foiling the excessive and increasingly dangerous emotions from natural selection. When I practice Metta meditation, I wish for others to find four things in their lives: peace, art, love, and grace. Metta is realizing that we are all in the same boat - we are all one tribe - we can extend compassion to everyone in the entire world. If we start with genuine compassion for our own mind and body, and then realize that everyone is just like me, we cannot help but cultivate genuine compassion for everyone and everything. We are programmed by natural selection to feel compassion toward everyone who is just like us. Compassion fosters happiness and more happiness.*



*Natural selection forces combined with modern mental models reinforce illusion of self at the expense of others; mindfulness helps dissolve the boundaries between self and others.*

Recall the other governing force of our behavior that came from natural selection is seeking social status. *Mindfulness helps us dissolve the importance of a permanent "self." This has the effect of de-emphasizing certain damaging aspects of status seeking. We can shift values of status to equanimity, mindfulness, and compassion - we can maximize status through art and quality instead. We are also designed to seek out flaws in others (and ignore them in ourselves). Mindfulness helps us see our own flaws, and treat them equally with the flaws of others, i.e., accept flaws rather than punish them disproportionately.*

The practice of mindfulness involves sitting quietly and noticing awareness of sensations, thoughts, and emotions at the instant after they form in our neural pathways and before they enter our illusionary consciousness. We learn to focus on the present. In a complex world of impermanence, all we have is the present - our ability to be awake and act mindfully moment to moment. When we hone this skill, we see clearly that everything really is an illusion, and that we can forge new mindfulness thought patterns to help eliminate that feeling of uneasiness or suffering - that feeling that everything in the modern world is disjointed. This simple practice is almost like slowing down time, you see everything as it really happens for what it really is - you are truly awake for the first time since you had your first conscious thought. Mindfulness turns natural selection's influence on our behavior from a source of unhappiness into a tool for happiness. This is a powerful inversion of our prior reality. (I recommend some of the sources at the end of this paper for more information on meditation - much of the benefit of mindfulness can be captured by practicing just a few minutes a day.)

### *Conclusion*

This short essay may leave you relieved...or possibly confused, angry, or upset. And, you might enjoy a wonderful laugh at my expense (that is just fine, since I have no "self" to feel any righteous indignation!). These emotional responses would all be examples of protective barriers that natural selection has chosen to help you make babies and raise them to make their own babies. You are programmed to protect the grand illusion at all costs. You will be tempted to classify all of this in terms of your familiar mental models even though reality and "self" are illusions...you are only your awareness of sensory inputs including emotions and thoughts. Our current mental models need to be replaced with art and quality - the non-dualistic combination of emotion and logic. Buddha, the Eastern religions and the Abrahamic faiths all identified these problems in different ways between approximately 1500 and 3000 years ago, but none of them identified the root cause of the problem with society that formed in the millennia after it transitioned from hunter/gatherer/tribal to agrarian and industrial. Some of these constructs and faiths also offered some advice on how to treat the symptoms they identified. However, none of them identified the cause - the loss of art and the rise of logic and reason alone to learn and problem solve, the attempt to make things permanent and predict the future, and the reciprocal altruism based emotions that have broken down in the modern world. Logic and reason placed increasing emphasis on the individual, but with increased abundance and anonymity, we lost our sense of reliance on each other and the environment for survival. This was a real loss of inter-connectedness to each other and the universe that guided our species' development for millions of years - a loss of love and art.



When we use mindfulness - simply being aware of the illusions and tricks of the mind, and paying closer attention - to identify the illusions and problems, treat everyone as people struggling just like we are, and use emotion-informed reasoning that emphasize the connectedness of everything, we can begin to reverse thousands of years of the devolving human condition - we can reverse the feeling of disjointed uneasiness and unhappiness. The synthesis of neuroscience, pre-Greek philosophy (using natural selection's emotions combined with reason), and mindfulness represents an inversion in our mental models - a Copernican Revolution. And, it is an inversion of natural selection. *To the extent natural selection is striving for survival in a world of scarce resources, governed by a blind algorithm, we are effectively ending natural selection for humans with this inversion.*

Here, I've tried to show that the motivations underlying our generally mindless thoughts and actions are actually illusions which we can learn to leverage to our advantage and happiness. But just like with Copernicus, nothing has actually changed - the universe is still the universe, but we've simply altered our wisdom of it.

