

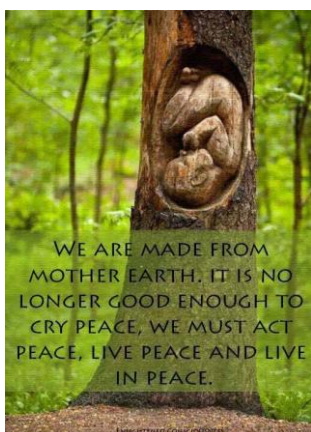
Energy and Epigenetics: Quantum Cell Theory, Life as a Collective Phenomena

1. How is life brought to life?
2. What is a SQUID?
3. Does physics direct biology?
4. What is the field effect?
5. What is quantum cell theory and how does it work?

This will probably be the most important blog in the entire Quilt. It is how I see the three fundamental laws of nature integrating and coordinating the physiologic function animating life. It is how all life works as a collective phenomena under the electromagnetic force. It is loaded with science, and it may be a hard read for some, but ask questions. If you do not, you might never get to optimal. This blog contains my holy grail in how I figured out how to get me healthy. I remember the day I wrote it in 2007 like it was yesterday. I would strongly recommend clicking and reading every hyperlink in this blog. It will help you understand things more fully.

In this blog, you will see how light, water and the electromagnetic field form a Superconducting Quantum Interference Device (SQUID) on the surface of your brain that allows you to be human. SQUID'S are important in the mammalian neocortex because they are able to switch signals from one neural circuit to another, at extremely high speeds, while storing massive amounts of information, all while using very low power dissipation. We are part of an electric universe.

This all can be done in the tightest of quarters. This works at nanoscopic levels on semiconductor chips in your laptop and in the subarachnoid space of your brain. This is precisely what happens on the human neocortex and explains how the cortex actually can do the things it does. This occurs using quantum principles called the Josephson effect. The 1971 Nobel Prize was given for discovery of this effect to Brian Josephson. Moreover, the Josephson effect provides the biologic and technologic basis for the development of an ultra sensitive magnetometer called a SQUID. A SQUID instrument (or biologic tissue) is capable of detecting the magnetic fields produced in spaces in or around the body.



What Electrifies and Magnetizes DNA/RNA?

The short answer is water in the native magnetic field on the earth. The application of the three factors in life is where it gets complex. Today, we enter that region of the Quilt.

In my biologic quantum model, to maintain the cell or organ at a stable state, we need to pre-load the system of semiconductors with a constant source of energy from the environment. This means that the actions of the sun, grounding, food, water and magnetism must all be present in some form or fashion during life. The other key feature of this model is that it has to be maintained in a relatively stable electromagnetic field of action. These were the conditions

humans faced on our planet 5,000 years ago. That is no longer the case. The balance first changed when humans began to clothe themselves 170,000 years ago and began to limit their

environmental exposure to the visible spectrum of light. This altered the vitamin D and vitamin A cycles in organs derived from neuro-ectoderm, such as the eye, skin and brain. Culture and beliefs essentially changed how energies from the environment were delivered to our semiconducting systems back then. Over the last 5-10,000 years we have seen the greatest energy leakage from our bodies, causing a decrease in energy deliverence from our environment to the cells in our body.

Quantum Model

My model of cellular function allows semiconductors in our cells or outside our cells to absorb all sources of energy in oscillating, vibrating or polar wave forms. These energies are then directed and redirected by biologic SQUID's into circuits to excite cells or syncytiums of cells in organs to perform coordinated physiologic functions. Energy is used in a coherent, coordinated fashion to form a collective phenomena to control and structure matter and energy. I used physics ideas from Einstein, Feynman, Ling, Becker, Pollack, and Frohlich to come up with a new theory of how human cells work with a quantum brain.

Physics Geeks: Frohlich's vibrational-polar models should be thought of as an "excited state" of our semiconductors, brought about by a continuous supply of energy pumped in by many environmental external sources.

The three main sources of energy you have already learned about in the Energy and Epigenetics 4 blog post are the photoelectric effect, water chemistry and the native electromagnetic field. The application of how they work in a coordinated fashion began in Quantum Biology 8, Energy and Epigenetics 5 and in this blog. The key to understanding how life works in humans is understanding that these three factors come together to structure matter in a certain way allows life to act like a collective phenomena.

In other words, the three laws of nature come together and begin to act in unison to do the things life is observed to do. It is where $1 + 1 = 4$. This is why no one can fathom how the brain does what it does based upon what is published in a biology textbook. That reason is simple: you need to think like a quantum physicist to understand how the brain does what it does. A biologist could never fathom some of these mechanisms because it is not part of their educational domain. If it is not part of their "vernacular," so they just ignore it or deride it.

Physics has already proven beyond a shadow of a doubt these mechanisms exist in nature. Biology just has no clue they are at work under their noses. The problem for biologists is that the subatomic world has been experimentally proven to a far greater degree than anything printed in biology anywhere. Moreover, QED has been proven to be very accurate by being experimentally proven correct every time one tries it out. Biology can not claim the same record. QED has been shown to act everywhere in nature, while in biology, they continue to argue about metabolism of macronutrients for 100 years, and these arguments have gotten us more ill. Today, we are going to show you how the "spine of biology" really acts.

Physics Directs Biology

All of these factors/modes/semiconductors within cells interact with the surrounding environment and act as an electromagnetic thermal bath we call our organs or tissues. The surrounding medium are the body's semiconductors. Most of what our DNA codes for are these types of matter. Proteins are just the stage that life performs upon. What animates life is quanta of energy via compliant design.

RNA codes for proteins. Proteins work in cells when they are bathed in intracellular or extracellular water. The water molecules associated with a protein can absorb a certain amount of energy. The amount of energy is tied to the amount of hydration or dehydration in this system and the energy within the hydrogen bonds and hydroxide bonds of water. Water next to hydrophilic protein polymers has special electrical interactions. The more hydrated proteins are, the more they can transfer proper amounts of energy to make biology work as it does. If they are dehydrated, the system becomes unstable, and any loss of energy, or "perturbation," to the system causes chaos and disease. Physics uses the term perturbation to describe a change to a system.

The Genomic Key: Why Primates & Humans are Similar but Radically Different Life Forms

What are the main semiconductors that DNA and RNA code for? Proteins are the major products of genes. Collagen is the No. 1 protein in all life forms and acts a semiconductor. You saw this in the [Quantum Bone blog](#). The human genome codes for the same amount of genes as most other primates. It seems the key for life is not found in gene products, but in how energy alters structure to match environmental pressures. This is how epigenetics alters the products of your genome.

Our genome is only the first copy of life. It is the stage. It is not the Broadway show on that stage. This helps explain why only 2 percent of the human genome codes for proteins. 98 percent of the human genome codes for retrotransposons, or junk DNA. You learned about that in [Brain Gut 2](#). It turns out that non coding DNA (ncDNA) contains the epigenetic instructions of how to energize the proteins in our genome to alter function based upon environmental pressures.

This is why gorillas, chimps and humans all have basically the same genes in their DNA and close to the same number of genes, but they look and function so differently. Human brain genes have been altered by energy to cause their structure to change and do different things. This has stunned biologists because they do not understand how cells really work. Cells and tissues are quantized to work as a collective synctium.

Truth Bomb: The instructions energy gives, specifically electromagnetic energy, to our non-coding DNA is what ultimately makes us different. This is why humans have more ncDNA than any other animal on the planet. These energies come from our environment. You call this natural selection today. This is how biology works, folks. Energy changes the structural and function of matter. Proteins are a form of matter. Energy sculpts what proteins can and will do and how they will act in a cell. This is called conditions of existence, or epigenetics, today. Darwin told you about both. Of the two, he said conditions of existence were by far more important. Biology has forgotten what he said back then, because for 160 years, no one had a clue how epigenetics worked. Now we do. If this sounds hard to fathom, read on...

