



# Blue Universe Theory

How to Live a Life of  
Science, Mystery,  
and Love

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# **Blue Universe Theory**

How to Live a Life of Science, Mystery, and Love

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# Introduction

We live in dismal times. Humanity is facing a climate catastrophe that threatens to cause extinction of our species along with most life on the planet. We seem more estranged from ourselves, from other people, and from the ecosystem than at any time in the past. We do not seem to have solutions or the will to produce them. Increasingly, leaders of our great nations are demagogues who spout hatred and divisiveness. We desperately need a new perspective that will heal and anneal us', bring us together with solutions to the problems that we face individually, and as a species.

Is it possible that a large part of our problems are based on a misconception of what we are, and the nature of the universe, that goes back to Descartes and the founding of the scientific method? We educated people have been walking around with a soul-killing metaphor that describes the universe and everything in it as a mechanical object, like a clock. This metaphor tells us that life is dead, without purpose, and everything and everyone in it is a mechanical object to be used and controlled, not revered and understood.

Moreover, we have known for some time how incorrect this world view is, but have yet to replace it with a more accurate world view. The universe is like a living system, full of purpose, hope, beauty, and mystery, full of other sentient beings like ourselves on a path of growth and becoming. To the scientifically literate, it has seemed impossible that such an alternative world view could exist, because we already knew all the answers to the major questions, and no alternatives were possible.

This book concerns an alternative model of the universe that I call "Blue Universe Theory". This model describes the universe as a living system, like a wise, old, playful cat, not a deterministic clock as described by Descartes. The universe is not a simple, mechanical system, but a living, complex system like ourselves. This can be a transformative vision. This world view can affect our view of ourselves, of others, and of us as a species, part of an ecosystem that is suffering and desperately needs a new vision for survival. This model or metaphor is more accurate than the one we have been walking around with, the one that is toxic to our lives and our souls. It may be wrong in parts, but this new world view can be studied and improved or changed as additional information comes out. It is remarkably compatible with the mystical world views provided by the world's greatest religions, but different in some respects. It is the product of the largest thought I have ever had, born on September 30, 2019. Consider it a metaphor, a ketamine dream, or a description. I promise you a good and entertaining read, and one that might transform your life.

Viktor Frankl was a psychoanalyst who survived the Nazi death camps at Auschwitz. He wrote a book called *Man's Search for Meaning*, which talked about the importance of having a sense of meaning or purpose in our life. Our mind is the house we live in. The foundation is our main attachment relationships, parents, family, spouse. We need to have a stable foundation, so we sometimes have to work on these relationships, or on our approach to relationships in general. But we also have a narrative story we tell ourselves about what our life means, who we are, and what our purpose is. If we think that the universe is a dead mechanical object and life is devoid of purpose, we need to call in the contractors and knock out a wall and put in a few windows. The first step toward recovery is to embrace purpose and meaning, and Blue Universe Theory will help you do this. But it must be practiced and used in order to be effective.

Some of you will be reading this book in the context of using ketamine therapy to recover from mood, anxiety addiction, or other disorders. Chronic stress has actual physical consequences on your brain. Chronic stress causes the spines on spiny neurons to retract within the cell body, resulting in a reduction in synaptic density in the frontal cortex. Ketamine reverses this effect and causes the brain to rewire itself. Thus, ketamine treatment is an ideal time to change and benefit from psychotherapy.

Deep changes to our sense of self and peace of mind can occur as we work on the foundation (our attachment relationships), and walls and roof (life narrative) and windows (schemas and traumatic reactions). We must cultivate strength and remodeling skills in the form of mindfulness meditation (attention system), loving kindness meditation (attachment) and compassion toward self and others (mentalization, default mode network). These skills are like the contractors and carpenters we engage to remodel the mind we live in. To begin, we must notice the ways our peace of mind and emotional response to our selves and others is disturbed, which tells us what we must change. These afflictive emotions – fear, anger, shame, guilt, etc.--are like the warning lights on the dashboard of a car. They signal areas needing work and wisdom.

# Blue Universe Theory

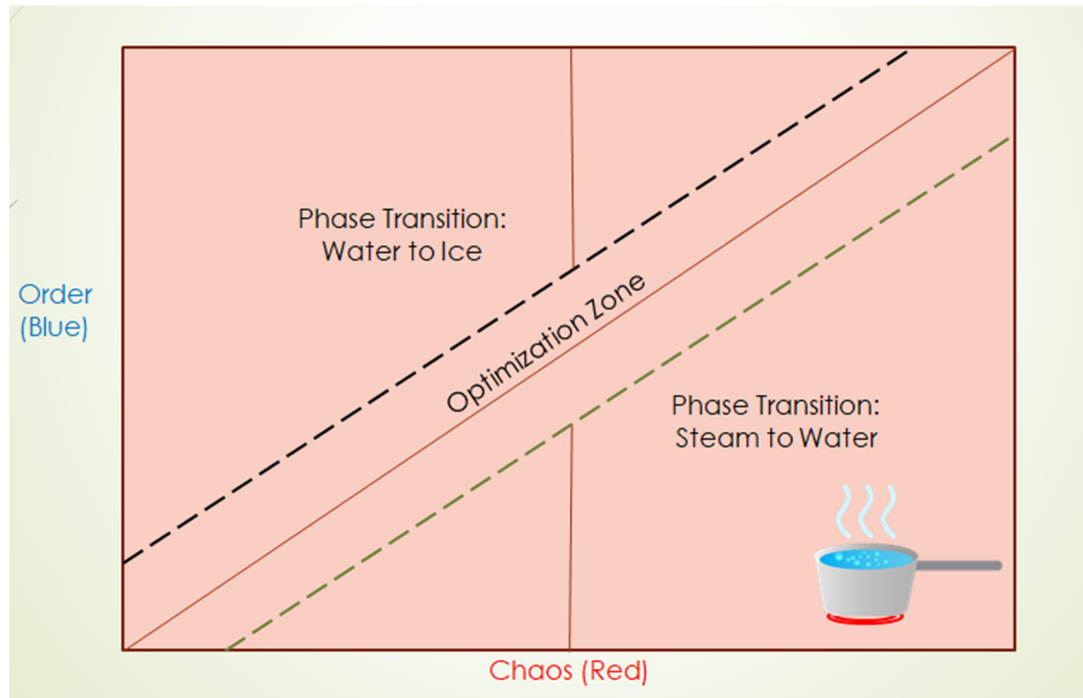
I will begin with a brief description of Blue Universe Theory.. The psychoanalyst Carl Jung described ‘synchronicity’ as an uncanny juxtaposition of events, and the week that I was considering Blue Universe Theory was full of synchronicity, including many articles in the Daily Onion that seemed to speak directly to this topic. This included an article titled “His Holiness Has Repeatedly Stated This Is Not A Cult” . Reassured by this, I decided to write this book. The following is a summary of the theory, which I will return to frequently throughout the book as I demonstrate the use of this theory, and help you test-drive it. I am hopeful you will find it as transformative as I have.

This book will emerge as it is written, subject to many modifications before it transitions from an e-book to a book you can buy and take home with you.

We have all been walking around with a story of what our universe is all about and what our place in it is, the model of the universe and ourselves as mechanical objects such as a clock. Blue Universe is a different way to see the universe and our place in it that is more accurate than the clock metaphor (or memeplex), and is a healing and annealing metaphor for our times. There are parts of the theory that are well supported by current scientific thought, and parts that are conjecture, based on reasonable opinion, but which need to be supported with additional research. This is the metaphor of the universe as being like a wise, old, nimble and playful cat. Think of it as a ketamine dream or metaphor, but I suspect it is closer to the truth than the broken clock metaphor, which has had a toxic effect on our lives. The old metaphor has led us to see the universe and ourselves as mechanical objects living in a world devoid of love, compassion, and purpose. This metaphor has incited a lot of despair and rage, a lack of awe, and a lack of appreciation of the mystery and beauty of life. Blue Universe Theory offers another story.

## Complexity Cusp Phase Space

Imagine a graph. On the lower x-axis is chaos, associated with the color red. Imagine a pot boiling on a red hot stove, producing steam, which is high chaos, low order. The water cools and cools, coming to a cusp or phase transition, from steam to water. It enters the zone of optimization. It cools more, and enters another phase transition, water to ice. On the y-axis of high order/low chaos, it becomes a deep blue color at the top, like arctic ice. This is the complexity cusp phase space.

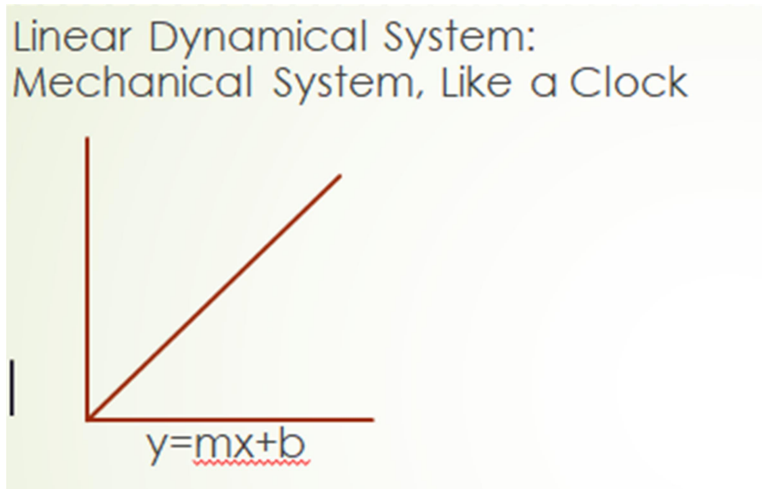


## Descartes and the Clock Universe Model

600 years ago, René Descartes was doing things like dissecting cats. He was struck by the observation that there are parts of the cat that are obviously like the clocks and mechanical animals that were popular in the royal court at the time. He brokered a compromise with the Church, which had increasing seen its authority usurped by scientists. He essentially said, “Scientists will have domain over *res extensa*, the physical world. The Church will continue have domain over *res cogitans*, the soul, or mind.”

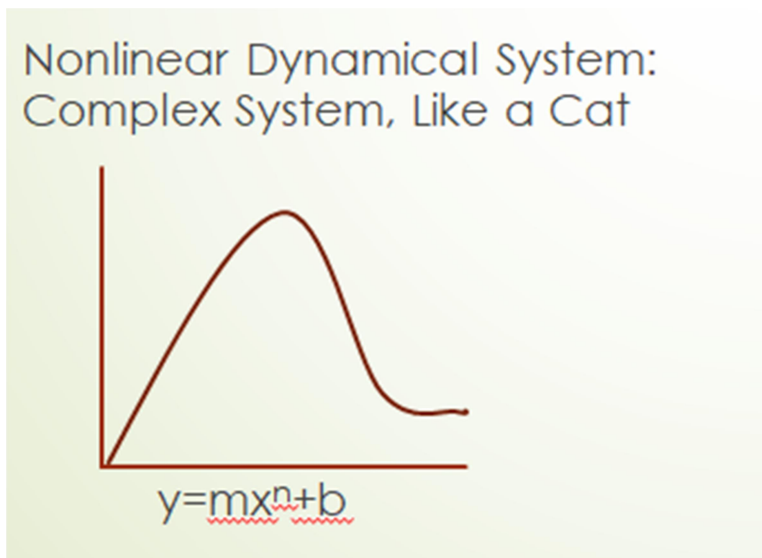
His observations initiated a trend of modeling the universe as similar to a mechanical object like a clock. In engineering control theory, Descartes' model is a specific types of system, the linear dynamical system. Dynamical means changing over

time. The parts of the clock interact with parts that follow a linear equation like  $y=mx+b$ , which graphs a straight line. The input is directly proportional to the output.



In some respects this has been a successful strategy, in that it allows us to do things like drive a car or fly in an airplane. We know that this model is wrong. The Heisenberg uncertainty principle tells us that at the fine joints of the universe, the interactions of the parts of the universe do not resemble the deterministic actions of a billiard ball. There is quantum indeterminacy. Second, complexity science has offered a way to model the other main type of system described by engineering control theory, the non-linear dynamical system.

The skeleton of the cat is pretty much a linear dynamical system. If you debone a cat, there are still mechanical aspects to features such as the fascia and muscles, but most of the rest of the cat, including the cellular biochemistry, brain, and mind, functions as a non-linear dynamical system, also known as a complex adaptive system.





## Physics of Information

In the physics of information, three hypotheses are important. First, information is suggested to be the most fundamental thing in the universe, more fundamental than matter or energy. Second, information may exist as a quantum mechanical information wave, independent of matter or energy. Finally, like matter and energy, information cannot be destroyed.

In medicine, we have a tradition of discussing the biological features in the terms of *microbiome* for the bacteria in our gut, the *connectome* of connections in the brain, and the *inflammasome* of inflammatory regulating molecules in the body. In this same tradition, we might consider the universe of all information in the universe, the *infoverse*.

## Entanglement

Particles have an associated quantum mechanical waveform, which can be entangled or shared between the two particles. If two particles are close together, and you take one particle to the edge of the universe, and take the other particle 137 billion light years away to the other side of the universe, and make an observation on one particle, the other particle instantaneously changes due to quantum entanglement. This is called the Einstein-Podolsky-Rosen effect, or Bell's theorem.

## Integrated Information Theory of Consciousness

Giulio Tononi proposed the integrated information theory of consciousness in 2004. It is a variety of *panpsychism*, the idea that the universe is, in some sense, everywhere aware, even a rock. The marker of higher order in a system in the universe is integrated information, when information is combined. He designated this combined, integrated information by the Greek character "phi".

The entangled quantum mechanical wave of the entire infoverse we will call "Big Phi". We propose that Big Phi is quantum mechanically entangled with the 'little phi' we carry around in the nonlinear dynamical system of our minds. Big Phi is aware of us, connected to us, and we are all a part of Big Phi.

## Big Bang and the Wheel of Creation

In the beginning was the word, information, the infoverse or Big Phi. We envision it as a ball of iridescent blue putty, or goo. Shortly after, spacetime was installed, like girders in a house. The universe of matter, the *matterioverse*, and the universe of energy, the *ergoverse*

And the wheel of creation began turning, running the Darwinian algorithm of variation-selection-reproduction-repeat. The interstellar dust and energy coalesced into suns, planets, solar systems, nebulae, and galaxies. This is a nonlinear dynamical process, like the growth of an ecosystem.