In the long arc of evolution from the first DNA structures to modern humans over hundreds of millions of years the inevitable result is consciousness, a feeling that drives us toward homeostasis and reproduction. Another natural result is learning - the ability to adapt over the short term. This combination of consciousness and learning creates a profound paradox. We are homo sapiens sapiens - we know, and we know that we know - we can learn that these feelings are illusions. The ability to learn has evolved to the point where we can actually learn about the illusions that control us. But, it also allows us to feel compassion toward others and help them see the nature of reality. We can try to become one global tribe that eliminates anonymity and dissolves the recently created illusion of self reliance - we can understand everyone is just like us, struggling under misguided reciprocal altruism, status seeking based feelings and misguided mental models. We can throw off the fetters of mis-applied reason and reunite object and subject, placing a higher value on art and quality - everything we do can be a form of art and love. This can resolve that feeling of uneasiness, of suffering, that we sometimes face quietly, alone, and anonymously - it doesn't have to be like that. If you internalize the concepts in this paper you begin the path to mastering the mental model of happiness.

Physicist Richard Feynman once said "The first principle is that you must not fool yourself - and you are the easiest person to fool." I believe that anything except this framework - which is an evolutionary framework for philosophy, morality, and life - is self deception. You are fooling yourself. In fact, even my conclusion here - the ever expanding sphere of compassion for everyone suffering from the fetters of natural selection, the rebellion against the tyranny of evolution by melding emotion and logic to create art, cutting through the illusions of consciousness, self, meaning and the rest of it - could be a self deception. However, it's a deception that I am willing to embrace. It's a deception whose morality is art, quality and love - creativity and compassion, innovation and sympathy. It's a morality that stands on its own - informed by evolution while also over throwing evolution's oppression. We now live in the Information Revolution. This is the first time we can promote equality *and* freedom without one coming at the expense of the other. This is a monumental achievement that is just getting started. Prior to the Information Revolution, and prior to knowledge of the illusions created by

natural selection, humans often had to choose to conform and define meaning that aligned with whatever the society at that time valued to maximize status.

Art, creativity, innovation, inventiveness, love, compassion, sympathy - these are the new tools of evolution, and the new markers of status. So, you have a choice now to create and passionately worship your own meaning - the *will to meaning*. You can now choose NOT to worship power, money, vanity, intelligence, or any of the other traps the modern world of shared human fictions has created leveraging the illusions of the mind natural selection has left you with. Instead, you can take advantage of that loophole natural selection also left us with - rebel against the tyranny of your genes. You can learn to see the illusions and shared fictions. You can set intentions that define meaning as some representation of art and love. You can worship compassion and our own ignorance, and in doing so you can create meaning in invention, creativity, innovation, and passion - you can turn every thought, emotion, and behavior into art and quality.

I would like to briefly return to the concept of entropy in our Universe. Life, as it turns out, is uniquely suited to taking ordered, high-information energy and turning it into disordered, low-information states; indeed, this seems to be the vector of the Universe and life's role in it. For example, take sunlight, plants, and animals: sunlight is highly-ordered electromagnetic rays that help plants grow through photosynthesis; then animals eat those plants (and sometimes animals eat the animals that eat those plants); and then animals (e.g., humans), turn that energy into all sorts of interesting things, ultimately scattering that neat, organized solar energy into myriad disorder around the planet and surrounding space. *In other words, life efficiently increases entropy, the vector of the universe and the defining element of time's arrow forward.* As I've discussed in this paper, natural selection has proven that cooperation, collaboration, and non-zero sum outcomes are a driving force of the success of the human race. Paradoxically as we cooperate for survival, we create more order along the way to dissipating energy into the Universe. *In this way humans are able to fight entropy and slow down the arrow of time, and there's no better way to slow down time than to the practice of mindfulness. In fact, slowing down time and experiencing life should be the only goal.* I'd like to close with a [quote](#) from Fred Rogers: "Whenever people come together to help either another person or another creature, something has *happened*, and everyone wants to know about it—because we all long to know that there's a graciousness at the heart of creation." If cooperation, forgiveness, collaboration is at the heart of life, and life is a primary vector of entropy in the Universe, then graciousness is indeed the heart of creation. Recognizing the true nature of reality and consciousness is the path to finding this grace at the center of creation.

The following is a list of books that contributed directly and indirectly to this synthesis of philosophy and evolution. Bolded titles are recommended starting places.