Collagen, water, cell membranes and the inner mitochondrial membranes form the basis of what cells are in us. The interplay between these building blocks is where life takes hold of energy to be animated. The pumping in of a constant energy source satisfies the C² part of mass equivalency ($E=MC^2$). It also simultaneously subtracts out the entropy (randomness of nature) from the biologic system. These two yoked effects allow for dissipative internal effects by adding entropy to the biologic system of a cell or an organ. When combined, these collective effects lead to the emergence of complex behavior in the system, resulting in what has been called “Frohlich effect.” Frohlich was a physicist who became interested in the physics of how biology worked. He came up with a framework of how he felt biology worked using a QED framework. I have substantially modified his ideas, because in the last 50 years, we have learned a lot more about how the brain is specifically constructed by electrostatic and magnetic fields. I have innovated how the brain actually works in this model to animate life.

I have spent my entire professional career around this organ, so it has consumed most of my attention. How this system actually works, in my opinion, has absorbed many of Frohlich’s ideas on biologic coherence. I then innovated the ideas of great theoretical physicists with ideas of my own and came up with the electromagnetic field effect. I guess you could say I have climbed upon the shoulders of Einstein, Feynman and Frohlich to innovate my own model of how the field energizes and magnifies DNA and RNA to animate human biology. Notice how those three men are all physicists and not biologists. If you don’t realize biology is quantized, you have no epistemologic foundation to treat or cure a thing.

Levee 1: What is the Field Effect?

It is where life alters combined environmental energy sources to alter matter and masses to electrify DNA and RNA to bring forth life. This is how epigenetics works in humans. DNA has already been shown to emit EMF signals. The signals it emits is different when it is hydrated.

It is where electromagnetic field energies and gravitational forces in cells alter space/time as energy is adding in to the system or taking away from the system.

This implies that the electromagnetic field and gravitational field have been relatively static for long periods of time during evolution in the environment in order to let energies act with a coherence to alter space/time. This implies for wellness that these two variables should be relative constants. Today, we know neither one are constants. The present results of these variations are the neolithic diseases you see in medicine today. Moreover, as they change, we need to understand how biochemistry changes so we can alter our therapeutic maneuvers to compensate for these environmental issues. Today, many of the therapeutic maneuvers that we call evidences-based are, in fact, removing energy from the biologic system. Removing energy from a quantized system causes it to become more unstable, and it leads to poor cell signaling.

Proper cell signaling requires a constant, steady flow of energy within the semiconductors of cells. Any treatments that cause a loss of energy cause patients to emit more black box radiation. This means we need to understand thermal equilibrium and Kirchhoff’s laws. These laws directly link to Plank’s constant. This is where quantum mechanics was born.

These signaling effects are compounded when we advocate a diet or a modern lifestyle that also allows for more energy losses. You should begin to realize why carbohydrates are a real problem

for modern humans because they only give us 36 ATP, compared to 147 ATP from beta oxidation of fats. Carbohydrates are perfectly fine when signaling is working well. But when it is not, like on earth today, you must realize the problems they can cause. No one in allopathic medicine, the paleosphere or most alternative medicine understands this context because they do not appreciate quantum cell theory. This is why they find my ideas controversial.

To reclaim wellness or just remain optimal, we need to make sure the system is preloaded with energy properly. There is a key point about energy that is tied to Kleiber's law. You must stop at this point and open the hyperlink you just passed.

Masses increase as we lose energy in biology. This is why elephants are huge and mice are not. Elephants eat a nutrient-poor diet, so they make this work for their biology because they have large bodies that are energy-efficient; hence they have a lower basal metabolic rate. The opposite is true with small mammals. The difference can be found in the mammal's basal metabolic rate.

The more energy that is input into the biologic system that uses Kleiber's law, the faster the metabolic rate will be. We also know that time speeds up for animals with faster metabolic rates. This is why mice die sooner than elephants. Time is relative to energy. This underscores why free T3 is a key metric in my model. It also underscores why medicine remains in the dark. Few understand what a free T3 and rT3 are a measure for. This is why sick humans have low free T3. This is a response to energy loss. Moreover, chronic hypothyroidism is a sign that the animal/person is constantly losing energy to their environment somewhere in their physiology. This loss of energy determines how your genes will be expressed compared to others.

Cosmology, Meet Hormone Homology

To illustrate my point further, why this is axiomatically true in science, we have to visit cosmology again. When an astrobiologist examines a distant star's light to assess their physical make-up, they use a process called spectroscopy. Spectroscopy is chemical analysis that shows a complete duality between chemical structure and the coherent oscillations of photons from the star's light. Remember, light and electrons are one and the same in the photoelectric effect. In spectroscopy, the energy of a star's light is applied to atoms or molecules, and they begin to oscillate or vibrate and produce a luminescence or radiation. Physicists study this light or radiation to determine the precise structure of matter that is too small or far away to be examined directly. I realized that this is precisely the problem we face in biology today. The radiation emitted from life forms like us can also be studied to assess what is going on at a cellular level. Dr. Andrew Marino has already proposed this to the National Institutes of Health, who denied his request. This linkage to the star also made me realize that hormones reflected the electromagnetic energy states within the cell and act just like spectroscopy does with respect to a star's emitted light. We can tell a lot about what is going on electromagnetically in our own field just by looking at a hormone panel. Very people see this homology in biology today.

When free T3, the ASI, DHEA and salivary melatonin are optimal, life forms will live a long life because time will slow down for their cells. In other words, they will be disease-free and living in a metastable quantized existence. The converse is also true. When energies are not constantly delivered or subtracted for any reason, energy in the system will dissipate, time will appear to speed up relatively, basal metabolic rates will slow and life will appear to die off more quickly because it seems to attract more illnesses.

This phenomena is precisely how circadian clock genes regulate the cell cycle in biology and how illness slowly impedes energy signaling in the cell. They are directly tied to the environmental energies added to or subtracted from the system. NAD⁺ links to circadian cycles via SIRT 1 and SIRT 6 in humans.

As energy is lost in a black box emission fashion or it is not properly loaded into the system or the field action changes for some reason, the result will be a drop in energy, time will speed up and diseases will ensue.

Critical Quilt Point: In this fashion, all disease can be thought of as a specific process where energies are lost from their semiconductors to the environment. With energy loss, it causes more entropy in a system. Entropy is a QED code word for inflammation in the biologic system, just like molecular chaos is. As energies are lost, cell signaling is also lost and becomes the primordial event that clinicians should be looking for in this model. The most critical point for a clinician and person to understand is that chemical signaling processes that we call hormonal regulation is synonymous with electrical signals with the cell. This is why circadian signaling becomes so critical in understanding where a person is in wellness or in illness.

I believe that if the provided energy supplied is sufficiently large from nature's three fundamental laws compared with the energy loss in the cell or organ system, by natural evolutionary design, the biologic system will attain a stationary state in which the energy that feeds the polar modes found in water chemistry and on proteins would then be channelled into the modes or semiconductor systems with the lowest frequencies, oscillations or vibrations first. This is a key point.

Non-Geeks: This means when we are flush with energy, the first place energy flows in our body are the systems that keep life alive first. The more specialized, high-energy organs get fed last.

This point is critical in understanding how certain diseases show up in humans versus other life forms. If you understand what the implications are in how energy is distributed in cells and organs, you will see this implies that the most complex organs will be affected first when energy drops for any reason. Those that perform vegetative functions will be hurt last. This allows us to make predictions of what diseases will show up first when energy is lost in a person. In humans, this will be in the brain, heart and in mitochondria. This begins to explain why neurodegeneration is exploding, why heart disease remains the No. 1 killer of humans, and why metabolic syndrome is exploding today. No one seems to have a clue why this happening, but my model explains it perfectly. It is based upon understanding QED and thinking like a physicist with biologic lenses.