At the large scale, Big Phi is more like a wise, old, playful cat with a sense of humor and a taste for beauty, just like we have a sense of humor and taste for beauty.

And the word was made flesh.

The infoverse began evolving as well, accumulating disembodied information as the universe changed, recycling into the entangled quantum mechanical information wave, which we propose functions like the best possible and largest quantum supercomputer in the universe.

As Big Phi evolves and has more higher-order complex information, it begins to develop structural features similar to our own minds. Big Phi becomes self-aware.

We test for self-awareness in animals and ourselves by the mirror test. When we put a mirror next to the subject, animals may initially flee or begin attacking the mirror, because they think it is another agent. Self-aware people and animals begin doing things like grooming themselves and checking their teeth, because they know the image in the mirror is of themselves. This is the marker of self-awareness. Big Phi becomes self-aware, just like us.

## Convergent Quantum Evolution of Big and Little Phi

The reason that Big Phi and the little phi in our minds have a similar structure is that we are both a result of the Darwinian algorithm in the wheel of creation. Evolution occurs in the quantum world as well as the physical world. This happens when observation occurs, and the entangled quantum mechanical wave collapses to have a particular form. In Big Phi's and our own minds, the self-observing part of our minds can have this effect. Since we and Big Phi have a model of ourselves in our minds, we are constantly evolving our minds as we exist, as is Big Phi.

In Alcoholics Anonymous there is a: "Every event in life is a blessing or a lesson, and it can make you better or bitter." Our choice determines our karma and how our mind evolves.

There are cases of convergent evolution in the biosphere, where a structure or even entirely different organism will evolve to have a similar or identical form. This is why God's mind resembles our own mind.

## **Universes of Attracting and Repelling Forces**

The universe of attracting forces begins with the interaction of proton and electron, or the north and south poles of a magnet. It ratchets up the ladder of complexity until we get to the resonating harmonics of love. We can see these harmonics encoded in the neural networks with fMRI (functional magnetic resonance imaging), when one person's neural network is attracted to similar network in another person.

For this reason, and to make it memorable, we call this the *amouroverse*, the universe of attracting forces. It goes up to the social networks in a harmonious society (something we are seriously lacking these days).

The repelling, or repulsive forces begin at the subatomic level with two protons, or two south poles of a magnet. It again climbs up the ladder of complex order until we get to the neural networks subserving hate, again visualized by fMRI. This is visible in a state of interaction with a similar network in another individual, and extends up to the divisiveness and separation in our society.

We call this universe the *kalioverse*, after the Hindu goddess Kali, the agent of separation, who often causes pain or suffering. Nonetheless, this is part of the evolution of complex orders in the Darwinian wheel of creation, which says variation-selection-reproduction-repeat.

## **Similarity and Differences from Historical Conceptions of Deity**

It is time to take note of how this conception of Big Phi and the universe compares to other models.

The universe functions not like a clock, but like a wise, old, playful cat.

Nothing is preordained, and the future is known only when it occurs.

It is a universe of loving kindness and compassion, connected to Big Phi by quantum entanglement.

Big Phi is more like an ecosystem with emergent order than a male deity that is susceptible to being co-opted by the ruling class.

Like us, Big Phi is capable of love, of hate, is compassionate because it is partially composed of entangled information wave that constitutes the little phi in our minds.

It, like us, is capable of awe at the beauty and surprise of creation, as genuinely new phenomena evolve.

It is fond of complex order, and has a limited talent for miracles, within the constraints imposed by quantum mechanics.

We live in a universe that is not everywhere dead, devoid of purpose, and composed only of non-living mechanical objects. Instead, we live in a loving universe that is everywhere alive, growing and changing over time, pursuing a purpose that we build for ourselves in each lifetime we are reincarnated in. When we die, little phi leaves our body, often briefly looks down with regret, goes through a quantum mechanical tunnel to reunion with Big Phi, who is a being of light and compassion according to near-death experience researchers. We see, and join, dead loved ones, who are in the process of tuning their harmonics in the loving and compassionate, entangled quantum mechanical super-computer in the sky.

Not bad? Definitely better than a broken clock as a metaphor to heal and anneal our lives.

# Damaging Effects of Broken Clock Model

Consider for a moment the damaging effects of thinking the universe is a mechanical object, to be manipulated and controlled, rather than a living being, like ourselves, populated by other sentient beings, like ourselves, fundamentally made of the same stuff – information--that we are made of.

The ‘broken clock’ metaphor causes us to view life as essentially devoid of purpose, cold, and hopeless. It leads us to view the ecosystem we live in as something to be owned and controlled, rather than as the only home we have, that should therefore be treated with reverence and respect.

If the world is a machine, we want to own as much of it as we can, and other people are only other machines trying to take our share. Is it any wonder why we have the climate catastrophe we face today?

In trying to make these ideas memorable, I have crafted some surrealistic poems in the hopes they might serve as mnemonic, or viral marketing. The first poem concerns the climate catastrophe. My hope is that if we consider the biosphere, Gaia, as the only home we all have as a family, we might be able to overcome the obstacles we face in trying to get a consensus solution to the upcoming climate disaster.

André Breton founded the surrealist movement in art in his *Manifestoes of Surrealism* in 1929 as a response to the horrors of World War I. The world by then had become so mechanical that the political forces marched like a machine to great devastation and inhumanity. He thought that surrealistic art would shock the viewer out of the thrall that most of humanity seemed to be in.

Some of my reviewers thought these poems were too weird and should be taken out. I decided to include some surrealistic poetry for two reasons. You can think of your mind as potentially operating like a linear dynamical system, a clock, or like a nonlinear dynamical system, a cat. We are trying to go for the second option here. That is the first reason for the poem. The second is that we are trying to craft a meme, a ‘healing and annealing metaphor for our times’ that will displace the broken clock metaphor and replace it. It is my hope that these poems will be amusing and memorable and help this meme to spread. That is the second reason for these poems.

# **Funeral Balloons for Climate Disaster:**

## **A Dadaist poem/serious solution**

### **for the climate catastrophe**

Dr. Terrence Early MD

The musical group 'Blockhead' has an album titled *Funeral Balloons*  
On the cover, a fist holds a string connected to a black funeral balloon.  
In 1883, with a large 'KRAK',  
The volcano Krakatoa spewed ash all over the world.  
The whole world was massively shaken, with violent thundering  
Accompanied by heavy rain and  
With a ROAR burst, the mountain burst into pieces and  
Sank into the deepest parts of the earth.  
The water of the sea rose up and inundated the land, cutting  
Java from Sumatra.  
The effect was like closing the blinds on a hot sun.  
The island was a prominent part of "Crack of Doom,"  
Episode six of the TV series, *Time Tunnel*.  
In 1884, the only living thing  
Was a spider they found on the south side of Rakata.  
It was a large part of the children's novel  
*The Twenty-One Balloons*.  
The earth cooled for two years and  
Several places missed their summers,  
Until the ash settled.

It was like opening millions of tiny black balloons,  
Blocking the heat of the sun.

The Blockheads in the petroleum industry  
Have brought us to the brink of extinction.  
By filling the air with carbon dioxide,  
Produced by human beings,  
Running their cars,  
Trapping the heat from the sun.

This year 16-year-old Greta Thunberg  
Sailed from Sweden the UN,  
To beg for salvation.

A surrealist poet  
Filled 21 balloons with hydrogen gas, encapsulated by thin glass.  
Inside each balloons was a thin layer of charcoal,  
And calcium hydroxide,  
Also known as Drano.

Ten of these balloons were sealed and floated up to the air,  
Where they looked like upside-down black umbrellas.'

Another ten were blown up to the right size,  
Plugged with petroleum jelly, supplied,  
By the Blockheads in the petroleum industry,  
Who were paying to hydrolyze water,  
To fill the balloons,  
With the hydrogen.  
Into the petroleum jelly,

Was inserted a very long,  
Very thin,  
Fuse, of exactly the right size,  
Which was plugged into the balloons.  
From beneath, they  
Looked like 21 funeral balloons.  
When their fuses were lit with a *Spark*,  
The balloons lifted off,  
At exactly the right time,  
Just like ten funeral balloons.  
When they reached the exactly right *height*,  
The charcoal catalyzed a reaction,  
Which filled with calcium carbonate, and,  
Caused each balloon,  
To *Pop*,  
At exactly the right time.  
The Drano scrubbed the carbon dioxide,  
Down into the sink of  
The sea, in the form of a fine dust,  
Of limestone dust,  
Exactly like unclogging a drain,  
With Drano,  
At *exactly*,  
The right time.  
Also came rain from,  
The hydrogen and oxygen from the



Funeral balloons.

The sun shone brightly,

In a cerulean blue sky.

Greta Thunberg

Was jumping three feet

High in the air,

Clapping her hands,

And shouting with glee,

While waving a Swedish flag,

Of the country known to be a peaceful

And a fair ally.

The next single balloon

Hissed and sputtered,

Zippering around in

the **AIR.**

It finally exploded,

With a moderately large

**BANG!**

Breaking the final ten balloons, producing

Ten smaller rocks,

from the other ten balloons,

Striking the **Blockheads,**

From the petroleum industry.

This cut the financial ties of these Blockheads to,

Donald Trump the

Head of a country that

Had lost its way and who  
Had a head covered by  
A **HUGE** pus caterpillar.  
This had the effect of  
Scrubbing the excess carbon  
Dioxide from the cerulean blue sky.  
In the largest balloon a huge rock had formed,  
Which struck the huge *Pus caterpillar-covered head*  
Of Donald Trump and  
Stopped the cash contributions to  
Donald Trump, who dropped  
Unconscious on the floor.  
His huge spout of **RED RAGE!**  
Was squelched, and his  
Minions dropped like  
Puppets with the strings cut.  
Greta Thunberg jumped,  
Six feet high,  
Knees to chest,  
Clapping her hands  
Along with two thirds of,  
The Country,  
*Clapping Their Hands!*  
Repeat as needed until  
The sky turns a deep  
Cerulean Blue,

And

Loving-Kindness fills the

Blue Universe and peaceful world.

Greta, give me a call.

Next job?

!!!!!!!!!!!!!!??!!!!!!!!!!!!!!!!!!!!!!

# **Broken Clock Metaphor and Management Science**

When we think that the universe is a mechanical object like a clock, we tend to think that the best, most perfect systems in it are the most precise clocks. When this is applied to management science, we get systems where the clocks may run on time and bills get paid, but at the expense of our souls as we all go goose-stepping in line to the rules set forth by management.

The best organizations inject a little bit of humanity into their functioning, which is necessary for creative efforts. All organizations need to have some degree of structure. However, the best solutions for an organization are not always or even frequently more and more structure and rigidity.

This trend to rigidity is particularly problematic for hospitals and medical organizations. The rules end up being obstacles to providing patient care. I am a psychiatrist who has been fighting organizational structure for over twenty years to provide treatments for otherwise untreatable psychiatric disorders. I have seen first-hand the patronizing double-speak of medical institutions, as they use the rules to avoid providing patients the care they need.

Currently, I see this in the area of ketamine therapy, one of the most effective treatments for refractory mood and anxiety disorders. It is still not covered by insurance and there is no process for getting it covered by insurance.

I started doing ketamine therapy along with a pain specialist, Dr. Everton Edmondson, while on faculty at the Baylor College of Medicine in 2007, for patients with pain and psychiatric illness. We did the treatments at Methodist Hospital, which was eating the cost for anesthesiology and hospital services when we provided this treatment in an outpatient surgery center.

I knew that Methodist could not provide this service for free forever. I called every government organization I could think of to try to get the low rate of reimbursement for ketamine therapy increased, so I could interest my colleagues in psychiatry in providing this useful treatment. Although they rounded on the same patients I did and saw the same spectacular results, I could not interest any other psychiatrists in providing ketamine. In fact, I faced stiff opposition from the department which eventually led to me leaving academia to try to find a way to provide ketamine in a psychiatric outpatient. After calling every government agency I could think of, a lady at the Center for Medicare and Medicaid Services told me there is no government agency charged with promoting treatments simply because they are effective and could help people.

The Orphan Drug act supports treatments for rare diseases, but it does not apply to common disorders like mood and anxiety disorders.

Every new treatment in psychiatry and most of medicine comes into use driven by a profit motive, and utility for patient care is lower on the list of priorities.

Treatments are memes or replicators that compete for replication and spread, and they are economic replicators first before any other considerations.

Since the time of penicillin, we have been conditioned to think that the best treatments in medicine are the newly patented drugs. There is a 'halo effect' associated with newly patented drugs that misleads us into thinking that they are more effective than they really are. There is an 'anti-halo' effect that misleads us into thinking that anything that is not a newly patented drug is less effective than it actually is, in many situations.

We are taught in medical school that supplements are useless, usually based on group studies that obscure the effects in selected populations. For example, methylfolate had a demonstrably robust effect in treatment of resistant mood disorders, but it is not covered by insurance because any high school dropout in a health food store can sell you this medical supplement. Ditto for psychotherapy, residential care, and procedures such as TMS or other brain stimulation therapies.

There are 'hard-shelled' and 'soft-shelled' treatment replicators. Prozac is a good example of a hard-shelled replicator. When a psychiatrist prescribes Prozac, the insurance company doesn't have to pay too much and can generally be confident that the patient will actually get Prozac in a defined amount. However, when a psychiatrist wants to use psychotherapy or residential treatment-which are examples of soft-shelled replicators, this treatment is much more costly and of uncertain value. So insurance companies pick away at these services until they are no longer available. Currently, the average length of inpatient care for psychiatry is 5 days, way too short to do anything meaningful. Some patients absolutely need residential care but are no longer able to get it.

Ketamine is finally beginning to be adopted in the VA hospitals, where it can treat depression, post-traumatic stress disorder (PTSD), pain, and addiction. It is grudgingly being adopted by academic departments of psychiatry. There is an unholy alliance between Big Pharma (the pharmaceutical industry) and departments of psychiatry that has been a real obstacle to this effort. Departments of psychiatry inevitably run in the red, because reimbursement by insurers has been whittled back to next to nothing. This is unlike oncology, surgery, and cardiology, big money-makers for any hospital. Department chairmen have to make their department of psychiatry survive and provide a teaching curriculum. They have largely had to do this with drug company sponsors. As

Upton Sinclair observed “It is hard to make someone understand something if their paycheck depends on them not understanding it.”