#### Meditation and Mindfulness

Mindfulness in Plain English, Gunaratana, 2011

Search Inside Yourself, Tan, 2012

10% Happier, Harris, 2014

In the Buddha's Words, Bikkhu Bodhi, 2005

Dhammapada A New Translation of the Buddhist Classic, Kornfield, 2012

Insight Meditation The Practice of Freedom, Goldstein, 2012

**Abiding in Mindfulness** Part 1, 2, and 3 Lecture Series, Goldstein, 2007-2011

Wherever You Go There You Are, Kabat-Zinn, 1995

**The Waking Up app** by Sam Harris (this is my current go to recommendation for people interested in meditation; it contains a course in Dzogchen meditation which cuts through a lot of the difficulty of mindfulness for most people)

Histories of Reason and Theology: Philosophy

History of Western Philosophy, Russell, 1945

**The Big Picture**, Carroll, 2016

Sapiens, Harari, 2015

The World's Religions, Smith, 2009

**Zen and the Art of Motorcycle Maintenance**, Pirsig, 1984

The Evolution of God, Wright, 2010

Free Will, Sam Harris, 2012

**Man's Search for Meaning**, Frankl, 1997

Egypt, Greece, and Rome: Civilizations of the Ancient Mediterranean, Freeman, 2004

Letters to a Stoic, Seneca

The Bible - Old and New Testaments

Seeking Wisdom, Peter Bevelin, 2007

Evolution Science: Cognitive Bias; Psychology

**Why We Feel The Science of Human Emotions**, Johnston, 2000

**Descartes' Error**, Damasio, 2005

Thinking, Fast and Slow, Kahneman, 2011

How Many Friends Does One Person Need, Dunbar, 2011

Stumbling on Happiness, Gilbert, 2006

**Nonzero The Logic of Human Destiny**, Wright, 2001

The Moral Animal Why We Are the Way We Are, Wright, 2010

Flow, Csikszentmihalyi, 2009

Toward a Psychology of Being, 3rd Edition, Maslow, 1998

Misbehaving, Thaler, 2015

Darwin's Dangerous Idea, Dennett, 1996

Trying not to Try (wu-wei), Slingerland, 2015

Complex Adaptive Systems

**Complexity: The Emerging Science at the Edge of Order and Chaos**, Waldrop, 1993

**The Origin of Wealth**, Beinhocker, 2007

**Scale, Geoffrey West**, 2017

## Appendix A

3-4B Years Ago	~600M years ago	~130M years ago	~65M years ago	~4-6M years ago	~1.5M years ago	~200k years ago	10-12k years ago
Single Cell	Multi Cell	Mammals	Primates	Australopithecine	Homo erectus	Homo sapiens	Agricultural
Organisms	Organisms			(walking upright)	(discovers fire)	(modern humans)	Revolution
Evolution through natural selection shapes physical and mental traits over millions of years of mammalian and subsequent primate progress down to humans that possess awareness, wisdom and walk upright. Dynamics that define living in small groups are selected for reproductive success including principles of reciprocal altruism, social status seeking behavior, illusions of self, reality, and consciousness.							
~500 BCE	469-399 BCE	384-322 BCE	~6BCE to 30 C	1300s-1700s CE	1700s-1800s CE	1760-1840 CE	Modern Times
Historical	Buddha	Socrates	Aristotle	Renaissance	Enlightenment	Industrial	Technology
			Historical Jesus			Revolution	Revolution
Eastern and Western Philosophy and Theology arise to deal with disjointedness and unhappiness created by shift from primal way of life to agriculture based cities and nations. This was primarily a response to problems from an early rising sense of individualism, anonymity, and self reliance. This era also produced monotheism which replaced primal religions and pantheism. Eastern philosophy of insight meditation, mindfulness, and non-duality formalized in India, spreading to many regions of Asia. Greek philosophy focused on Reason create the subject/object duality centered around the individual.				Solidification of empiricism and rationalism built on Aristotelian logic as the predominant mental model for modern society - creating democracy, capitalism, free markets, etc. As abundance in resources rose coupled with the rising anonymity of increasingly dense urban living, a false sense of self reliance and individualism was cemented as our modern mental model of self. Eastern philosophy and primal cosmology is largely lost to society as a whole. Material wealth drives social status and rational thought is defined by maximizing material wealth.			