Chemistry Geeks: Think about this analogously by visualizing how an atom distributes energy to its electron shells in chemistry. An atom first fills its first shell with electron energies and then works its way outwards to its outermost electron shell. Life's systems do the same thing because it is about fractal energy design. It is most efficient to do it this way. In this way, the environmental energies coming into to the cell can be thought of as how the orbital valences for electrons are filled first from the ground state closest to the atomic nuclei and proceeding outward to the valence shells. In biology, the lower energy systems required for autonomic or vegetative functions get their energies loaded first, at the expense of the more energy intensive systems, like the brain. If no energy is left over after the basic systems are loaded with energy, the brain runs at an energy deficit, and it directly affects neocortical function. Moreover, the brain is built by

evolution to steal energy naturally to preserve its own function in mammals, because it has the physiologic ability to auto-regulate its oxygen and blood flow requirements itself.

This means that the brain will preserve its function at the expense of other systems. This helps you understand where hypertension really comes from. As energy is lost from our body to the environment for any reason at all, the brain increases mean arterial pressure to maintain its energy status at the expense of other systems. This is why BP rises in non-wellness states. When this happens in the brain, cognition suffers in the regions of the brain that are most energy-inefficient. The next system in line is the immune system. It was the system primates innovated before neurogenesis using the MHC1 gene.

This is why tinnitus is a big clue to clinicians who think like I do. Ammon's horn, part of the hippocampus, is the most energy-inefficient part of the neocortex. It is also the first one affected in Alzheimer's disease. This is why, in anoxia states, we see this area of the cortex die first. The areas affected first by low blood flow or energy are likely the ones that cost us the most energy. This is how hypertension, sleep apnea, migraines and tinnitus show up as symptoms of energy loss from the neocortex because we are deficient in electrons or photons.

Neurosurgery and Neurology Geeks: This idea makes common sense when you consider how a coma presents in humans. A coma is a situation where neocortical function is lost and only the vegetative remnants of our brainstem remains. Energy is acutely lost in a coma state from the neocortex, and the brain's neocortical function is affected first. Vegetative functions remain intact initially while higher brain functions go out first. This implies that how we treat coma presently should also be altered. Coma is an abrupt loss of energy to the neocortex. Neolithic diseases of the brain are a chronic, slow, insidious loss of energy in different parts of the neocortex. It is as if since the loss of energy is slow and insidious, the same process found in a coma situation is unfolding via a different space/time continuum in our life. Since we perceive time based upon our basal metabolic rate, modern humans never seem to perceive this relative change. Einstein's math says that we should consider it.

Once you understand this neurologic time parallax, it should also explain to you why we are seeing the current increases in massive neolithic neuro-degeneration. In chronic diseases, we are seeing disease of the neocortex show up first. This is why depression, mental disease and neuro-degeneration shows up in younger and younger age groups as the processes in our environment allow for the slow insidious loss of energy by the technologies we call new age or progressive.

All of these technologies use energies that have huge effects on the three fundamental laws that life is built upon: light, water and electromagnetism. No one sees this homology as I seem to. It is all tied to energy losses. Brain function is first out because it is an energy hog. In my quantum cell model, neurologic disease should explode in incidence and prevalence first, before other systems in all age groups. As time elapses further, these disease would not only be seen in the elderly, like they initially were 50 years ago, but as the process proceeds, these diseases will show up in younger and younger age groups and be confusing to clinicians. This is where medicine is today with autism and spectrum diseases, and with Alzheimer's disease. These diseases have exploded over the last 63 years according to every epidemiologic study I have examined. I think I know why. The [September 2013 webinar](#) gets into the precise epigenetic mechanism of these diseases.

Many environmental forces are now acting in concert to usurp energy from the highest energy systems so they decline in function first. This is how I see cognitive de-evolution occurring today. It also explains why we see metabolism affected early on, too. We are experiencing a torrent of Metabolic Syndrome today, because this is another way energy is brought into the system. If one eats low-energy dense foods consistently over time, like carbs and proteins, the result will be all the diseases tied to this syndrome. This parallels why elephants get larger eating grasses and vegetation using Kleiber's law we mentioned earlier. This is why carbohydrates are linked to metabolic syndrome. They give mitochondria 36 ATP, while the beta oxidation of fats give it 147 ATP. In fact, every single symptom tied to this syndrome makes a ton of sense in my model. This is why lipids are altered in the manner they are. Lipoproteins trend toward higher triglyceride levels as energy is lost. They are all tied to a loss of energy. The proof I might be right is found in the observations we are now seeing at alarming rates in clinical medicine today. The problem for medicine is they do not understand why it is happening because they do not understand physics.

The first reason it is being missed is obvious. No one realizes that we are quantized beings filled with semiconductors. The evidence there is now overwhelming that we are. Robert Becker was the first to show it in bone 50 years ago in the literature. But now, we have proof in the heart with ECG's and in the brain with EEG's and MEG data. The second reason it remains hidden to us is a simple math problem using the commutative property of multiplication. I mentioned in EMF 2 the reason was because the biologic system reads energy mass equivalence to the equation of Einstein — right to left instead of left to right.

Once you understand that C^2 (light squared from $E=MC^2$) is the starting point for living systems, you begin to see tissue organization and pathophysiology in a new light. This is why many people have trouble understanding many of my blogs and my perception. If you do not have my perception of how a cell works, you should think what I am saying is odd. When you understand it, you suddenly see how everything we observe unfolding in medicine today can be fully explained. It suddenly makes sense why we are seeing huge amounts of autism, mental disease and neuro-degeneration in five decades, as we have created an environment that allows us to emit more energy than we take in. These principles work on stars and galaxies just as they work in life. This is where Einstein was right. All life is energy, and energy is life. Understanding that simple principle is buried in this blog.

Assimilation Means Application

The physiologic systems that require the most energies would be affected first in my model. When energy is lost in this fashion to the environment, these lower-energy systems largely increase their populations at the expenses of the other higher-in-frequency modes, in a way reminiscent of a Bose–Einstein condensation situation. This is based upon Kleiber's law or the quarter scaling law that defines how an increasing mass is in a more energy-efficient state when the system is constantly losing energy to its environment. I spoke about this law earlier in this blog already. This was how I solved my own obesity. I used physics to understand my biology.

I realized quickly I was losing or emitting black box radiation to my environment. I could not recover that loss, because I was not smart enough initially to figure out how to re-capture my lost electromagnetic radiation. The key was a lack of DHA in my cell membranes. But I did realize there might be another solution to my problem. If I could slow my energy losses with cold thermogenesis, and I could eat a high fat, moderate protein diet while avoiding all extraneous

blue light to add energy back to my body. When you do this, the mathematics of the Bose-Einstein condensation statistics imply the structure of matter can change to a better thermodynamic state. I thought my fat would go away, and it did. The physics of circadian signaling matters more than the food or exercise we do. How does all this complex math scale to biology?

How Does the Quantum Cell Work?

When energy is added back into any semiconductor circuits, this highly excites a subset of modes or semiconductors in a cell. With this energy surge, they begin to exhibit long-range phase correlations of an electret type. These are what physics calls coherent oscillations or waves. This is how lasers, vortexes, solitons, phonons and holograms work to store coherent energy and information. All coherent waves can trap an electric current and then carry it along at the speed of light to perform amazing feats of information or energy transfers. This is how the human brain works, folks. Once any of these coherent waves are formed, they require no further energy inputs to perform any transfers of energy or information. This is the essence of a super-current and why computers can do amazing things with low power. Your brain has a better system to take more full advantage of quantum mechanics using a SQUID to do more things at an even lower power. SQUIDS use Josephson effects to maximize their efforts. SQUIDS tend to have a lot of DHA in their cell membranes linking DHA to electron density. DHA is the main semiconductor in the brain.