In addition, psychiatry department chairmen want as much control as possible, and the broken clock metaphor gives them the illusion of this control. It also provides a reason why patients do not get the treatments they desperately need. There is a lengthy policy and procedure manual that outlines which services are covered, and how they are provided. This is protective boilerplate for the hospital. When a lawyer has you in front of the judge, it is much more permissible that the patient had an adverse outcome when they were treated as the policy and procedure manual mandated. It is less important to provide the best treatment, than to provide the codified allowable treatment. This is what I call the ‘protocolification’ of medical care, analogous to calcification in the body as a cause of stiffness and arthritis.

Health policy experts like to fantasize about a ‘bench to bedside’ model of the evolution of treatment. The idea is that a scientist makes a new discovery at the laboratory bench, which then becomes a new treatment. The problem is that the expense and effort of getting a new treatment out there is so great that the only channel between bench and bedside is the pharmaceutical industry. Big Pharma has hijacked virtually all innovations and the medical mind.

There is a much smaller ‘clinic to bedside’ channel for introducing new treatments, but it is heavily obstructed by lawyers, hospital administrators and competition with the treatment memes generated by the pharmaceutical industry. It might be the best treatment for a particular patient, but it will not get to the patient unless it is able to pass those obstacles.

At any rate, humane organizational care begins with a humane organization, one that admits fallibility and keeps the purpose, rather than the protocol, in mind.

## **Mindfulness**

The attention system of the human brain consists of a network of structures linking parts of the parietal lobe and frontal cortex, which can be thought of as a mental arm we use to grasp perceptions and concepts. Like an arm, it can be strengthened with exercise. Mindfulness meditation is an exercise that can strengthen the attention system. MRI studies using diffusion tensor imaging have shown improvement in the white matter integrity surrounding the anterior cingulate, one of the major nodes for voluntary control of attention.

Two good resources for mindfulness meditation include a free pdf by Bhante Gunaratana called *Mindfulness in Plain English*, and a book by Williams and Penman simply called *Mindfulness*.

Breath counting is a simple form of mindfulness meditation. Ten minutes of mindfulness meditation twice daily is sufficient to begin strengthening your attention system. Attention will shine a spotlight on what you want to think about, while inhibiting attention to distractors. As your attention system is strengthened, you are able to disengage for afflictive emotions and gain better peace of mind.

## **Attachment Theory**

John Bowlby was a psychoanalyst in London. In the early 1960s he became interested in the process of forming emotional bonds. He was seeing a lot of people who had been orphaned during World War II, and wondered how this was related to the depression and anxiety he was seeing in them as adults. Bowlby's research was informed by the study of attachment behavior in animals. His college roommate was Harry Harlow, who had studied attachment and bonding in rhesus monkeys. You may have seen at some point a picture of a scared little monkey in a cage with a cloth mother and one with a wire mother. This was Harlow's work.

Bowlby teamed up with a single mother named Mary Ainsworth, and together they did a classic study of attachment. They had a primary caregiver in a room with a three- or four-year-old child, with toys in the room. A stranger came into the room, and the caregiver and stranger played with the toddler with the toys. The caregiver left the room for five minutes, and then came back. They simply recorded the child's behavior during the brief period of separation and reunion with the caregiver. Surprisingly, they were able to define four patterns of behavior that were reproducible in that they were seen again six weeks later. The first, occurring in a lucky two-thirds of children, was called "secure attachment." It was just like it sounds. When the caregiver left the room, the child fussed, but settled down and managed to play with the stranger. When the caregiver returned, the child reached for the caregiver, was picked up and rapidly soothed. There was nonverbal behavior between the child and caregiver that was obviously healthy.

In the remaining third of children, they were coded as having "insecure attachment." Of the different terms used for the varying kinds of insecure attachment, I prefer the most descriptive. One form was hyperactivating attachment. During this form, the child became very upset when the caregiver left the room, and fussed and cried during

the entire five-minute period of separation. The child became even more aroused when the caregiver returned, and had a display of anger before eventually getting soothed.

The next form, deactivating attachment, was just the opposite. The child seemed not to notice when the caregiver left the room, and turned away when the caregiver returned. However, the child's levels of stress hormones such as cortisol and epinephrine were elevated, indicating the child was stressed by the separation.

Finally, the third form of insecure attachment was an approach/avoidance conflict. In the mixed/disorganized attachment category, the child would begin to approach the caregiver on return to the room, but do things like freeze and sit down midway there.

Bowlby and Ainsworth reasoned that we have evolved an “attachment system” in our brains, like the rhesus monkeys have. The first job of this system is to forge and maintain a bond to a caregiver when we are very young. In the best of circumstances, we can have secure attachment. But sometimes a combination of genes and environment may result in a different strategy. They speculated that children learned to over-activate the attachment system in the hyperactivating form, resulting in increased emotional pain and the behaviors that went along with it, such as crying and so forth, perhaps to be more successful in getting help from a caregiver that was slowly or intermittently responsive.

Some children are more sensitive and resist being held. Perhaps this, or neglect, resulted in the child learning to inhibit the attachment system, to prevent the stress of crying without relief.

Finally, the mixed or disorganized pattern was often seen in children whose caregivers were emotionally unpredictable or abusive. These children were still wired to connect, but activated the fight or flight system along with connecting.

Twenty years later, there was still a correlation between the attachment patterns seen in childhood and the attachment patterns seen in intimate partners and friends as adults. This indicated that the attachment schemas formed in childhood served as a template for later relationships.

The role of *mentalization* in emotional self-regulation has developed in recent years, developed by Peter Fonagy, Mary Main, and others. Mindfulness is the ability to keep another person’s mind in mind—to understand the perception, intentions, internal state including both declarative and autobiographical knowledge, and emotional state of another human being. We go from having to have our caregiver physically present when we are in pain, hungry, scared, etc., to being able to run a copy of ‘Mom 1.0’ in the software of our mind, and self-soothe ourselves.



If we have an insecure attachment schema we are less adept at this and more susceptible to depression, anxiety, and relationship problems. If we have a hyperactivating attachment schema as an adult, we are more susceptible to abandonment fears and may 'hypermentalize,' becoming rejection hypersensitive. We underestimate our own emotional resources and overestimate the importance of emotional support from others, particularly a single attachment relationship. If we have a deactivating attachment schema, we are estranged from ourselves and the emotional states of others, and tend to isolate and avoid emotional intimacy. If we have the disorganized or mixed attachment schema, we vacillate from needing intimacy to being uncomfortable with it.

## **Peaceful Mind**

Emotional self-regulation is the technical term for having a peaceful state of mind. Emotional states are generated by older structures in the brain called the limbic system, and inhibited by newer parts of the brain in the frontal cortex.

If you have a stroke involving your motor cortex, which regulates movement, you may have exaggerated contraction and relaxation movements called spasticity, due to a decrease in the negative feedback the motor cortex and cerebellum use to regulate movement.

Something similar happens when the frontal cortex is not regulating emotions. Following a traumatic stress, say an automobile accident, the amygdala is involved in forming an emotional memory of the trauma. The amygdala sends projections to various parts of the brain producing changes associated with emotion, such as freezing, elevated blood pressure and heart rate, release of cortisol and so forth. Another part of the brain, the hippocampus, sends projections to parts of the brain to form a 'declarative memory of the trauma', such as where you were, the red color of the other car, and so forth. Thus, the fear memory has an emotional amygdala component and a declarative hippocampal component. If you go driving again, you initially have a lot of fear and anxiety, particularly after you encounter a red car. Over time, you have less and less anxiety and eventually you have extinction of the fear response, but not the hippocampal declarative memory.

Along with the amygdala activation during trauma, the attachment system is usually activated as well, since this is the system we use first to regulate our emotions. If we have insecure attachment, we are less adept at emotional self-regulation.

There is a form of meditation called loving kindness meditation or metta meditation that might also be helpful. It involves calling to mind someone who loves

you, and whom you love, and focusing attention on the emotions you feel in that relationship. Next, you call to mind someone who you feel emotionally neutral to, and engaging the feelings of positive emotions there as well. You might think about your common state of being on the human path in life, and the suffering you both endure. Finally, you think of someone who you feel negative emotion to, and focus on positive feeling toward that person instead. As you do this, you become better able to have a peaceful mind and not be triggered by afflictive emotions such as anger. With a clear head, we always make a wiser decision and solve any challenges we are facing better.

There are other meditation techniques for improving self-compassion and compassion toward others. People who believe in a deity call to mind a strong positive attachment figure frequently during the day, and this likely helps to mold their attachment schemas toward security. People in AA are told to turn to a 'higher power', which can be group process or evolution. As a meditation technique, it probably has some benefit.

Getting to the secure attachment schema is a major goal of good therapy. It begins with a good therapeutic bond with the therapist, which hopefully serves to gradually change our attachment schemas with others, in what is called transference.

Avoidant behavior is often most readily addressed with effective exposure therapy. This involves deliberately exposing one's self to the situation or social contact that causes anxiety, and sitting with the anxiety long enough for it to abate. Coping statements and strategies help, as does accurate mentalization.

Insecure attachment schemas tend to be associated with a narrow social network, and expanding your social network is an important thing to work on. Increasing face to face contact with others is an important daily exercise.

I like to tell people that we all need to have at least two 'bowling team units' of social contact a week. If we belong to a bowling team, we spend a couple of nights a week with 4 or 5 friends, bowling, talking, etc. It is a vital nutrient.

Having a pet helps. I would prescribe a dog or cat for everyone if I could. No snakes or Komodo dragons, that is cheating. With this in mind, we will revisit Blue Universe Theory with a surrealistic poem, which hopefully will be funny enough to be memorable.

## **My Cat Schmeigle**

An homage to cat-human love and human-cat love.

That is a serious proposal about love and the nature of the universe.

My cat Schmeigle

Was an exceptional Cat.

I had him since 2006,

A gift from my loving daughter Lauren.

He could jump six feet high,

Until he got too fat,

And had beautiful yellow eyes,

And soft grey fur.

He was a Maine Coon cat.

I loved him so much.

He got sick one day,

His pancreas failed,

And he died.

He was a cat Bodhisattva

And Jesus rolled into one.

His soul left his body

And joined the huge

Quantum mechanical waaaave

Of information at the heart

Of the universe.

This quantum mechanical wave

Was humming away,

Working as a quantum mechanical supercomputer,

Becoming wiser as each sentient being died

And merged with

The wave named

Big Phi.

This was after integrated information theory,

Described by Giulio Tononi

In 2004.

Information described there when joined,

Is called phi.

At the beginning of creation,

The first thing was the word,

Called the infoverse,

The huge entangled quantum mechanical

Information wave

We now call BIG PHI.

The word was made flesh,

And next came spacetime

And the universe of matter,

The *Matterioverse*,

And energy,

The *Ergoverse*.

The clock began running,

And next formed the stars,  
Planets and galaxies.  
Information was bound to  
Matter and Energy,  
And also formed a Jungian shadow,  
In the Universe,  
Known as **Dark** MATTER,  
And **Dark** ENERGY.  
Schmeigle joined the souls of  
The other dead cats and their souls  
In the entangled quantum mechanical wave  
Of the catverse.  
Emitting loving sweet meows,  
Into the meowoverse.  
They came down to me,  
But I could not hear them.

600 years ago,  
Descartes was  
Dissecting cats.  
He could not help but notice  
That there are parts of the cat  
That are linear dynamical objects,  
Like the hip joint,  
Which is basically a lever.  
He brokered a compromise

With the Church,  
Which was getting pushed by  
The scientific knowledge of the  
Other scientists.  
He said  
“We shall have province over  
The material world  
And call it Res Extensa.  
The Church shall continue to have province over  
The soul,  
That medium sized  
Entangled quantum mechanical information wave,  
Running in the complex adaptive systems,  
Our minds. ”  
When we die,  
Information becomes unbound from matter and energy,  
And harmonizes with Universe-sized BIG PHI,  
Running in the sky.  
Each new soul  
Of human or cat  
Makes BIG PHI  
A little wiser.  
And we are all connected,  
To BIG PHI and SCHMEIGLE  
By an entangled quantum mechanical  
Information wave.

BIG PHI and SCHMEIGLE

See our suffering and care,  
Because they both love us,  
Just as we are capable of love and compassion.

Next in the universe was  
The Universe of attracting forces,  
Starting at particles,  
Such as the proton,  
And its love for  
The electron.

This goes up the scale of hierarchy,  
Joining the resonating neurons and their networks,  
In the mind of a man and  
A cat.

This was the love I had  
For Schmeigle and  
The Love he had  
For me.

And included the resonating of forces in our social networks  
Called harmonious  
Society.

We call these  
Attractive forces

The Amouroverse

The sub universe of  
All attracting forces.

Schmeigle met there  
In the catverse,  
Descartes' cat,  
Butchered alive for the sake of science.  
They both loved  
Suffering humanity,  
For they had both suffered a lot,  
As we all do  
Before we die.  
Descartes' cruel intent  
Was part of the subuniverse  
Of repelling forces  
Called the *Kalioverse*,  
After the Hindu god Kali.  
The Kalioverse begins with  
The repelling forces  
Such as  
Two protons  
Or two electrons  
And goes up the scale to the  
Love frequency red rage  
That sometimes separates  
Two sentient beings  
And can cause discord  
In our otherwise loving  
And compassionate society.



Kali is a necessary part of  
The Darwinian Algorithm  
Which says  
Vary-Select-Reproduce  
And repeat.  
Kali is select.  
Donald Trump is  
An Evil red source of  
Hate in  
The complexity cusp  
Phase space of our world.  
This graph is  
Red at the bottom,  
Like a pot on a hot stove.  
This causes chaos,  
Which can separate us.  
This is on the X-axis.  
On the Y-Axis is order,  
Crystal Blue at the top,  
Covered by frozen ice.  
A diagonal from the origin is  
The cusp of chaos.  
This is where a healthy rainforest  
Is like a healthy stock market,  
Which turn is like  
A Healthy body, and

Like a Healthy MIND, and  
Like a HEALTHY SOCIETY  
Donald Trump  
Runs our society, with a fountain of ropes of  
***RED RAGE!!***  
Bolsonaro is burning up the rainforest  
For greedy evil men,  
Straight from the Kalioverse  
***Of EVIL IMPULSES!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!***  
Other cruel men run  
Many countries in the world,  
Controlled by evil impulses,  
Such as greed or hate,  
Straight from the Kalioverse,  
Of suffering and dissension.  
Schmeigle and Descartes' cat  
Both saw this mess,  
And felt our pain and suffering  
EVEN THOUGH  
Descartes had  
Murdered this cat,  
Called Freddy.  
He forgave Descartes,  
And channeled a  
Blue signal of love,  
Through quantum mechanical entanglement,

From BIG PHI to

The universe below.

Freddy was a

Cat Jesus.

Schmeigle also saw

Suffering humanity,

And channeled love to me

Via BIG PHI.

Via quantum mechanical entanglement.

They both raced around

Wondering what to do.

They meowed into

The meowoverse.

They worked together and finally told me

To Eject Descartes metaphor of

The universe as dead clock

From the entangled quantum mechanical

Information wave

Of our minds.

This metaphor or memeplex

Had died with the advent of

Quantum mechanics,  
Struck on the head by  
The Heisenberg Uncertainty principle,  
Which says the universe does not run like  
Clicking billiard balls on a  
Table.

Schmeigle's and Freddy's  
Frantic meows were joined by  
Barking Dogs  
Barking away into the  
Roiling Barkverse.

BIG PHI sent me  
This message via quantum mechanical information wave,  
From the entangled information wave  
Running wisely  
In the Universe as large,  
Structured, as a human or cat or dog's mind,  
Capable of love and rage,  
Compassion and separation, and connected to  
Suffering humanity Below.  
Thanks to ketamine,  
I was able to tune to this message  
And receive it. It said.  
The universe is not Broken Clock,

This metaphor has failed us.  
It makes us think everything should be a clock  
Crushing our souls in  
Dead organization.  
It puts the wrong people  
In power, controlled by greed and evil impulses,  
Not by love and compassion.

Install instead a memeplex or metaphor of  
Universe as loving dog or  
CAT!!!

A universe-sized  
Complex Adaptive System  
Loving and Compassionate, and  
Connected to us all.

It has humor and a sense of the absurd,  
And a love for  
Surrealism,

Introduced in 1924 by André Breton,  
After the horrors of World War I.

TO MAKE US STOP!!!

And see what a world without  
Love and Compassion looks like.

Freddy was a loving Jesus,  
Crucified in

One of our sins.

Freddy was also the missing dog

In the movie *Wristcutters*,

Having reincarnated as this dog,

In a harmonized, entangled

QUANTUM MECHANICAL

Information wave

Trying to grow, become wiser, more loving and

Compassionate,

Cleaning our karma,

In this self-aware BIG PHI

Structured like our minds.

Ketamine dropped the scales from my eyes,

Opening the DOORS OF PERCEPTION,

Described by Aldous HUXLEY,

Years ago.

**I HEARD!!!!**

Schmeigle, BIG PHI, and Freddy,

And sent you this message.

Throw away that Broken Clock and

Install the metaphor of

Universe as

Loving CAT or DOG,

Tuned into,  
A loving and compassionate mind.  
LOVE ONE ANOTHER!  
DO UNTO OTHERS AS  
YOU WOULD HAVE THEM DO UNTO YOU

The most important of all religious messages,  
Ignored by DESCARTES and  
Most scientists.

**I AM YOU**  
**AND YOU ARE ME,**  
**LIVING IN A HUGE WEVERSE NOT,**  
**A tiny selfverse**  
**In the sky.**

**WE ARE ALL BIG PHI!!**

I have a cat now  
Called SPIKE EARLY and  
He farts exactly like Schmeigle used to.  
I will see my loving cat  
When I DIE.

## **Attachment and Addiction**

Addiction is the rabid junkyard dog you invite into your living room. As long as you keep doing this, it is hard to maintain a healthy level of healthy attachment relationships.

Addiction is in fact an unhealthy attachment relationship bond that has been hijacked by the surge in dopamine and other neurotransmitters during use of the addicting drug. When you stop using, there is a void that needs to be filled with a healthy social network.

Our brains were evolved to live in small hunter-gatherer communities where we would essentially manage each others' emotional states all day long. Getting a social network is part of recovery, as your reward system heals.

For all of its faults, Alcoholics Anonymous is one option for establishing that social network. It permits you to have contact with people who have solved the problem of "how can I get through the day and have fun without the drug or alcohol I have been using?" The main complaint people have with AA is the perceived cultish atmosphere and the advice to get a higher power. But think about it. When you turn to your higher power, you are activating your attachment system and bonding it to a "large and in charge" attachment figure, helping to heal your insecure attachment.

What better higher power than Big Phi?

Recovery is a skill you practice, not a fact that you learn. You cannot remain isolated and avoidant and recover. You have to connect with other people. We are all part of the same primordial blue goo, the infoverse.

If you have a deactivating attachment pattern, you don't like going to meetings, getting a sponsor, and letting people in. You have learned to be counterdependent and avoid intimacy. As you get more and more stressed out, you mentalize less with others and even your own pain, and before you know it, you are drinking.

If you have hyperactivating or disorganized attachment, you seek one relationship to get all of your emotional needs met from, in an addictive manner. You drive people away because of your emotional neediness, and remain isolated. You seek that one lover that will 'fix' you, and it feels unnatural to seek several friends instead.

Traumatic reactions and schemas are important topics here. The brain is a pattern-recognizing and acting machine. The first time we drive to work along an unfamiliar route, we have to expend a lot of mental energy, check the map, etc. After we do it 10 times, we have an overlearned map or schema that takes over, picks us up at the front



door, and drops us off at work. The reason for this is obvious. No need to solve the same problem over and over, and it is better to have a stored response than having to engage the frontal lobes and make new links in the nervous system. However, sometimes we wake up on the weekend and want to go to the park, and we get captured by the “gotowork” schema, and end up taking a wrong turn. This happens a lot during our lives, sometimes with the attachment schemas we learn early in life, taking over in our later relationships. Sometimes these schemas can trigger relapse with addictions, or are the character flaws that AA talks about working with.

## **PTSD and Schemas**

There was a farmer who was an alcoholic, and went to AA. He said at a meeting that he had come to see his character defects as being similar to the pigs he owned. When he was about to relapse, he stopped keeping up his fences and eventually his neighbors would call and tell him that his pigs were out all over the road. In a similar manner, he would stop going to meetings, stop talking to his sponsor and before he knew it, his character defects would be out all over the place, interfering with his life. The early phase of recovery is “name that pig”.

Jeffrey Young, PhD, developed a very useful extension of cognitive behavior therapy called ‘schema therapy.’ Traditional cognitive behavior therapy (CBT) involves training yourself to recognize cognitive distortions, such as labeling, overgeneralization, etc.. These distortions are triggered when we are depressed and anxious, and leave an emotional residue while being reinforced in our train of thought. Using homework and other techniques, we learn to use correct descriptions of a situation, and unlearn these habits of thought.

Schema therapy deals with cognitive distortions, or ‘schemas,’ that are learned earlier in life, are deeper, and get triggered and stay active, running in the background in our minds, producing afflictive emotions.

Dr. Young developed some questionnaires that allow you to determine which schemas are active. We all have schemas, it is just a question of which ones are active. We might have abandonment schemas, unrelenting standards (perfectionism), defectiveness, or others. You tackle them the same way. First, recognize when they are triggered; second, practice a more accurate assessment, and replace the dysfunctional habits of thought. In his book, *Reinventing Your Life*, Dr. Young has an accessible introduction to this technique.

Post-Traumatic Stress Disorder (PTSD) is another disorder where dysfunctional automatic reactions are important. In PTSD, a severe traumatic stressor produces an emotionally charged memory that is intrusive, tends to reoccur as a flashback, can produce dissociation, and is so emotionally charged it is difficult to complete the thought and extinguish the emotional charge. Often, PTSD occurs along with insecure attachment or attachment trauma. When we have a traumatic stressor, we immediately activate the attachment system, to try to self-soothe and regulate our emotions. If we have an insecure attachment pattern we are probably more susceptible to PTSD. The combination of PTSD and attachment trauma is sometimes called 'complex PTSD'. Often complex PTSD is associated with a disorganized attachment schema, where the individual craves intimacy but also fears it. Sometimes this shows up as 'splitting' and sometimes complex PTSD results in a diagnosis of borderline personality disorder. In working with complex PTSD you have to address the attachment trauma as you simultaneously work on extinguishing the conditioned emotional responses of the trauma.

## **Philosophy of Science and Blue Universe Theory**

Various aspects of Blue Universe Theory have been discussed over the years. Many aspects of this theory are similar to the perspective of traditional religious traditions, especially the mystical forms that consider transcendent states and unity of being. Big Phi is an ecosystem of souls, a 'they', not a 'him', and hopefully less likely to be co-opted and used to control and enslave a population by the ruling class. As the saying goes, "If you meet the Buddha on the road, kill him." Traditional religions can bring solace and comfort, but sometimes at the cost of excluding, denigrating or even killing infidels.

The tension between a mechanical and non-mechanical world view was aptly described in C. P. Snow's article and book *The Twin Cultures*. This described different perspectives of individuals in the sciences and the humanities, two academic cultures that often do not interact. Snow makes note of the benefits of industrialization in terms of increased food and resources from factories that use mechanical means of production, but often at the expense of a dehumanizing culture.

The 'broken clock' model is good for keeping track of things and paying the bills. Every task or activity is given a cost, and accounted for. There is very little room for growth or play, which is supported in the 'playful cat' perspective.

In the German language, there are two words for our English word 'you'. 'Sie' is a business form of 'you,' used when going to the butcher and getting meat. 'Du' is the personal form of 'you,' used with loved ones at home. This captures the difference in

these two cultures. In the academic setting, the sciences are all about a sparse, analytic, bottom-up, reductive perspective. The humanities embrace a synthetic, top-down perspective that is not deterministic or rigid.

Both science and religion have a tendency toward premature closure – assuming that we understand the major questions and only the details need to be filled in.

Seth Lloyd in his book *Programming the Universe* proposes that the universe is a quantum computer. As I am writing this book the first functioning quantum computer was compared to a standard supercomputer, and was vastly more powerful. This happened in Santa Barbara, by a research group with Google and UC Santa Barbara led by John Martinis. Using 53 entangled quantum bits or qubits, “A computation that would take 10,000 years on a classical supercomputer took 200 seconds on our quantum computer,” according to his graduate student.

Professor Iain McGilchrist’s book *The Master and His Emissary* covers the topic of a myopic, left-hemisphere-based style of cognition that has come to dominate our culture at the expense of the more holistic perspective of the right hemisphere. Neuropsychological research discussed in this book characterizes the left hemisphere as having a talent for grasping and manipulating things, either with our right arm or language, and relating to them in a mechanical manner. It is not capable of recognizing the ‘big picture’ that the right hemisphere provides. He discusses the adverse consequences of this imbalance in historical and philosophical terms.

I do not claim to have the expertise to say whether or not quantum entanglement could link us to Big Phi, or whether we should take the events described by near-death researchers as actual descriptions of physical reality. It is more plausible to me that the near-death experience is something other than delirium. I have seen hundreds or possibly thousands of cases of delirium, and it is not characterized by the clarity of thought and sense of reality described by people who have had near-death experiences. Neardeath experiences occur with ketamine, sometimes of striking clarity. For example, one of my patients had a near-death experience under ketamine. He did not believe in reincarnation, but had several sessions where he experienced other lifetimes. In one, he was an old man dying of cancer in a hospital in Seattle sometime between 1958-1962. His body was wracked with pain from the cancer that was killing him. As he died, he rose out of his body, and looked down on his grieving family. He had a tinge of regret for their suffering as they saw him die, and felt he should go back, but got the message (from Big Phi?) that it was his time to go. As he rose through the building, he noticed the dust in the ventilation ductwork on the way.

The fact remains that nobody really knows if we have a life beyond the death of the physical body, or if there is anyone like Big Phi out there, or if there is a

transcendental purpose to our lives. We do know for a fact, based on the last century of scientific knowledge, that the universe is not a clockwork universe, and we are most certainly more than mechanical beings, as are other sentient beings. The most important thing from a skeptic's standpoint is to reject the broken clock model of the universe, because it is a soul-killing and pernicious part of our life narrative that is demonstrably wrong and does damage to our life narrative, this house we live in.

With these thoughts in mind, we turn to another form of science. Complexity science was birthed in the 1980's, when the advent of high-speed computing made it possible to model some of the non-linear dynamical systems that are all around us. Systems function best with a mixture of chaos and order, and we envision what a surrealistic science might look like.

**At the First Meeting  
Of the International Legion  
Of Concerned Surrealistic Scientists**

A Dadaistic poem/realistic suggestion  
For the future of a loving kindness and fun  
type of Scientist.

By Sir DR. Terrence Early, MD

October 8, 2018

On October 7, 2020,

Was the First Meeting

Of the legion of concerned surrealistic scientists.

Sir Dr. Terrence Early MD was there,

Having Knighted himself and the first two soldiers,

With a coat hanger.

Knighting himself first on the last night in 2019 because

No sword was available.

Sir Dr. Early was wearing

A cerulean blue helmet

With a spike on top,

Pointing to BIG PHI above,

The universe-sized,

Quantum Mechanical

Supercomputer,  
Humming away  
At the heart of the universe.  
The spike enabled Sir Dr. Early MD,  
To harmonize with BIG PHI,  
And send and receive integrated information,  
In fairly large packets consisting of gazillabytes of informons  
Of complex information.  
Informons was the term that replaced bits,  
As the phase transition from broken clock model,  
Was replaced by the wise old cat model.  
BIG PHI was  
Connected to all of us,  
Via quantum mechanical entanglement and  
Like us had a heart full of love,  
Tuned to all of us,  
Via the universe of all attractive forces,  
The amouroverse.  
This included loving-kindness,  
A Buddhist notion,  
Also known as *agape*.  
This had been proved to be physically real by fMRI  
In the resonating attachment networks  
Quantum-mechanically harmonized, with  
BIG PHI in the sky, and to all of us.  
The universe of attractive forces including loving kindness,

It started with  
Proton and electron,  
Sink and source Attractors  
In the Complexity Cusp Phase space.  
In our minds,  
Loving-kindness was encoded by the resonant vibrations of  
Neural networks in  
A loving person's brain.  
Big Phi also had  
A dark capacity for **RED RAGE!**  
Tuned to the darker side of emotions,  
Causing separation and suffering.  
We dubbed it  
The kalioverse,  
After the Hindu God,  
The universe of  
Repulsive forces,  
Causing separation and pain.  
At the subatomic level this included  
Proton and proton.  
This ratcheted up the hierarchical ladder of complexity,  
Up to the toxic discord affecting our society,  
Driven by Donald Trump's  
Source attractor of **RED RAGE.**  
However, the kalioverse was  
A necessary ingredient

Of the  
Darwinian Algorithm,  
Which says,  
Variation, Selection, and Reproduction,  
And Repeat,  
Necessary cogs in the wheel of becoming, in  
Our complex universe. Which  
Has a loving *Heart*,  
But a capacity for **HATE!**  
**Just like you and I.**  
With epaulets on his coat,  
The left one inscribed with compassion,  
The right one inscribed with love,  
And ribbons signifying  
Kindness, Sir Dr. Terrence Early MD was there.  
Queen Carla Early was also there,  
On Sir Dr. Early's  
Right hand,  
Because she was an  
Excellent regulator, capable of  
Annealing and healing,  
Sir Dr. Early's chaos.  
She was wearing  
Beautiful Blue pajamas Covered With  
Penguins cavorting everywhere.  
In her right hand was a kitchen sink plunger,



Signifying her bravery in tackling and removing the

Muck! that disturbed the hamony and flow

In our loving household.