Ironically, Josephson effects are precisely what every semiconductor manufacturer uses to make technology gadgets worldwide. The Josephson effect is an example of a macroscopic quantum phenomenon. Given this, people can no longer argue the effect does not happen in life. We know it happens in biology, too, because of Becker's work on bone regeneration. Moreover, when you understand its biophysical ability, you begin to understand how the mammalian neocortex was organized by evolutionary design. It also makes sense why humans are the only primate to sweat profusely. We need to keep our SQUID's cool at all times, so when the environment heated up our surface SQUIDS, we evolved the ability to sweat profusely to cool down. The surface of our neocortex and our skin are SQUIDS.

As all these types of coherent waves propagate through the brain and body, electromagnetic fields are radiated into the space around these waves. Dipolar molecules, like water, close to these waves or in the space they are acting upon begin to cooperate with these waves and oscillate and vibrate as a result by changing their hydrogen bonding networks and storing energy in its hydroxyl bonds. Remember, water is an extreme dipole because of how electronegative the oxygen end of the H₂O molecule is. This is how water becomes imprinted with memories from the information of electromagnetism.

Standard quantum theory does not predict quantum coherence for liquid water, largely because it ignores both quantum fluctuations and the interaction between matter and electromagnetic field; these are only taken into account in quantum electrodynamics field theory. But conventional quantum electrodynamics field theory applies only to gases.

Theoretical physicists Giuliano Preparata (1942 – 2000), Emilio Del Giudice, and colleagues at University of Milan in Italy, extended conventional quantum electrodynamics theory to the condensed phase of liquids; they showed that interaction between the vacuum electromagnetic

field and liquid water induces the formation of large, stable coherent domains (CDs) of about 100 nm in diameter at ordinary temperature and pressure, and these CDs may be responsible for all the special properties of water including life itself. Liquid water acts like a Bose-Einstein Condensate. We'll get to that below.

How do cells and molecules actually find one another for biochemistry to occur? Conventional wisdom says hormones and receptors, cell-cell recognition molecules, and lock-and-key principle for molecules that somehow bump into each other at random.

Actually, molecules find each other by electromagnetic fields, by resonating to common frequencies. Molecules that react together were found to share a common frequency; which is how they can attract each other. This makes even more sense in the context of quantum coherent water in and around cells.

People tend to forget the power of the entire Internet can flow over the WiFi signals from your router to your laptop or iPhone. So if you think your own brain is not capable of using the electromagnetic spectrum to its fullest advantage, your sensibilities are different than mine. The real issue is modern medicine cannot fathom that biology works this way. All they need to do is look at how WiFi works to send the power of the Internet to your laptop at the speed of light to understand how the process might work in us. Even biologists know that WiFi works via EMFs, don't they?

The electromagnetic emissions from coherent biologic waves in living tissues transfers all this information to water before it gets to the brain. Here we can see why Dr. Luc Montagnier experiments in the journal of Nature now make a ton of quantum sense. We discussed this in EMF 5. If you do not understand QED, on the surface you might think it is quackery. Most biologist and chemists do. With QED under your belt, it makes perfect sense. Biophysicists think his recent work deserves another Nobel, and maybe more important scientifically than his first Nobel for discovering HIV. You can put me in that group as well.

Physics Detour

SQUIDS came from the work of Bose and Einstein. Einstein demonstrated that cooling bosonic atoms to a very low temperature would cause them to fall, or "condense," into the lowest accessible quantum state, resulting in a new form of matter. This is called the Bose-Einstein Condensate (BEC). This concept was radical because Einstein was saying that energy, specifically current, could alter matter. Bose's paper only dealt with light quanta, what we call photons. Einstein extended it to all forms of matter. In my mind, this is the key to understanding quantum gravity. I believe gravity is an emergent phenomena and not a fundamental force. I think energy inflow into any system can innovate and change matter by altering its charge, and it can do the same thing to the forces of gravity. This means that matter and gravity are creative forces due to the variable of the nature of energy sources in the universe. Electromagnetic energies are the principle source of all these energies in the universe and in all life forms. Frohlich believed that living tissue acted like a Bose-Einstein Condensate to form a collective functioning tissue when energies were optimized. This made him quite unusual in physics. No one had thought to apply the BEC to life. I believe proteins are condensed polymers that act like BEC's.

In 1938 Fritz London proposed BEC as a mechanism for superfluidity in helium 4 and superconductivity. Today, we believe the mass, gravity and electromagnetic storms on Jupiter are all due to a superconductive condensate of hydrogen and helium at its planetary core. It may turn out that Jupiter's diameter is very small, but its resonant cavity is like one giant nuclear hurricane controlled by these principles. Paul Dirac coined the word "bosons" after Bose's work with Einstein. Bosons are the particles thought to give mass to matter. We just discovered the Higgs boson on July 4, 2012.

As in many other systems, vortices can exist in BEC's. Remember I spoke about vortices in the brain, in [Energy and Epigenetics 5](#). This will be even more important in the [October 2013 webinar](#). These can be created, for example, by 'stirring' the condensate with lasers, or rotating the confining trap. The vortex created will be a quantum vortex.

This means that in the subdural space of the human brain, light or any electromagnetic radiation of any frequency could have a major effect on CSF water. In the posterior third ventricle, the pineal gland rests, and it is known to be sensitive to light and magnetic fields. In my model, the pineal is likely the human brain's own "living laser" that excites CSF/water to make a quantum vortex begin in the posterior [third ventricle](#). This allows the vortex to propagate through the CSF/water to become the source of the DC current found in interfascial water below Schwann cells and outside the axons of nerves. This is the regenerative current that Robert O. Becker experimentally found in the 1960s in human bone. This has massive implications for wellness, as you will soon hear during sleep in Tensegrity 4 blog.

Geeks: Closely related to the creation of vortices in BECs is the generation of so-called dark solitons in one-dimensional BECs. Solitons act like "tsunami waves" in electrified collagen in the body through the cytoarchitecture. [They do it in DNA too](#). These topological objects feature a phase gradient across their nodal plane, which stabilizes their shape even in propagation and interaction. This means energy can alter protein shape and conformational bending. This alteration I called compliant design. Collagen has a piezoelectric effect and the DHA loaded membranes of the brain's lipids might act like topologic insulators with [anisotropic liquid crystalline](#) water below them. Solitons, however, carry no charge and are thus prone to decay over short distances especially by a disturbance in tissues. *This maybe why the brain and spinal cord are completely suspended in CSF.* I think water's high dielectric constant is the real reason why CSF bathes our CNS. In water, the soliton waves can sustain their power for long distances. This is best visualized in tsunami waves upon the ocean's surface. Water's thermal emissivity is also a huge advantage.

Solitons, massless bosons or coherent polarization waves are likely all synonymous sources of energy. We know from [diffusion weighted MRI](#) that neurons swell just prior to activation. This swelling could begin a soliton in the brain just like an earthquake begins a tsunami in the ocean. In deep water one never realizes the size or power of the wave, but as the depth and thickness of the water column changes the waves power gets bigger. From the brain's cortical mantle to the outflow white matter tracts the diameter of the pathways of CSF narrow dramatically. This anatomic arrangement is ideal for generation of solitons. We know experimentally from physics that these types of soliton waves can be confined and propagated as beams of energy to be 15 nanometers in diameter. This also happens to be the inner diameter of the microtubules everywhere in our body. This is a massively important size relationship to remember as the blog rolls on. I do not think this situation is a happen-chance coincidence at all. I think it is part of quantum fractal design. It is what forms the power to evolve consciousness in life. We stimulate

solitons when we touch or massage our tissues. Modern research shows that relatively long-lived dark solitons have been produced and studied extensively even in biology. Tsunami's are a great example of a soliton in nature.