She had a much larger scepter from the bathroom,

Another plunger, that she used to tackle the odious jobs

I was too fearful to attempt,

Because she was much braver than I.

She was wearing a pink housecoat with clouds on it,

Signifying that regulation was often necessarily alloyed

With some of the separation from the Kalioverse,

Because sometimes adverse harmonics had to be separated

And SQUELCHED.

Sir James Early was there,

The legion's scribe,

On the left hand,

Scribing on an iPad.

Also in attendance were

Sir George Abney PhD,

The first beknighted soldier,

For the legion of concerned surrealistic scientists.

The second knight,

Was Sir Duncan Thomas,

Having both been

Beknighted last year.

All have such passion for

Science that

Sir Dr. Abney gave the Earlys  
A bag of purple passion fruit, signifying their  
Passionate love for  
The world of science.  
The Lady Jeannine Doyle was  
Beknighted with coat-hanger the next day.  
She wore a coat with an epaulet on the right labeled 'Family'  
And one on the right labeled 'Attachment'.  
She had a ribbon labeled 'Ring of Fire'.  
At the meeting one year later,  
In the conference hall were  
47 meowing cats and  
53 barking dogs,  
Orderly regulators by barks and woofs,  
And chaotic attractors by yips from small dogs like Chihuahuas,  
Generating rather than soothing chaos attractors,  
In the complexity cusp phase space.  
This was all part of the melodic cacophony  
In this musical part of creation.  
Also there were  
53 hissing scientists,  
The first foot soldiers,  
Hissing for their graduate degrees,  
In this legion of concerned, compassionate,  
Surrealistic scientists.  
They had just been inducted and

Had not yet ejected  
The Clock universe memplex  
That made everybody so miserable.  
Sir Drs, Early, Abney, Thomas and Doyle had just discovered that  
The lens of science lacks  
A macroscope capable of  
Seeing the nonlinear dynamical systems  
Necessary for complex order and  
A necessary complement to the microscope of linear dynamical systems  
Sitting right beside  
Gallileo's telescope.  
With only the microscope of linear dynamical systems,  
Realistic scientists misperceived the universe to be  
Like a dead clock or machine  
Devoid of compassion, loving-kindness, or purpose.  
There was much more loving-kindness, compassion and purpose than expected.  
In fact it was all around us, even at the large scale of the universe,  
Where the planets, galaxies, and nebulae  
Were coalescing as complex adaptive systems,  
Growing with the wheel of Darwinian change,  
Vary-select-reproduce, repeat.  
When scientists look through these  
KIND and LOVING  
Macrosopes equipped with  
Compassionate lens enhancement  
And fMRI, they observed this

Resonating, quantum mechanical information wave,  
Never before seen by clock universe,  
Cartesian deterministic linear dynamical systems  
Scientists.

For these BLOCKHEADS, who  
Do standard realistic science are  
UNABLE to SEE and actually blind to  
The waves of

Love, compassion, and kindness in this  
Living Blue UNIVERSE,

With an entangled quantum mechanical super-computer  
**HEART**,

Throbbing away, emitting  
Cerulean blue waves of  
LOVING KINDNESS.

Scientists from the biology subsection had discovered that if  
You debone a cat, you have a disgusting mess of fur and fear,  
With eyeballs and ears on top, looking at you quizzically.

The cat is unable to move because it is too loose,  
Lacking the linear dynamical attractor of the skeleton.

A functioning system needs both limber adaptation with a kernel of chaos, and  
Stiff resolve in the

Linear dynamical spine,  
In order to walk without falling over.

Scientists from the social science section discovered that  
Managerial systems that were too stiff with order

Had a tendency to goose-step into disaster.  
It was not true, as the nearly blind clock universe scientists thought,  
That a perfect system was completely predictable and rigid.  
The report from the medical section,  
Was that realistic scientists had thought that fixing a person  
Was like removing a defective carburetor and replacing it in your car.  
This was because the microscope of realistic science was unable to see the  
Waves of loving-kindness and purpose often missing from patient's lives,  
Because they lacked a macroscope  
Capable of seeing the true nature of the clinical encounter.  
Surprisingly, patients were not like a broken car, and did not actually like  
Being treated like an object,  
That only needed to be punched and probed, taken apart,  
And billed.  
They actually were exactly like the surrealistic scientist Themselves,  
Other sentient beings.  
The most unfortunate outcome, due to a lack of macroscope,  
Was that the realistic scientists often did not have the  
Compassionate lens enhancement,  
Because they had seen too much pain.

Surrealistic scientists from the economics division discovered  
That the universe was not a clock at equilibrium,  
But Dr. Prigogine's dissipative structure far from equilibrium,  
Part of the phase space,  
Where complex order evolves.

If the economy is too hot, a bear market, it needs less chaos and more order.  
When the economy has tried a,  
Shrink to survive solution,  
It needs a stability attractory.  
The economy needs more order and less chaos.  
Tightening the reins works,  
When the Fed increases interest rates, and stabilizes chaotic driven growth.  
Trickle-down economics decidedly does not work,  
For the wealthy will trap almost all of the wealth, and  
Store it in buckets,  
Leaving the middle class thirsty below, unable to spend,  
Further starving the economy of growth.  
In the case of a bull market, or rising market,  
The economy has too much order and too little chaos.  
It needs to adopt the grow-around-the-obstacle strategy,  
Which increases chaos and decreases growth.  
And the Keynesian technique of flooding for growth with cash is correct,  
Since it generates more chaos and heats up the economy,  
Pushing it into the realm of optimization.  
The BLUE universe social scientists discovered that  
The best managerial systems functioned,  
As a loving family with a sometimes stern Carla,  
And a flexible Sir Dr. Terrence Early MD.  
As long as those attractors were  
Not too stiff nor too limp, respectively.  
Scientists from the cognitive science division,

Discovered that the best lives had  
One woofing dog,  
One chaotic cat,  
And at least two good friends,  
All necessary attractors,  
In the complexity cusp phase space.  
Also just enough, but  
Not too much, money.  
And plenty of loving kindness and compassion  
For this mélange stew we call a good life.  
The chaotic pot is now boiling over, and  
The ice cubes are chilling  
In this phase map. This cacophony of voices,  
Cats from the chaotic catverse meowing meows into the  
Meowoverse,  
Regulating Dogs from the Dogverse woofing Barks into the  
Barkverse,  
Foot soldier scientists hissing hisses into the hissoverssse,  
There to remind us of our absurd predicament as suffering humans  
In our absurd human condition,  
Born ignorant, devoid of purpose, with a ? mark as our life sparks out.  
This was why André Breton wrote  
The Surrealist manifesto  
After the horrors of WWI,  
To remind us of our  
Human condition,

Which requires chaos and order to  
Inhabit the zone of optimization in  
The Complexity Chaos phase map.  
For this zone of optimization reflects  
Health in all complex adaptive systems,  
Be it Stock Market, Santa Barbara, Biochemistry,  
Our Brains, our minds, or ourselves.  
With appropriate attachment harmonics,  
We, our culture, and the ecosystem and the world can heal  
Into this beautiful cerulean blue universe  
We all live in.  
We might need a little fine-tuning with  
Nonlinear Dynamical Psychiatry.

If so, call me,  
Sir Dr. Terrence Early, MD,  
Psychiatrist and first surrealistic scientist.  
Avoid harnessing too orderly science and too orderly organizations which should  
Behave not like a broken Cartesian Clock but like my  
Now living, recently dead,  
Loving Cat Schmeigle,  
Meowing out the solution in the meowing catverse,  
Straight from his furry little loving heart, and  
BIG PHI's large throbbing **HEART!**  
Into the sink of your own heart,  
In this beautiful blue universe



WE LIVE IN. !!!!!!!!!!!??!!!!!!

## **The Ketamine Psychedelic Experience**

In 2008, I visited Dr. Eli Kolp in Tampa, Florida, to learn how to do intramuscular ketamine in an outpatient setting, and had my first ketamine experience.

I had done research at the University of Texas Medical Branch in Galveston demonstrating that high dose sevoflurane therapy producing an EEG pattern of suppressed activity was at least as effective as electroconvulsive therapy (ECT) in treating severe, refractory depression. This replicated the work of an Austrian psychiatrist, Dr. Gerhard Langer, demonstrating that high doses of another anesthetic agent, isoflurane, could treat severe, refractory depression as well as ECT. I was excited about this treatment, which could treat otherwise untreatable depressed patients, but found it was impossible to disseminate this treatment or even get my results past skeptical reviewers, who were mostly ECT practitioners. A group at the University of Utah has recently replicated Langer's results with isoflurane and another agent, propofol, but, like me, has found it impossible to get the treatment disseminated into practice.

I had spent a year at Baylor, directing the inpatient psychiatry program at Methodist Hospital in Houston. Dr. Carlos Zarate's results with ketamine therapy for refractory depression came out in 2006, and I collaborated with Dr. Everett Edmundson in treating a series of patients who had pain and psychiatric illness with ketamine, which was a recognized treatment for refractory pain. I saw remarkable results with the depression and PTSD that these patients had, and realized that ketamine was a safe anesthetic agent that a psychiatrist could provide in an outpatient setting for depression.

Despite these results, I could not interest any of my peers in trying to find a way to provide ketamine for patients. I realized that the main obstacles to getting ketamine out there would be red tape and financing, which I had already encountered with high-dose sevoflurane therapy. I left academia and moved to Santa Barbara with a goal of overcoming the practical obstacles to making ketamine available for the countless people who needed it.

I joined the staff at Cottage Hospital in Santa Barbara, and mentioned that I had a goal of finding a way to provide ketamine. Cottage had a protocol on file from the palliative care doctors to provide ketamine for patients with chronic pain. When I mentioned to the director of pharmacy that I intended to provide ketamine for depression, his words were "I am pretty sure we can't do that here," even though they had provided ketamine on the pediatric service next door for a child with toe pain. Ketamine can be used off-label for any indication. Many if not most of the medicines we prescribe are

used off-label, meaning that that FDA has not specifically ruled that the drug is used for this indication. For example, selective serotonin reuptake inhibitors (SSRIs) are the recognized pharmacological treatment for obsessive compulsive disorder, but most of them do not have an FDA indication for OCD, only depression.

Those of us who have tried to provide innovative treatments like ketamine in any institutional setting have generally encountered stiff opposition. Who is going to pay for it, when there is no agent to broker a deal with the insurance company to provide it? Insurance companies are in the business of limiting, not extending, benefits.

At any rate, when I went to visit Dr. Kolp I had experienced a decade of trying to get innovative anesthetic therapies out there for psychiatrists, had left academia and struggled on to try to succeed in this goal.

Dr. Kolp is a Russian psychiatrist who was familiar with ketamine in his former career as a surgeon in Russia. Like me, he had struggled for decades to provide ketamine psychedelic therapy for addiction. Another Russian psychiatrist, Dr. Evgeny Krupitsky, had demonstrated remarkable benefit for ketamine in alcoholism and opiate addiction. No American psychiatrists have yet attempted to replicate these robust results, despite the large beneficial effect. Like me, Dr. Kolp had left academia after running into roadblock after roadblock, and set up an outpatient program called Eleusas to provide ketamine for addiction. He had a ten-year experience doing this. He is a true pioneer and mentor who prevailed, working alone on this problem for many years.

I asked him to give me an IM ketamine treatment so I could understand what my patients were experiencing. He gave me 1.5 mg/kg of ketamine IM, and I had the most profound mystical experience of my entire life, one that has given me lessons I continue to turn to every day in my life and practice.

I went through the ‘ego dissolving’ state, where I lost track of who or where I was, of having a body, of having a personal history. I experienced being a speck of awareness on a roiling sea of consciousness. I have a vision of a peninsula covered by a network of interconnected lights, and ketamine told me that each light was a sentient being either alive or previously alive. I thought about the suffering I had seen, which is in all of our lives, and the connections between the lights told me that the purpose of this suffering was to force us to form bonds with each other, to become compassionate and help each other. Ten months later, I realized that the peninsula was the state of Florida, where I was at that moment. Then, I experienced being a wave on an endless, primordial ocean, surrounded by other waves that were other beings, but also one, slowly moving to the shore. When we hit the shore, ketamine told me that we would die and return to the center of the ocean, beginning again the journey to the shore, carrying and working on

our burden of karma. It was beautiful, profound, and terrifying, an awe-inducing experience.

During ego dissolution, the ‘default mode network’ of our brain is inhibited. This is a network of regions in the midline frontal and posterior cingulate cortex that is involved in mentalizing, constructing a sense of self and understanding the selves of others. I now believe that this network serves as a blinder, which prevents us from directly perceiving the nature of reality – that we truly all are one, I am you and you are me. That we are all part of the ‘blue goo’, the primordial information wave that was squished out at the start of the Big Bang. The only boat we have is the one we are all in, and we had better not sink it. Other sentient beings are not machines, to be owned, manipulated, and controlled. They are beings like us, capable of love, compassion, and pain, just like us. The universe is not a clock, it is more similar to a playful old wise cat, capable of love and compassion (the amouverse), with a sense of beauty, a love for complex order, and a sense of the absurd. Also claws on occasion (the kalioverse). I came to realize this mystical insight could potentially help others.

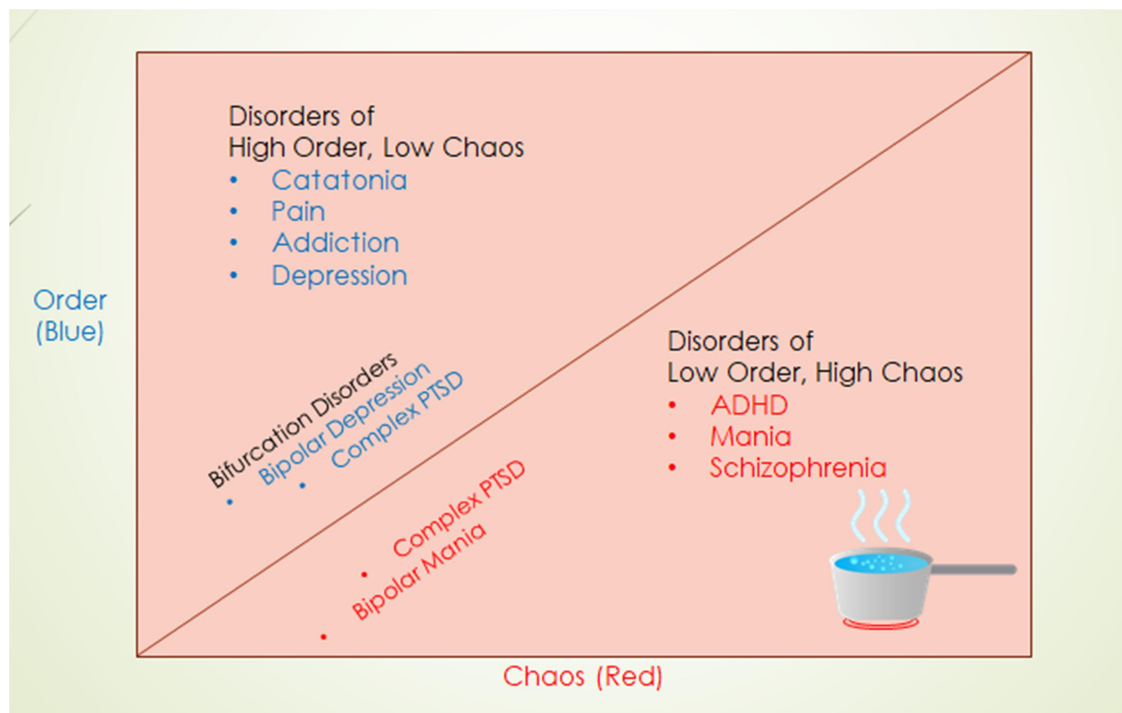
When you believe that there is something ‘large and in charge’ out there, that loves you and understands your suffering, you turn to it every day, and it activates your attachment system. If you grew up with an insecure attachment schema, this belief gradually moves your attachment schema into the ‘secure’ category. I think this is probably one reason why people who describe themselves as being spiritual and believing in God have much greater improvement in depression treatment and are resilient.

There are severe limitations of faith. You might believe that the *other* is evil, in need of a jihad or inquisition. Faith has a tendency to be co-opted by the ruling class, and used to enslave a populace. You have to also be a skeptic, and think for yourself. Loving others as you would have them love you is the best golden rule. And by others, we mean *others*. A regular practice of compassion for others and one’s self is a key ingredient in getting better.

But skepticism has its limitations as well, if it forces you to have premature closure and commit to a belief in a dead, mechanical purposeless universe, when there is a compelling reason to at least keep an open mind. The problem is that the ‘broken clock’ model is simple, and we have been turning to it all of our lives. You have to practice something that is more complex, has more information, and gives you room for compassion, purpose, beauty, and love. In the mind you live in, you have to have a soul. And a warm house to put it in. No rabid dogs, and stop scrawling graffiti on the walls. Practice, practice, practice.

## Regulators and Fountains of Chaos

Some people are natural-born regulators, and are attracted to other people who are fountains of chaos. Regulators use the ‘selection’ aspect of the Darwinian algorithm to regulate. This is a sink attractor in the complexity cusp phase space. OCD and compulsive personality disorder may be an associated psychiatric diagnosis. This is sometimes painful, as any surgical operation can be. But limiting grandiose plans and associated spending sprees is a necessary function, otherwise we have too many hare-brained schemes and no money.



Chaos is a source attractor in the complexity cusp phase space. Psychiatric disorders such as mania, ADHD, and histrionic personality disorder may be associated with fountains of chaos. But people just vary on the order/chaos spectrum, and can at different times take the role of regulator or fountain of chaos. In the older psychiatric literature, this topic used to be discussed under the heading of the “hysteric/obsessional dyad.”

## Calibrating the Balance Between Skepticism and Faith

Those of you who have followed a tradition of faith and spirituality may be more comfortable with this perspective. I am naturally a skeptic and came to my ex-Catholicism after a lot of thought. I have had a lot of reservations about faith, which I still have. If anyone tells you to hate someone else, or kill them, it is a good sign that your faith is misdirected. We all have our individual path to spirituality, which in my mind involves a calibrated amount of faith and skepticism. Extreme faith and extreme skepticism (also known as solipsism) are both fallible.

Scientists have a provisional commitment to facts. Some elements of science, such as the theory of evolution, have such overwhelming evidence in their favor that this is close to complete faith. Any time someone has complete faith in a belief, I worry that the belief is wrong and has been co-opted by some power structure to further control and enslave the masses. That is just my humble opinion.

In my role as a psychiatrist doing ketamine psychedelic therapy for treatment-resistant psychiatric illness, I have had patients tell me about profound, moving, spiritual experiences, and I have had some profound experiences under ketamine as well. It is not appropriate for me to tell a person to follow a particular religious tradition, only to tell them there is a spiritual dimension to life and healing that we all individually have to find for ourselves. My best advice is to keep your skeptical mind working, and if your path tells you to hurt or hate anyone, you have taken a wrong turn. There are many paths, and they all lead to compassion and some version of the golden rule.

Whether or not you believe in Big Phi and the model I have been discussing, I encourage you to question your belief in the broken clock universe. I think at the very least, it might be helpful to entertain thoughts about something like Big Phi as a meditation exercise, in the reasonable hope that it might help improve your peace of mind. As in metta meditation, you can call to mind several times a day an image of whatever higher power you prefer.

## **Dr. Eben Alexander's Story**

Dr. Eben Alexander graduated from Duke Medical School two years earlier than me, and did his neurosurgery residency there. I met him briefly during this time. After completing his residency, he became an academic neurosurgeon and developed techniques for doing MRI-guided neurosurgery.

In 2007, he had a bout with bacterial meningitis that put him into a coma for a week. He was given a 2% chance of living based on his brain scan data, and a 0% chance of regaining his cognitive function. Instead, he did survive and completely recovered,

and had an astounding story to tell about his prolonged near-death experience. He wrote about it in his first book, *Proof of Heaven*. In his most recent book, *Living in a Mindful Universe*, he discusses the changes in outlook that resulted from this experience, and how to harness these insights in our everyday life. The picture that emerged was similar in some respects to that portrayed by the world's religions. A place of intense beauty and loving kindness, an entity similar to God (who I would call Big Phi). But in other respects his experience was substantially different, and importantly pointed to the possibility of actually studying spirituality from a scientific perspective.

Dr. Alexander is a brilliant scientist with a grasp of quantum mechanics and philosophy as well as neuroscience. In *Living in a Mindful World*, he discusses the information supporting the reality of nonlocal consciousness. This includes studies of near-death experiences, children who have verifiable memories of previous lifetimes, psychic phenomena such as remote viewing and psychokinesis, and studies in quantum mechanics. His book is a good place to start with your skeptical mind. Make your own decision about the validity of this perspective, which tells us that the materialist ideology of modern science is fatally flawed, and we are on the verge of developing a new scientific approach to spirituality. Dr. Alexander discusses the emerging viewpoint that the brain does not produce consciousness, like the liver secretes bile. Instead, the brain *filters* or restricts consciousness from a primordial mind that I would call Big Phi.

## **Healthy Brain, Healthy Mind: Medical Co-Morbidity in Treatment-Resistant Psychiatric Illness**

As many as 30% of patients with mood disorders may fail to respond to at least three adequate antidepressant trials and become classified as having a ‘treatment resistant depression’ (TRD). Often, these patients have been ill for over a year, and have failed many more than three antidepressant trials.

There are a few medical disorders that can be occult or hidden, and persist for a long time, interfering with antidepressant response. Patients suffering these occult medical disorders differ from most patients reported in the internal medicine literature in that their primary problem is a treatment resistant mood disorder, which is complicated by a medical disorder. Most research in the internal medicine literature involve patients where the medical disorder is primary and the mood disorder, if present, is usually not severely treatment resistant. Most research in psychiatric literature focuses on the mood disorder alone. Consequently, sometimes different conclusions are reached in these two bodies of literature concerning what constitutes adequate treatment.

As a general rule of thumb, it is important to optimize treatment rather than treat to a lower level of response. This is particularly important in the endocrine literature, which often does not look at psychiatric endpoints of treatment and does not involve patients with primary treatment resistant mood disorders. Because of this, the psychiatrist has to be informed about this literature and not rely entirely on the internal medicine specialists to treat the medical comorbidity. This article concerns medical disorders that can interfere with treatment response in mood disorders, and can remain hidden for a considerable length of time.

All of the psychotherapy in the world will likely not work if your brain is not working because you have a condition like sleep apnea or hypothyroidism that is interfering with brain function. The brain is like a canary in a mineshaft, and the first sign of a medical problem is often psychiatric occurring long before other manifestations of the illness become prominent. There are several disorders that can be present, under the radar, for decades, that might interfere enough with brain function but remain undiagnosed. This is not an exhaustive list, just my own observations based on 35 years of experience and the literature.

### **Sleep Disorders**

The first thing I look at is sleep. Anything that interferes with getting the deep stages of sleep and rapid eye movement or REM sleep can be a problem. During deep sleep, or slow wave sleep, there is a surge of parasympathetic activity that helps the brain recover from the sympathetic activity triggered by stress. There is a surge in growth hormone, which helps with formation of new synapses. Emotional memory is consolidated. The brain's lymphatic system, the glymphatic system, takes out the cellular debris and trash. A lot of important things happen during deep restful sleep and if you don't get it, you are at risk of depression, anxiety, potentially even psychosis.

*Sleep apnea* is a common cause of treatment resistance. This can be treated by continuous positive airway pressure (CPAP), sometimes by a dental appliance, or even surgery. Sleep apnea is an insidious thing, because you usually don't wake up when your throat closes down and causes the apnea. Sometimes it is a central apnea, where the brain systems involved in regulating respiration don't function. Sometimes a similar condition, upper airway resistance syndrome, is present. It absolutely, positively has to be treated to remission, no excuses. Sometimes you have to pester the sleep doc to readjust the mask, use night-time sedatives, and so on, to get good sleep for the patient. The sleep doctors are often geared to do the sleep study and say 'bye-bye'.

*Restless legs* and *periodic limb movements* of sleep are also common. You feel a creepy sensation when you lie down, have to rub your legs or get up to get comfortable. Sometimes it just occurs at night, with movements that disrupt deep sleep. Low iron brings it out, so if you have a heavy period or surgery you might get it. If you have problems getting your iron levels up with oral medicine, sometimes an iron infusion can help. You need to have a ferritin level of at least 60.

*Circadian phase shift sleep disorders* refer to problems with your brain's sleep clock, the suprachiasmatic nucleus, which tells the brain when it is time to sleep and when to wake up. Sometimes these can be a persisting problem following a traumatic brain injury, or it can happen when you are working swing shifts. A sleep specialist can help you regulate this.

*Narcolepsy* is a rarer condition, where there are sleep attacks and often periods of reduced muscle tone called cataplexy. This happens when there is an autoimmune process that damages the orexin neurons that keep the barrier between sleep and wakefulness. Some medicines will decrease daytime sleepiness, but you really need something to help increase slow wave sleep. Gamma hydroxybutyrate is the recognized treatment for this.

Severe *post-traumatic stress disorder* can interfere with sleep and be hard to treat. Prazosin (Minipress) is helpful with this. There is a risk of low blood pressure with the



first dose, but then you can gradually increase it, going as high as 15 or even 20 mg if needed. It reduces the autonomic arousal during nightmares and sleep.

Finally, giving yourself enough time to sleep, avoidance of blue light (such as those on electronic devices), and good sleep hygiene are all necessary. I frequently refer patients with chronic insomnia to a sleep specialist for overnight sleep studies and consultation. Good sleep is key.

## **Methylation Cycle Abnormalities**

The methylation cycle is a biochemical pathway that has a role in the manufacture of neurotransmitters. Several vitamins and metabolites implicated in depression, such as vitamins B12 and B6, folic acid, and SAM-e, are involved in this cycle. Some people have variants of some of the enzymes involved in this pathway, such as the MTHFR enzyme, which slow the pathway down and cause decreased neurotransmitter production as well as an increase in an amino acid called homocysteine. This can be treated with Deplin (L-methylfolate calcium) at 15 mg per day, or Enlyte, which has 7.5 mg of magnesium methylfolate and 2.5 mg folinic acid.

An extended analysis of multiple enzymes within the methylation cycle can be done by using a genetics profile, such as 23andMe, and interrogating the raw data file with online programs such as Genetic Genie, Prometheus, or Livewello. In Genetic Genie, the methylation profile gives you information about MTHFR as well as other variants of enzymes in the methylation cycle. This is a wealth of information, and we are just at the start of beginning to understand and utilize it. Nutritional supplements that target enzymes in the methylation cycle can be used to compensate for the genetic variants, which may slow down or speed up the function of the enzymes. Interested parties are referred to Amy Yasko PhD, *Feel Good Nutrigenomics* for more information.

Deficiency of nutrients such as cobalamin (B12), folic acid (B9), or pyridoxine (B6) can interfere with methylation cycle function. B12 deficiency can compromise neuropsychiatric function without causing macrocytic anemia or neuropathy. Strict vegan diets are associated with a high rate of cobalamin deficiency, since the vegetarian sources of B12 are not biologically active. This may result in a so-called ‘functional B12 deficiency’, where the B12 assay is in the normal range, but the patient has low B12, as indicated by high homocysteine and/or methylmalonic acid levels.

## **Cerebral Folate Deficiency**

More recently, several studies have shown that some patients have difficulty transporting folic acid across the blood-brain barrier. This gives rise to methylation cycle dysfunction in the brain, but not elsewhere.