Physics/Biology Geeks: Some very interesting quantum phenomenon can be observed using superconductors. A superconductor is a element that loses its electrical resistance below a Curie temperature (T_c). In superconductors, the current is not carried by single electrons, but by pairs of electrons with opposite spins called Cooper pairs. The binding energy is large compared to the thermal scattering, and as a result, Cooper pairs propagate through the material without any resistance. Cooper-paired electrons have lower energy than the Fermi energy.

There is no magnetic flux inside the superconductor, and this is known as the Meissner effect, which is due to screening currents flowing on the surface of the superconductor.

The reason why superconductors can be used to demonstrate quantum phenomenon is because the Cooper pairs share a common wave function. This coherence of wave function displays macroscopic quantum phenomenon and we can observe quantum mechanical behavior at a large scale for the first time in biology. This is precisely what happens on the inner mitochondrial membrane when electron tunneling occurs through the cytochrome proteins. These cytochromes all use proteins that have transition metals in them! (Key September 2013 Webinar Alert.) Most quantum effects are subatomic and unseen. Here is an example of one that shows up so we can understand it macroscopically in biology.

We can use superconductors to observe quantum tunneling in experiments. Quantum tunneling happens at the inner mitochondrial membrane and at our cytochromes in cellular respiration. Electrons are delivered to oxygen to reduce it. This oxygen has special magnetic properties to energize electrons at night. When two superconducting regions are weakly coupled, a Josephson Junction (JJ) can be formed by placing a thin insulating gap between the two superconductors. Electron pairs can tunnel through this gap, and a resistance-less current can flow across the insulator; this is called the DC Josephson effect. There is also an RF Josephson effect as well that uses electromagnetic frequencies to work. We now know definitively that the human body uses a DC current from Becker's work. The work of Ross Adey from UCLA gives us an indication that the brain may use the RF Josephson effect as well. This brings us back to the DC SQUID in our brain.

Back to the SQUID

The main semiconductors or modes in the body are collagen, water, and DHA in the brain. Iodine acts as an insulator between the semiconductors. This is precisely why collagen is the No. 1 protein in life forms in all branches of evolution. It also explains why water makes up 71 percent of our cells. DHA is specific to neural systems because of its unique molecular arrangement of its pi electron cloud when it sits near water to form an exclusion zone adjacent to a Josephson connector we spoke about in Brain Gut 5. The pia mater in the brain acts as a very thin insulator. The pia mater is a thin, fibrous tissue that is impermeable to fluid. This allows the pia mater to enclose cerebrospinal fluid layer directly on the surface of the neocortex on Layer 1. The pia is made of extremely dense fibrous tissue. If I am correct about the pia mater, it should change its anatomy as it covers different areas of the central nervous system. The pia over the brain will be found to be different than the pia around the spinal cord. I actually think the pia will change as

neurologic circuitry changes in different anatomic places within the brain or spinal cord. It turns out my hunch was correct, the pia does change over different parts of the CNS as neurologic function changes.

The pia separates the CSF of the arachnoid space from the brain's surface. On the brain's surface are found the DHA-laden cell membranes of neurons. They are covered by pia mater and filled in a tight cavity filled with CSF water. Neurosurgeons call this the sub-pial space. In semiconduction circuits, where the Josephson effect of a SQUID exists, it creates certain types of currents called super-currents. Dr. Brian Josephson won the Nobel Prize for this finding in 1971. It is used daily in semiconduction fab plants to make semiconductor chips that you are using now to read my words. Ironically, no one seems to realize that nature created the most amazing SQUID on the surface of the brain of all mammals!

Absolutely Critical Point: The reason Josephson insulation is critical to mammalian neocortical functioning is because it is used to detect and amplify weak electromagnetic fields from our environment to activate or deactivate the flow of energy in circuits.

That is what a Josephson junction does in semiconductors in your technology gadgets. This ability allows energy or electron flow to be directed to certain circuits below Layer 1. This explains why the brain's most critical neurons are on the surface of the brain adjacent to the Josephson junction. This is why in Layer 1 of the cortex are smaller cells, and they react to frequencies of 0-9 Hz best.

Layer I of the human neocortex is called the molecular layer and they are unmyelinated. **Unmyelinated neurons are more sensitive to electromagnetic signals.** It contains few scattered neurons and consists mainly of extensions of apical dendritic tufts of pyramidal neurons and horizontally-oriented axons, as well as glial cells. This will become important when you hear the October 2013 webinar. Some Cajal-Retzius and spiny stellate cells can be found in Layer 1. Inputs to the apical tufts are crucial for the "feedback" interactions in the cerebral cortex involved in associative learning and attention in humans. While it was once thought that the input to Layer 1 came from the cortex itself, it is now clear that Layer 1 across the cerebral cortex mantle receives substantial input from "matrix" or M-type thalamus cells. All of the sensory receptors synapse in the thalamus and radiate to layer one of the cortex. The energy that powers Layer 1 sits right below the SQUID of the brain that chooses where the electrons liberated in CSF will electrify and magnify the circuits in Layer 1 to propagate all over the human brain. It is here where consciousness first begins. These tracts collide with tracts that run from the parietal lobe and pre motor cortex in the frontal lobe that detect patterns or trends in the environment. These tracts "tune" humans to awareness in trends in their environment and allow thalamocortical tracts and working memory developed in the hippocampus to interact with them to create a conscious experience. These tracts are the biggest energy hogs in the brain. They animate us. To do so requires huge amounts of energy. This is why the SQUID is right next to the thalamocortical relays in layer one. These relays are critical to the emergence of consciousness.

Neurosurgery and Neurology Geeks: To further cement the fractal story of how energy is applied in evolution, consider neocortical development with respect to energy, as I laid out above in a coma state or in the atom's anatomy. The development of the neocortex arises in an inside-out manner as mitotically dividing progenitors migrate outward from the ventricular cap. These cells expand along radial glia cells to form all six layers of the neocortex. The first neurons to

differentiate migrate to what will become Layer 6 of the neocortex and they form more vegetative neuro-cognitive functions compared to the the surface layer one associated with sensation of native electromagnetic signals and sensory inputs from the thalamus. As the G1 phase of mitosis is elongated, the newly-born neurons migrate to more superficial layers of the cortex until we get to layer one adjacent to the SQUID. The SQUID is covered by CSF which is filled with water which has a high dielectric constant. *The SQUID is what electrifies and magnifies electromagnetic signals affecting the DHA membranes of our neocortex.* This is where a human becomes animated.

It is important to note that the cortical layers are not simply stacked one over the other; there exist characteristic connections between different layers and neuronal types, which span all the thickness of the cortex. These cortical microcircuits are grouped into cortical columns and minicolumns, the latter of which have been proposed to be the basic functional units of cortex. These columns and rows are all semiconducting neural circuits that react to blood flow and native EMF signals to direct blood flow to animate life. This is how the brain makes form follow function electromagnetically. This is why the brain has the unique ability to auto-regulate its cerebral blood flow. CMRO₂ is directly linked to neurologic function. In 1957, Vernon Mountcastle showed that the functional properties of the cortex change abruptly between laterally adjacent points; however, they were continuous in the direction perpendicular to the surface. *Magnetic fields are also perpendicular to DHA's electric currents.* Later works have provided evidence of the presence of functionally distinct cortical columns in the visual cortex (Hubel and Wiesel, 1959), auditory cortex and associative cortex. The story of Hubel and Wiesel will return when we get to the Quantum Autism blog.

Cortical areas that lack a Layer 4 are called agranular. Cortical areas that have only a rudimentary Layer 4 are called dysgranular. Information processing within each layer is determined by different temporal dynamics, with Layer 2-3 having a slow 2 Hz oscillation, while Layer 5 has a fast 10–15 Hz one. Here again, you see how layers and columns of the neocortex respond to specific electromagnetic frequencies. This is how the SQUID determines which circuits to activate using the three fundamental laws of nature you learned about in EE 4.