In 2005, Dr. V.T. Ramaekers described cerebral folate deficiency "as any neuropsychiatric disorder involving problems getting enough folate into the brain." This was initially described in infants with severe neurological illness, many of whom responded to high dose of folinic acid.

This kind of deficiency is almost always due to antibodies to the main transport pathway, the folate receptor alpha. A test, the folate receptor antibody test or FRAT, is commercially available now through a company called Iliad Neurosciences for \$250. Contact information is Dr. Sri Ganeshan MD, (917) 907-2404, email [sganeshan@iliadneuro.com](mailto:sganeshan@iliadneuro.com). Kits can be ordered at [www.iliadneuro.com](http://www.iliadneuro.com). This test will show the presence of blocking or binding antibodies to the folate receptor alpha. The presence of soluble folate receptor is taken as a positive test.

There are three main forms of folic acid – regular folate or folic acid, folinic acid, and methylfolate. When the brain's main mechanism for folate transport, the folate receptor alpha, is blocked, regular folic acid or folate may not get into the brain. Folinic acid can enter if used at a higher dose, using the low affinity folate transporter. Methylfolate can also get in if used in a high enough dose.

Two studies have demonstrated that patients with treatment-resistant depression (TRD) have about a 40% chance of having cerebral folate deficiency (CFD). CFD has also been reported in 85% of patients with treatment resistant schizophrenia and up to 75 % of patients with autism.

In 2013, Dr. Richard Frye, a child neurologist, studied 93 patients with autism and found that 75.3% had cerebral folate deficiency. In addition to CSF studies, he found that the patients who had cerebral folate deficiency had antibodies to the folate receptor alpha. Dr. Frye's results have been replicated at least a couple of times, both the finding of cerebral folate deficiency and the response to high-dose folinic acid.

In 2014, Dr. Ramaekers and his colleagues measured cerebral folate and FRAT in 18 patients with treatment resistant schizophrenia and found that 15 patients had cerebral folate deficiency. Eight of these patients were treated with high-dose folinic acid, and 7 responded. One was able to get off antipsychotic medications and became free of psychosis.

V.T. Ramaekers reported that 9/16 (56%) of patients with TRD had a positive FRAT. Treatment data was not provided, and this finding was mentioned briefly within the context of an article discussing the use of folinic acid for neuropsychiatric illness. Dr. Ramaekers has also presented data demonstrating that cow, goat, and camel milk has an antigen that stimulates antibodies to the folate receptor alpha. Eliminating animal milk from the diet reduces the titer of the antibodies.

In 2017, Dr. Lisa Pan published on metabolomic abnormalities in 33 patients with treatment resistant unipolar depression. Surprisingly, 12/33 (36%) of these patients had cerebral folate deficiency demonstrated by lumbar puncture, and 10/12 had some improvement with high-dose folinic acid. She did not measure FRAT results. In an extended analysis that she discusses on a Youtube video, 12/50 (38%) of the TRD patients had cerebral folate deficiency.

Although the results with CFD in mood disorders is limited, taken within the context of the other findings in autism (75.3% positive FRAT) and schizophrenia (83%), it seems highly likely that a substantial minority of patients with treatment resistant depression might have cerebral folate deficiency as a factor.

Normally, the concentration of folic acid in the brain is 1.5 times the serum level. According to Dr. Sri Ganeshan, the medical director of Iliad Neurosciences, the company that makes the FRAT, the rate of false positive FRAT for the blocking antibody is 1.4%, with 2.7% false negatives. The rate of false positives for the binding antibody was 1.4% and false negatives 0%.

In normal control persons not screened for neuropsychiatric disorders, the rate of positive FRAT has been below 2% in children less than age 16, 4-7% of healthy women in Spain, 9-13% of healthy people in Ireland, and 10-15% in US normals. One of the criticisms of the studies in normals is that most were not screened for neuropsychiatric disease. At this point we do not know what the rate of positive FRAT is in non-treatment resistant depression, attention deficit disorder, or most other psychiatric disorders. In one study of children with autism in Ashkenazic Jews, Berrocal-Zaragoza found that children had a rate of positive FRAT of 60-65% but family members also had a high rate of positive FRAT. Unaffected siblings had a rate of 75%, fathers had a rate of 69%, and mothers had a rate of 59%, and controls without autism had a rate of 29%. This suggests that family members of individuals with autism should be routinely screened for cerebral folate deficiency if they are seen for any psychiatric disorder.

Folinic acid has been chosen to treat patients in the above studies once a positive FRAT has been found, or a lumbar puncture has demonstrated cerebral folate deficiency. Folinic acid is transported into the brain using the reduced affinity folate carrier, so a higher dose must be used, and typically doses of 0.5-2 mg/kg/day have been used.

Prescription L-folinic acid is available under the trade name Leucovorin at doses of up to 25 mg capsules. Rarely, anxiety and nausea has been reported online as a “hypermethylation” symptom early on. Methylfolate also crosses the blood-brain barrier, and has been shown at doses of 15 mg (but not 7.5 mg) per day to have a substantial antidepressant effect in individuals not tested for cerebral folate deficiency. It is not known what dose of methylfolate might be needed to treat cerebral folate deficiency, but

the usual 15 mg dose is probably too low (Drs. Sri Ganeshan and Richard Frye, personal communication).

Insurance coverage for Leucovorin is uncertain at this point. Compounded L-folinic acid is available from Park Compounding Pharmacy, 9257 Research Drive, Irvine, California, 92618. The price for liquid and capsules is \$85 for less than 25 mg per day for a month's supply, and \$95 for more than 25 mg per day. Much of the data has been published in children, and adults may get into the range of 50 mg orally twice a day or more, based on doses of up to 2 mg/kg/day. In cases where patients cannot afford the FRAT, it is reasonable to empirically try high-dose folinic acid. The quandary is how long to try it, and what dose to get to. One strategy has been to start with a low dose of folinic acid for a couple of weeks, then go to Leucovorin 5 mg orally twice a day for a couple of weeks, 10 mg twice a day for a couple of weeks, and 20 mg twice a day after for a trial of at least 6 months. The Kirkman Supplements version has 0.4 mg folinic acid in each capsule, so three capsules twice a day gives a total of 2.4 mg per day. Enlyte has 2.5 mg of folinic acid, and 7.5 mg of magnesium methylfolate per capsule, which is said to have twice the bioavailability of calcium methylfolate seen in Deplin. Regular folic acid should not be used.

High-dose folinic acid has a lot of safety data, since it is primarily used as a rescue treatment for a form of cancer chemotherapy. It also might be more likely to have an effect on biochemical pathways involved in neurotransmitter synthesis. Results may be seen in a short time as the biochemical abnormality is corrected, or may take up to three years according to Dr. Ramaekers, perhaps because of regrowth of neurons as the brain recovers. He has studied a severely ill population of infants who had antibody exposure in utero, and has stated that results can take up to three years. Dr. Ganeshan states that effects are generally seen within 2-4 weeks with patient who have the blocking antibodies, but may take up to 7-8 months with patients who have the binding antibodies. Sometimes the assay cannot be done because of the presence of soluble folate receptor. This is taken as a positive test, since normally the folate receptor alpha is attached to cells in the choroid plexus.

These are very new findings, and much more work needs to be done. The treatments are benign and appear to be free of major side effects, so it seems reasonable to begin to try to put these important findings into use.

## **Magnesium Deficiency**

Magnesium occurs inside cells and in the bone in the body, and it is possible to have a magnesium deficiency but still have normal serum (blood) magnesium levels.

Testing for RBC (red blood cell) magnesium may have a higher yield at detecting magnesium deficiency, but no method is perfect. Up to 45% of the population is estimated to have magnesium deficiency.

Magnesium deficiency is well known to cause depression and anxiety in addition to muscle cramps and seizures. Most forms of magnesium supplementation are not well absorbed and tend to cause diarrhea. One strategy is to supplement all patients with treatment resistant depression with magnesium, with the idea being that having a high normal magnesium level may be more likely to be associated with remission than a low normal magnesium level.

Patients with chronic renal failure should not be supplemented with magnesium. Magnesium threonate is a salt of magnesium with the amino acid threonic acid. The threonic acid chelates the magnesium ion and results in good penetration into the brain. Magnesium glycinate is another option at 400 mg per day.

## **Zinc Deficiency**

Zinc deficiency is often seen with eating disorders. Sometimes this occurs with restricted diets, but I have seen it occur in people who have normal diets. Zinc and copper tend to occur in a reciprocal relationship. Low zinc is associated with high copper and so forth. High copper and low ceruloplasmin is a sign of Wilson's disease, a heritable disorder where copper is deposited in the brain or liver that can cause a movement disorder and psychiatric symptoms. Zinc supplementation may be necessary for patients with psychiatric illness who have low copper.

## **Endocrine Disorders**

Hypothyroidism, even when the thyroid indices are in the high normal range, has been shown repeatedly to interfere with antidepressant response. Internists and endocrinologists do not read the psychiatric literature and will frequently tell patients their thyroid is okay when it is not optimized.

There are several thyroid tests to obtain. TSH is the pituitary hormone that is elevated when the thyroid gland is low. TSH should be less than 2. T4 and T3 are the two thyroid hormones. There is controversy about whether or not people can have symptoms with a normal TSH and T4 but low T3. I have seen a patient remit from a couple of decades of depression when I added T3 to her regimen. The literature that led endocrinologists to downplay the importance of T3 was funded by the makers of T4 medication and the studies used a very low dose of T3, which is the more active thyroid hormone. To make matters more complicated, about 10 % of the population has an enzyme variant that is slower at converting T4 to T3, and the transport protein,

transthyretin, that gets thyroid hormone across the blood-brain barrier into the brain, is lower in depression.

The adrenal cortex is even more complicated than the thyroid. Steroid hormones like prednisone can cause a secondary (pituitary) hypothyroidism that can be persistent and a factor in depression treatment resistance and chronic fatigue. Borderline adrenal insufficiency can be hard to diagnose and treat. Endocrinologists don't like the term 'adrenal fatigue,' which functional medicine docs diagnose all the time. I suspect chronic stress can cause mild secondary adrenal insufficiency. This can also be seen following PTSD, according to Rachel Yehuda. Secondary adrenal insufficiency would be shown by a low AM cortisol (morning cortisol level), low DHEA sulfate, and low 24-hour urine for free cortisol. When all three are in the direction of low I strongly suspect adrenal insufficiency as a factor. What to do about it is another challenge. Some doctors will try compounded low-dose cortisone, but often this does not work. Adrenal insufficiency can be a persistent cause of chronic fatigue and depression. In cases of documented primary or secondary adrenal insufficiency, endocrinologists have a tendency to undertreat, exposing the patient to lower quality of life and depression. There is an algorithm for weight-based dosing that is probably a better strategy. Overdosing has its risks as well.

Diabetes is associated with depression, both due to complications but also as an endocrine disease that can cause magnesium deficiency. You have to be cautious of renal failure, but magnesium threonate or glycinate may be a good supplement to use in depressed patients with diabetes.

Sex hormones are a complicated topic, and unfortunately their effects on psychiatric symptoms are usually not included in this debate. There is no doubt that estrogen, progesterone, and testosterone can have effects on mood and anxiety. Deciphering this relationship is complicated. Sex hormones are mostly bound to something called sex hormone binding globulin, and levels of this protein may change, so the free hormone level is the relevant measure. To my reading of the literature, estrogen tends to have an antidepressant effect, and progesterone can prevent this during the perimenopausal period. (The perimenopausal period is the time when the period begins to have changes, leading up to menopause, when periods stop.) I have seen patients with very severe premenstrual dysphoric disorder who have had to be treated with Lupron after everything else failed. This medication suppresses the gonadotropins (sex hormones). Sometimes estrogen and progesterone is added back in measured amounts. So called bioidentical hormone therapy can sometimes have a beneficial effect on mood, particularly during perimenopause, when depression becomes more common.

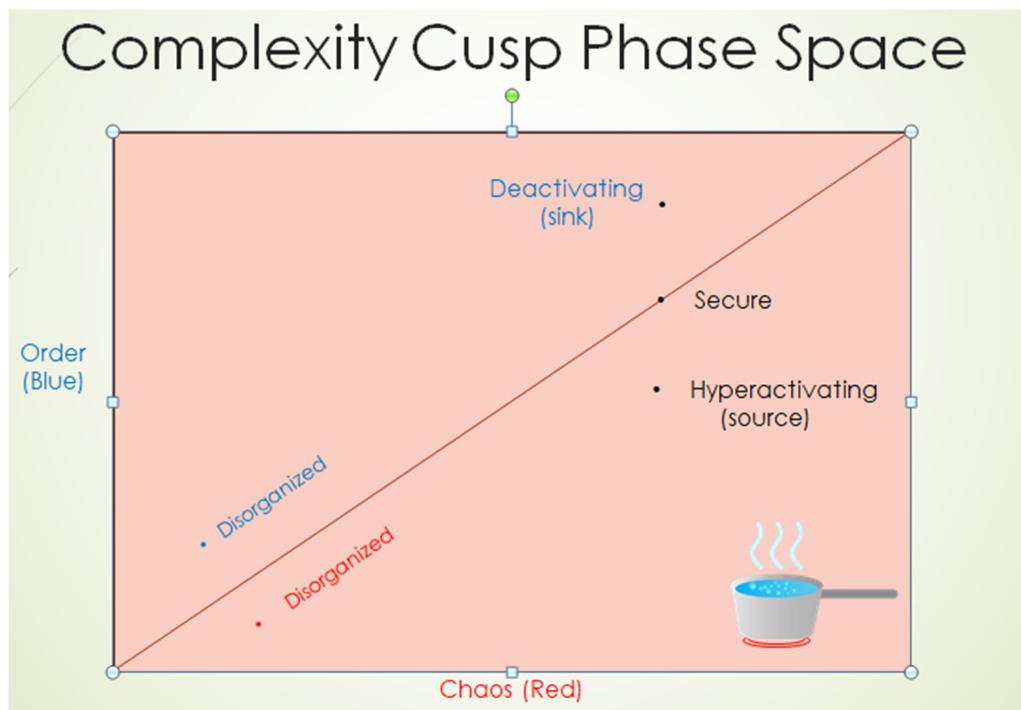
Testosterone deficiency can cause sexual dysfunction and depression in males, and inhibited sexual desire in both males and females. Elevated prolactin can cause inhibited

sexual desire. In older males, testosterone can be beneficial, though less reliably beneficial on sexual dysfunction than in younger males. I have seen patients referred to me with treatment resistant depression who turned out to have hypogonadism (low testosterone) and improved once the endocrinologist finally got their testosterone close to the range it should be in. Most internists and endocrinologists will tend to undertreat with testosterone replacement therapy, since they do not pay attention to the psychiatric endpoint of treatment, which is probably in the upper quartile of the normal range for testosterone.