Brain Gut Series Link

The smallest mammals, such as shrews, have a neocortical thickness of about 0.5 mm; the ones with the largest brains, such as humans and fin whales, have thicknesses of 2.3—2.8 mm. There is a logarithmic relationship between brain weight and cortical thickness; dolphins, however, have considerably thinner cortices than the overall relationship would predict.

With magnetic resonance brain scanners, it is now possible to get a measure for the thickness of the human cerebral cortex and relate it to other measures and illnesses. The thickness of different cortical areas varies as our SQUID varies. It also varies with the **amount of DHA present in cell membranes**. In general, sensory cortex is thinner and motor cortex is thicker. The reason is simple. We can use high Tesla MRI magnet to see how much DHA the brain has or does not have.

Sensation is not as energy dependent as motor activity is. Sensory cortex is more energy efficient and has a higher amount of DHA in it. The human retina has more DHA in it than the brain does. The reason is because light oxidizes DHA during daytime and it has to be constantly

replaced. This is also why blood flow is higher to motor regions. These areas also undergo more oxidation during activity. One study has found some positive association between the cortical thickness and intelligence in humans. This makes intuitive sense in my model of the quantum brain. It means we are delivering a tremendous amount more energy to our SQUID in order to electrify and magnify the excessive neural circuits formed synaptically below in the layers of the cortex. This is precisely how the human neocortex evolved in the East African rift where there were 3 tectonic plates open to the magnetic field. As more seafood was eaten by chimps over the exposed three tectonic plates, more energy was delivered to the primate DNA and RNA to form the human neocortex. DHA enters the brain magnetically in the SN-2 position. DHA is tied to energy efficiency because more DHA = more electron density. Energy inputs changed the epigenetic expression of the chimp cortex to create the human one, and it shortened the primate gut simultaneously.

Another recent study has found that the somatosensory cortex is thicker in migraine sufferers. This should also make sense now. If the somatosensory cortex is not preloaded with enough energy (DHA), the first layer of the brain's neocortex will engorge itself (swell) with blood to gain the electrons from the CSF/water in the subdural space. This creates an energy imbalance between layer one of the neocortex, CSF/water density, the local magnetic field and the adjacent dura energy status to cause energy loss in the dura to stimulate pain fibers in the dura to give a human a headache. It is all due to energy loss. This is why a cold skull, head or scalp help a migraine's symptoms best. Cold improves the current of flow to the starved somatosensory cortex below. In the neocortex, energy supply is a zero sum game. If one area is deficient in energy, it will steal from its neighbors to get what it needs. It is a story of the survival of the fittest in the most real sense.

Physics Geeks: SQUIDS work because of a fundamental property of superconductors: When exposed to an applied magnetic field, a ring of superconductors generate currents which produce magnetic flux exactly canceling the external field. When the current reaches a critical value (determined by a junction or weak link in the ring), it jumps by a discrete amount, allowing a quantized amount of flux to penetrate the ring. Measuring the effect of that action on the current across a junction allows one to measure the strength of the applied field, and SQUIDS are routinely employed to detect very weak fields such as those produced by brain waves or nerve impulses in muscle tissue. Learn more about the controllable atom SQUID here.

To my knowledge no one in neurobiology realizes that the pia mater, CSF water and the DHA cell membranes of neurons form the biologic SQUID in our subarachnoid space for the quantum computer in our head. To form a SQUID, all one needs is two superconductors separated by a thin insulating barrier. The pia forms this barrier between CSF and the pi electrons of the cell membranes in neurons. This is how the human brain detects the earth's native electromagnetic field. It is also how modern technology disrupts that ability as well. When this sense is lost, you lose the coupling of metabolism to food and sleep. This effect succeeds every other etiology for illness your brain can imagine. This is why food is not the primordial problem for neolithic disease generation. **Loss of circadian sense is.**

The Josephson SQUID is needed to form memory and storage in humans. This is why memory has never been found to exist in any anatomic structure of the brain. It is part of the entire fabric of the brain and stored in photonic oscillations called holograms. That will get a whole other blog on this mechanism to hurt your head.

What drew Frohlich to biology from quantum physics was the realization that the cell membrane, although very thin, has an enormous voltage across it, amounting to some millions of volts per meter. This is where the physics of the SQUID crashes into biology. This is precisely what drew me as a neurosurgeon to quantum physics. Why is this finding critical to physics and completely unexplored by biology?

When this situation exists in nature, the molecules in a liquid crystal, with a voltage across it, should vibrate strongly and emit electromagnetic signals. The larger the voltage the larger the vibration. DHA increases voltage in cell membranes. This is precisely what DNA/RNA, the mitochondria and the cell membranes do in biology. The Bose–Einstein Condensation also applies to quasiparticles in solids. Guess what? Water acts as a liquid crystalline particle inside of cells! This implies anything with an internal or external membrane has a specific vibration, oscillation or resonant frequency. We talked about ion resonant frequency in EE 3 when we spoke about how calcium and calmodulin act in the brain to EMF.

It also means that a certain frequency of EMF's, or harmonic of that specific electromagnetic frequency, could interact with it to transfer information as free energy and information, much like a laser does in a fiber optic circuit or your Wifi does to your laptop or your phone company does to your iPhone. Luc Montagnier has verified this recently in his water experiments published in Nature magazine, that I mentioned in EMF 5. Dr. Grundler has already written that resonant interactions between microwaves and living systems are well documented; they just are not well known. Now you know about them and why they maybe critical.

The issue for biologists studying this is that the results are not always entirely reproducible because there are other measurement limitations that we currently are not capable of, but we know the effect exists. If it exists, we should not dismiss biologic dogma. It means we need to ask better questions to find out how to better measure the effect. Why? This is the key element in how DNA and RNA are electrified and magnified to store their information coherently for intelligent organization of epigenetic structure and function.

Let's Look at this Voltage Differential More Closely

Bacteria and Archea generate energy by using the voltage change across their outer membranes. This however, places limits to their energy production due to a geometry problem. Their energy production falls off due to a falling surface area to volume area ratio. Animal cells, by absorbing the power plant called a mitochondria, now figured out how to internalize energy production and expand the surface area of the inner membranes with massive folding, much like we see in the surface of the mammalian brain. In fact, the further we go out on the primate tree to hominids, the more surface folding one finds on the surface of the neocortex. This greatly increases the rate of energy production in humans, because it improves the surface area to volume problem that lower life forms suffer from. The neocortex also has more mitochondrial density than any tissue in the body. These evolutionary changes are believed to have occurred only once in the history of our planet. Endosymbiosis is rare in bacteria. Endosymbiosis may not have been the merger of two bacteria. It may have been a bacteria and virus. This would explain why the primate tree is ruled by viral parts. These parts actually hold the epigenetic instructions that run our nucleic acids.

Peter Mitchell was initially ridiculed for his theories on bio-energetics of mitochondria. He showed how effective this evolutionary maneuver was. He showed that this small evolutionary

change caused a pH gradient, as well as an electrical charge of about 150 millivolts, across the inner membrane of the mitochondria. This may sound like a small amount of charge, but consider this fact: the inner mitochondrial membrane is only 4-5 nanometers thick, so the voltage across this membrane is about 30 million volts per meter! This fact is what caught my attention. Why? I believe we live in an electric universe and life is constructed of electromagnetic nanomachines that are quantized. Mitchell's idea is used in biology but not in the manner biology believes. ATP is not the dominate energy compound inside a cell. Water is life's main battery. Gilbert Ling ideas were a far better than Mitchell's but they were much more difficult to accept 60 years ago. He was way ahead of where biology was in the 1950's.

The Energy Analogy of C²

DHA is critical in developing these massive voltages in cell membranes. It has massive implications in any life form that uses semi-conduction as mammals do. For an energy comparison, that is equivalent to the energy found in a bolt of lightening. That one bolt of lightening has the power generation energy of 1,500 three-thousand square-foot homes in one mitochondria. Each cell has hundreds to thousands of those power houses in them. Neurons, and their associated glial cells, have an extreme density of mitochondria to create massive energy to fuel many aspects of human mental ability. DHA can take sunlight and transform it into electric signals and high voltage. That is the power surge that fueled evolution and complex life forms. This points out why humans get ill when they move away from DHA in the marine food chain.

We need to consider what Frohlich and I are saying about quantum bio-energetic abilities. My ideas are in the last three series for you to consider. This blog is where I let it all hang out.

Frohlich said in 1967, "This excess energy is found to be channeled into a single mode — exactly as in Bose condensation — provided the energy supply exceeds a critical value."

This situation is exactly what one finds inside a mitochondria, especially in the human brain and heart. These two organs form the basis of human life. It should not be a shock, then, when we use a SQUID to drive energy flows, to see both organs generate a massive magnetic fields. The heart's magnetic field can be found 22 feet from the human chest by MEG machines. The brain's magnetic field is directed toward its white matter tracts into the body to help establish the DC current and a whole lot more as you will find out as we travel this road. I believe humans use both a DC and AC Josephson junction type of SQUID. I believe it varies in different part of the pia and ependyma of the human brain. The reason I believe this is because of the differences in both and the observed neuro-cognitive abilities that humans have as the CNS surface vary their function. The DC Josephson effect is due to a current proportional to the phase difference of the wave functions can flow in the junction in the absence of a voltage. This would be important in sleep and regeneration because both use predominant DC current according to Becker's work. In conventional radiofrequencies, DC biased circuits are also very sensitive to extreme low frequency ariels. This is why DC SQUIDS were selected for by Lady Evolution to sense the Schumann resonance which is an extreme low frequency signal that is linked to the alpha rhythms in the brain.

The Human “SQUID”

An AC Josephson effect, however, allows electrons to oscillate with a characteristic frequency. This appears to be why the layers of the neocortex in humans oscillates at different electromagnetic frequencies experimentally. The more DHA we have in cell membranes the better vibrations we can expect. The cell membranes are surrounded by water where solitons are generated to activate circuits. Many people do not realize this is how the layers of the neocortex resonate. In an AC Josephson junction, the frequency of the electromagnetic wave is proportional to the voltage across the junction. The human brain can directly control this electrical effect using CSF density and blood flow in the subarachnoid space. Both of these factors are controlled by the water chemistry in the brain that dictates CSF dynamics. Since the brain has the ability to control its own blood flow naturally, this makes complete sense from an evolutionary basis. Remember that oxygenated blood is paramagnetic and is radically affected by magnetic fields. The reason I believe this is what happens on the human neocortex is because an AC Josephson junction allows for precision accuracy in semiconduction. This describes all the observations neurosurgeons have made on the human neocortex when we have operated on it for the last 125 years. In the AC Josephson junction, the barrier effect are only on the amplitude of the electromagnetic wave. In a DC Josephson effect, it is due to the difference of the wave function of the EMF wave. This means that the frequency of the wave form can be measured with extreme accuracy.

A standard volt is now defined as the voltage required to produce a frequency of 483.597.9 GHz. Voltages have accuracies to 10^{10} power of volts. This accuracy seems to be how the neocortex is built by evolution. It also means the SQUID will use electromagnetic signals to activate or deactivate neural circuits rather easily. The semiconductor industry has built chips with 19,000 series junctions to measure voltages on the order of 10^{10} volts with incredible accuracy. The human neocortex has over 100 billion of these series junctions that use this order and accuracy to allow a human to become conscious. That is way more important inside ventricles of the brain as you will soon find out in the [October 2013 webinar](#) and in Tensegrity 4.

How Does the Squid Work?

The SQUID controls physiologic network dynamics in the brain. Quasi-periodic patterns from the earth's electromagnetic field are sensed and used to electrify our cortex. In climatology, oscillations that appear to follow a regular pattern but which do not have a fixed period are called quasi-periodic. Quasi-periodicity is the property of a system that displays irregular periodicity. Within a quantized dynamic system, such as the ocean-atmosphere oscillations, electromagnetic waves occur regularly. The same is true of seasonal changes of the changes of winter to summer on earth. Seasonal changes are caused by alterations in the electromagnetic spectrum of sunlight as the earth revolves around the sun. These external environmental oscillations are the target of the human SQUID adjacent to our DHA laden cortex without myelin.

Robert Becker and Phillip Brown were the first people to make the connection between these environmental perturbations and neuropsychiatric illness. You can read about that in Becker's book, [The Body Electric](#). Today we can still see this effect during [Maunder minimums](#). In their day, they had no way to prove their discovered environmental links, but they knew they had found them from epidemiologic data they uncovered. What they found then was true. No one realized the significance of this until I came along. I am giving you the science behind their observations.

We could not measure these things in Becker's or Brown's time. Today, we can measure it, but no one had a clue how those measurements linked to Becker's and Brown's work. Now you do. Today, we have the proof they lacked.

What is the proof?

Functional connectivity measurements from resting-state Blood-Oxygen Level Dependent (BOLD) functional Magnetic Resonance Imaging (fMRI) are proving to be a powerful tool to probe both normal brain function and neuropsychiatric disorders. This is directly tied to water's action in the brain and is tied to its diffusion pattern. BOLD data is the result of auto-regulation of blood flow by the electromagnetic environment the brain is sensing. This obviously is not a good thing in the modern world, and forms the basis of why we are seeing the diseases we are. This BOLD data also shows us directly how blood flow is regionalized and controlled by the brain using light, water chemistry and the fluctuations in the electromagnetic field of the environment on earth. These effects are also confirmed by Dr. Paul Heroux findings on the ATPase in an altered magnetic field.

Recent work in anesthetized rats and humans has shown that the spontaneous BOLD fluctuations are tightly linked to infraslow Local Field Potentials (LFPs) that are seldom recorded but comparable in frequency to the slow BOLD fluctuations I mentioned above. These LFPs cause oscillations that have been commonly indicated to involve the thalamus and its networks to alter their basic cellular mechanisms. Remember, I told you that earlier that Layer 1 of the human neocortex is adjacent to the the SQUID. This layer projects directly to the thalamus to integrate the electromagnetic signals from our environment for the brain to make sense of the signals and mount a proper physiologic response. All things in life are directly tied to sensory inputs as you will find out as the blog rolls on.

To experimentally examine the simultaneous yoked link between large-scale network dynamics and infraslow LFPs, simultaneous fMRI and thalamic microelectrode recordings were performed in anesthetized rats. When they used an optimized filter to isolate shared components of the signals, researchers found that a **perfect time-lagged** correlation between infraslow LFPs and BOLD is comparable in spatial extent and timing to a Quasi-Periodic Pattern (QPP) found from BOLD alone, suggesting that fMRI-measured QPPs and the infraslow LFPs share a common mechanism.

This completely explains how the brain works in relation to environmental electromagnetic field effects. The electromagnetic field transmits its energies into the diffusion coefficients in water that surrounds the brain. These are imprinted by the hydrogen bonding network in water. Water is a repository for all electromagnetic energy. I expect that we will find that it does the same to glial cells too, in the future. Glial cells are more numerous than neurons are in the brain. The "field" is the most important thing in human biology. Since functional MRI allows spatial resolution and whole brain coverage, and this ability is not possible with electroencephalography, QPPs can then be used to best understand the role of infraslow oscillations in normal brain function and neurological or psychiatric disorders in humans. QPP's are formed by light, water chemistry and electromagnetism. QPP's arrive to the brain from three simple environmental signals that our brain translates into human life.