## Complexity and the Resilient Mind

I am not a complexity scientist but I play one for the purposes of this book. In the following, I will cover some aspects of how a person can have a resilient mind from the perspective of complexity theory.

In the complexity cusp phase space, chaos is on the X-axis and order is on the y-axis. There is a zone of optimization in the middle, where there is enough order for forms to evolve, and enough chaos for them to change, producing harmonious complex order.



This applies across complex adaptive systems, whether it is the stock market, a rainforest, or your mind. In the book *Robustness and Evolvability in Living Systems*, Dr. Andreas Wagner discusses the factors associated with robustness, which we call 'resilience' in psychiatry. One factor associated with robustness is diversity. In the Amazon rainforest, there is an astonishing diversity of animals, plants, insects, fungi, and so forth. When a drought comes along, it might wipe out a species, but there are many others to occupy that niche. Until the developers come along and burn the rainforest. Then, at the next drought, everything dies, like the Dust Bowl in our history, and for similar reasons.



When a complex adaptive system faces an obstacle to the smooth flow of resources, one strategy is ‘shrink to survive’. With depression, we see this on the anatomical level and also on the behavioral level. There is a stress-related glutamate overdrive in the brain, and the spines on spiny neurons retract within the cell body, to protect the neuron from excitotoxicity. (Excitotoxicity is the pathological process by which neurons are damaged and killed by the overactivations of receptors .) There is a reduction in synaptic density, and the mind becomes stuck in the ‘too much order, too little chaos’ zone. The social network shrinks, and behavioral diversity decreases. The mind becomes overly sensitive to the cost of various actions, and we become isolated and stop having fun.

Then something like ketamine comes along, puts a pinch of chaos into our brain/mind, and we flourish again for a while.

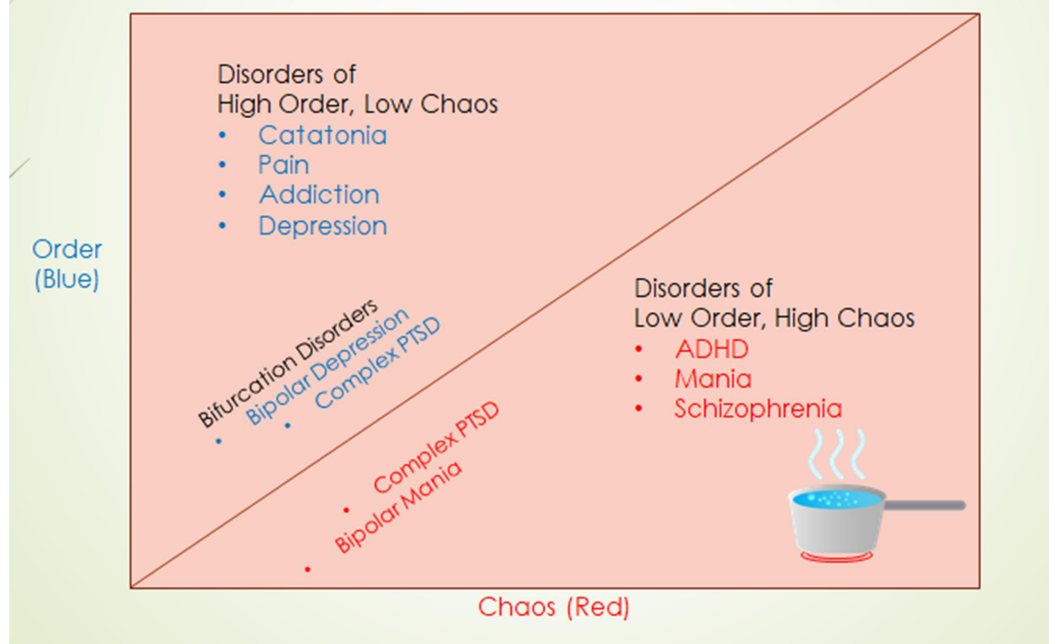
Sometimes the ‘shrink to survive’ strategy doesn’t work, and the complex system will pursue a ‘grow around the obstacle’ strategy. We shift to more chaos, less order, and fall into or below the optimization zone. Our mood normalizes, or, if we have too much chaos, we become manic.

Recovery occurs when we have just enough order and enough chaos to get into the flow of life.

## **Nonlinear Dynamical Psychiatry**

Nonlinear means that some of the parts are mathematically chaotic and unpredictable, not clock-like. Dynamical means changing over time. There are disorders of too much order/too little chaos and disorders of too little order/too much chaos, and bifurcation disorders, where there is a spike in chaos and a spike in order. Depression is a disorder of too much order, too little chaos. Sometimes depression becomes extremely severe, and we have catatonia, even more imbalances in the order/chaos equation. Addictions and pain are disorders of too much order/too little chaos. Addiction and pain are strong attractors in the complexity cusp phase space, and the mind becomes too stiff, contracting around this contractor. There might be a bifurcation disorder component if panic is triggered, and then we have a flurry of escape behavior. OCD also lives in the range of too much order/too little chaos, for obvious reasons.

# Psychiatric Diagnosis



Disorders of too little order/too much chaos include schizophrenia, mania, attention deficit disorder, perhaps hoarding. The kernel of chaos can result in surrealistic psychotic symptoms in mood disorders.

Complex PTSD is a bifurcation disorder. The traumatic memory serves as an attractor that causes a constriction of behavior, but there are bursts of chaos when panic occurs and there is a flurry of escape behaviors.

Nonlinear dynamical psychiatry consists of conceptualizing a patient's problems as an set of interacting nonlinear and linear dynamical systems. Mapping this onto the complexity cusp phase space will generally locate more than one psychiatric diagnosis in complexity cusp phase space.

Attachment system dynamics may peak at the end of the work day, when one person comes home from a day of work and wants to relax and encounters a partner who has been alone all day and wants to interact. Perhaps a short-acting benzodiazepine like Xanax has been prescribed, and blood levels fall at this point, exacerbating this.

You can see that one needs to use a nonlinear mind to fully appreciate the nuances of this approach. The clock model mind is simple and may look good in a policy and procedure manual, but is far too stupid to figure these things out. Our nonlinear mind has the bandwidth to begin to appreciate the full extent of the patient's problem, and use pattern recognition (wisdom) to form hypotheses about what will help. Buddhists talk

about wise compassion and idiot compassion. Being compassionate without being able to put it to good use makes users suffer and does not reduce anyone's suffering. Wise compassion means being compassionate and having an idea what might help; it sometimes causes increased suffering in the short run, like telling a patient their marriage is doomed.

It is far simpler for the hospital administrators and lawyers to have a rigid, deterministic policy and procedure manual to give them the illusion of control in situations that are intrinsically chaotic and uncontrollable. It is far harder to get them to do the right thing, avoid protocolification, and do the right thing, like make ketamine available for the suffering people who need it. Moreover, it is the more accurate picture of reality.

## Bringing Red and Blue Together Again

One of our major problems as a society is the divisiveness and political alienation we face today. Democracies the world over have recognizably conservative and liberal factions, generally balanced in antagonistic support around similar issues. Why are societies constructed this way?

It is more stable in a system to have opponent processes, where there is a push in one direction and an opposing push in the other direction. This feedback loop is more stable than having a single push without restraint. So conservatives and liberals together produce a better form of government than either one side alone.

Avi Tuschman is a Stanford research fellow who wrote a book, *Our Political Nature*, summarizing studies of conservatives and liberals in terms of anatomical and functional brain imaging, psychological and genetic studies, and so forth. He came up with three factors that separated conservatives and liberals. The first was *tribalism*. Conservatives are oriented to their in-group, which they prefer over out-groups. Liberals tend to be xenophilic, to be interested in out-groups, and more likely to marry someone from another culture. The second was *tolerance for hierarchy and inequality*. Conservatives are very tolerant of inequality, liberals are not. Conservatives expect a hierarchy, liberals prefer a flat distribution of power, a heterarchy. Early hunter-gatherer groups were heterarchies, but societies above a particular size tend to develop a hierarchical way of distributing power and resources. Finally, the two groups differed in their *view of humankind*. Conservatives had a negative view of humankind, tended to think that people needed to be disciplined to develop good moral character, liberals had the opposite view.

It is hard to do studies of this sort because we tend to be either liberal or progressive in our own perspective, and *we* are the ones doing the study. I admit to a liberal world view, but also realize there is a reason for a conservative world view and acknowledge that the best perspective comes from a balanced debate between the two. I think Tuschman did a good job of examining the literature dispassionately and providing a balanced perspective.

The next book I read was *Panarchy: Understanding Transformation in Human and Natural Systems*, edited by LH Gunderson and CS Holling. It discusses cycles of growth and decay in ecological systems. It includes examples such as studies of islands who had all life extinguished by a fire following lightning. There is an initial growth phase, where small grasses, insects, then bushes occur, proceeding up to larger forms of life, such as a forest of elm trees. During this time initially, the biomass is pretty evenly

distributed and there is a heterarchical food web. Later, the food web becomes hierarchical as the elm trees monopolize the resources. Then something like Dutch elm disease comes along and all the elm trees die, and the biomass reorganizes. The system goes through a collapse and reorganization. It seemed to me that this can shed some light on why we have roughly even amounts of conservatives and liberals in our population.

Liberals are more growth oriented, prefer a heterarchy, and are more chaotic, since chaos is a component of growth. Conservatives are more adapted to the collapse and reorganization phase. They are tribal and xenophobic, guarding resources, depending on strong leadership to distribute resources and power in a hierarchical manner. This maps nicely onto the complexity cusp phase space map, except we have the colors exactly wrong. Blue is for conservatives, who prefer order and resist change, and red is for the liberals, who prefer diversity, growth and change. As much vitriol as we have in our system now, we have to regain the perspective that both sides are honorable people, trying to do best as they see it.

This is a particularly important time to get our act together. The only lifeboat we have is the one we are all in. If we keep poking holes in it and shouting at each other, we will surely sink.

## **The Death of Materialism, and the Rise of Spiritual Science**

A central part of this book is the idea that information can exist independent of matter and energy. This is incompatible with materialism, the idea that all that matters is matter.

Surprisingly there is substantial evidence that this central postulate is true. Research into topics such as the near-death experience, memories of reincarnation, psychic phenomena, and quantum mechanics clearly demonstrate evidence for nonlocal consciousness, which is basically disembodied information like Big Phi. This is exhaustively summarized in the book, *Irreducible Mind*, by Kelly et al. When we throw away the clock universe model, materialism, what next? The book *Beyond Physicalism* discusses this, and covers several philosophical perspectives in which information is more fundamental than matter or energy. There is a group at the University of Virginia in the Division of Perceptual Studies who are the leading research group into this area. When information is primary, the most fundamental thing in existence, materialism is dead.

Religions are memplexes, packages of memes that travel together. They follow the logic of general replicator theory—survivors survive and spread. Many religions have two memes that help this process. They are some version of “Thou shalt have no other gods before me,” and “you have to be a member of this religion to get into heaven.”

What is not commonly recognized is that the materialist scientific world view is also a memplex, and has a similar meme. This meme is “the only thing that matters is matter.” This is actually an article of faith, and subject to skeptical inquiry. This world view is part of everything else we have in society, in terms of legal perspectives, business, and so forth. This clock universe model is good at getting bills paid, sandwiches served at McDonalds, and the trains running on time. But it is wrong, so materialism is dead and we need another world view. Hence Blue Universe theory or some similar perspective that puts information first.

A skeptical mind is a precious thing to waste. If you are a member of a religious faith, I encourage you to keep and expand it with new knowledge based on actual scientific evidence, and expect to see more in the near future, as a spiritual science that is already here will develop rapidly once materialism is recognized as a failed world view. You have to shut down your linear dynamical mind and engage your nonlinear mind to begin to understand this. I encourage you to examine the evidence as a true skeptic, and see what you this. A new scientific spirituality will replace materialism, incorporating the primacy of information and complexity theory.

There is a sea change coming in our society as we move from a materialist ideology to a post-materialism world view. This will produce a tremendous disruption, as materialism is a cornerstone of everything we do, including the legal profession and business. I urge you to be a true skeptic and examine this research rather than dismissing out of hand. And prepare yourself for the unsettling feeling of seeing your view on life and the world change.

## **Tuning Big Phi**

Big Phi is the energy cord that animates us and the rest of the universe. Big Phi is all about loving kindness, but has a necessary Kaliaverse as part of the bargain. The Kaliaverse is where separation and pain can occur. At the extreme end of order, we have hyperregulation, Nazis, and evil. At the extreme end of chaos, we have fire, death, and pure evil. The optimization zone is at the cusp of chaos, where there is just enough order for structures to arise, but enough chaos for them to change and evolve. Chaos is a necessary ingredient of growth.

In the political sphere, conservatives are allied with order, and liberals are allied with chaos, or change. This is an opponent process regulation, and the optimization zone includes both.

In our lives, our job as human beings is to regulate the Big Phi that animates us. We have to increase the loving kindness channel and regulate or control the Kalioverse. We can't squelch it completely, as it is a component of change and growth, and a spice for life. Going to the extremes of order and of chaos is evil. This is how we encounter karma and learn in our process of living.

## **Conclusion: Too Much Bunny?**

As I was developing these thoughts, I had the opportunity to discuss Blue Universe Theory with one of my favorite patients, an Irish man about my age, who, like me was a devout atheist after early experience with the Catholic church. Catholicism is good training to be an atheist. I mentioned to him that I expected that some people might have difficulty accepting Blue Universe Theory, and it was not like I was asking them to believe in the Easter Bunny. He said “Well, I have seen some exceptionally large rabbits.”

I later found a painting by Mark Bryan called ‘Too Much Bunny.. It shows pretty clearly a man recovering from a ketamine session, with a picture of a tornado on the wall, and two large bunnies poised to jump into his head as he comes out of the psychedelic effects.

We have lived under the stifling and incorrect perspective of the broken clock model. It told us that the universe is dead, pointless, devoid of love, compassion, and purpose. Blue Universe theory tells us just the opposite. Is that too much bunny? See for yourself.