Neurosurgery, Neurology and Biochemistry Geeks: What I just said above should have floored you. If it did not go back and reread it until you get what I am saying clearly. What you believe is dead wrong about the brain. Now I have the proof to show you why we were wrong: Recent data from cite 22 shows that various nuclei in the dorsal thalamus in vitro can express a robust ISO at ~0.005–0.1 Hz that is greatly facilitated by activating metabotropic glutamate receptors (mGluRs) and/or Ach receptors (AchRs). **This means that environmental EMFs are directly linked to neurotransmitter responses found in the brain.** This ISO is a neuronal population phenomenon that modulates faster gap junction (GJ)-dependent network oscillations and can underlie epileptic activity when AchRs or mGluRs are stimulated excessively. In individual thalamocortical neurons, the ISO is primarily shaped by rhythmic, long-lasting hyperpolarizing potentials, which reflect the activation of A1 receptors by ATP-derived adenosine and subsequent opening of Ca^{2+} -sensitive K^+ channels. K^+ ions are directly coupled to ATP and water molecules to structure water in neurons and glial cells. The flow of water between both cells is critical in how the brain is activated and deactivated. These flows are controlled by Aquaporin 4. Remember what I told you earlier in this series about non native EMF's and calcium ion frequency in EE 3?

Why is K^+ important inside the cell? K^+ links water molecules to ATP molecules stochastically. This is what Gilbert Ling proved 60 years ago and no one seems to know about it. Each molecule of ATP in a cell controls 8,800 water molecule binding sites and 20 potassium ions to allow water to become structured inside every cell of your body. Potassium levels tell you about the direct thermodynamic relationships to ATP. For every 0.3 mEq below 3.8 mEq that potassium is on a standard blood lab draw, means there is 100 mEq deficit inside a cell. The atomic size and its redox potential is huge factor allowing potassium to "glue water together" for it to function as the optimal electrical adapter to transfer energy throughout the cell coherently. ATP is designed to unfold proteins fully to open their carbonyl and imino side chain groups on all amino acids to intracellular water. This action allows binding and polarization to separate water into subatomic particles that are positively and negatively charged. This action is called building or expanding the exclusion zone (EZ) of water. This is the core work of Dr. Gerald Pollack.

The electromagnetic field of action controls calcium channel function, and it controls calmodulin biochemistry. This makes EMF's the primordial actor for all neolithic diseases. It is no longer an arguable point based upon this information we now have and have experimentally proven to be true in the brain. It maybe hard for you to fathom, but that is the beauty of science. Regardless of what you believe, the experiments of science reveal nature's real truths. What you learned in residency training must be set aside based upon this data. Our brain is the ultimate electromagnetic quantum computer. To argue this point is to argue with the laws of nature at this juncture. This is not my opinion; it is the opinion of Mother Nature.

Non-Geek Meaning: The brain senses the local, seasonal, environmental electromagnetic frequency to make decisions on which neural networks should be filled with electrons first and those last. From these decisions comes the biochemistry that determines what life you'll have, how long you live, and how ill or well you will be as your lifetime evolves. If you lose more energy more quickly, more diseases show up using a 'first in, first out' energy partitioning plan. These electromagnetic frequencies determine how biochemistry (and how life) is going to be perceived and how life is expressed from your DNA and RNA. There are no constants anywhere in our body unless the resonant cavity energies found between the Earth's surface and the ionosphere are constant. They no longer are on the surface of planet Earth because of our creative use of technology.

These recent findings have thrown further support behind my quantized model hypothesis that long-range neural coordination involves low frequency electromagnetic neural oscillations in the form of solitons. These wave forms are perceived by the SQUID and electrify and magnify the proper neural circuits in the brain to shape all of human life. These wave forms establish infraslow LFPs as an excellent candidate for probing the neural circuitry underpinnings of the blood-oxygen level dependent (BOLD) spatiotemporal patterns observed in all mammals, and especially humans.

Quantum Cell Theory

The quantized cell model explains a lot of medicine's enigmas. Frohlich said, "Under these specific circumstances, a random supply of energy is thus not completely thermalized, but partly used in maintaining a coherent electric wave in the substance so that it may carry huge amount of information in energy formats."

What did this mean to me when I read it for the first time in 2005?

Well, I knew all the energy from a mitochondria is not thermalized to heat in mammals, normally. In fact, very little of it is. This is why the voltage difference across our mitochondrial membrane caught my attention. In my opinion, many in the paleosphere have made this error. It turns out the brain creates huge amounts of electrons by splitting electrons from water found in CSF to deliver massive amounts of O₂ to the neocortex. This oxygen generates a huge magnetic footprint. This enhances the electric currents in the surface of the brain. The infra red thermal heat is absorbed by CSF to create huge exclusion zones in water. This is why they have made this error. They do not yet realize water absorbs infrared heat ideally by its molecular design. As it does this, the excess energy is used to store information coherently in many different types of electromagnetic wave forms in the Quantum brain and in our semiconductors all over the body. In fact, this is where our ability for memory is created in the mammalian neocortex. How it is stored is even more shocking. It is not stored in the brain. I believe it is stored in our cytoarchitecture in all of our cells. We use "quantum holography" for both long-term and short-term memories. Any neurosurgeon can tell you when we do lobectomies, for any reason at all, it is a stunning consequence that the person retains a lot more memory than one would expect by the amount of brain we resect at surgery. There are a few key neurologic structures where memory can be seriously altered, but removing large parts of the neocortex and lobes seem to have little effect on retaining memory.

The reason for this observation is because holographic coherence can restore complete optical memory function from the smallest remaining pixels left in the remainder of the brain in which that information is stored. In others words, a small remaining part of the brain's microtubules can restore the greater whole *if* we meet certain energy thresholds within the brain. This insight, in my opinion, has massive implication for diseases like Alzheimer's disease.

We have one big problem with that situation in modern medicine. Modern medicine is not prescribing therapies to meet these energy-threshold requirements. This is where the Epi-Paleo Rx and ketosis come into play. This may begin to show why I see things a lot differently than most others. I see biology through the lens of the content in this blog.

The Epi-paleo Rx and ketosis both increase energy into a cell when it is losing it. It does this by increasing NAD⁺ and DHA. It is where cold plays its role to increase energy currents, where reverse osmosis water comes in to electrify parts of our semiconductors that have lost that ability, and it is where application of red light and avoidance of all blue light becomes paramount to finding optimal to improve disease and reverse them. All of these strategies can add energy to your cells when you are constantly losing it to an environment we humans have created. Reversing a disease can thereby be thought of as therapeutic actions designed to add more energy to the biologic system to eliminate the molecular chaos of life. Think of a whirlpool. TO exist it must maintain a flow of water to its vortex. If that supply is interrupted the whirlpool fails. The same process happens in a quantum cell. The addition of small quanta of energy stabilizes the loss from the emission of black box radiation. DHA is critical in this situation. It constantly needs to replace itself in cell membranes to maintain this relationship.

If energy levels are already robust and close to optimal, the system is metastable and longevity is the rule, not the exception. This is analogous to a ball being kept on top of a hill in a flat area. Any forces added one way or another will cause the ball to roll to one side of the system. Here you can understand what metastability entails. It should be clear then why adding more to the system could also destabilize it, so it is clear that energy allostasis is important in a biologic system. If too much energy is added it could short circuit the cell membrane and mitochondria leading to disease propagation. Energy allostasis is precisely why the leptin receptor was formed via natural selection by evolutionary design. The electromagnetic field is what determines how we partition energy balance because this is how the universe does it using the natural laws of physics. It also explains why obesity and anorexia can be caused by leptin resistance. The destabilization of the metastable quantized system can be affected in both directions, so the context of the perturbation matters greatly in what disease is manifest. The physiologic stress response comes from a loss of energy from your body. The hormonal response is an altered panel. The results in a telomere is a shorter telomere, early aging and disease, and death at a younger age. Cite 25 video shows you how that happens. The part of the cell that pays attention to this is calcium signaling that I spoke about in Energy and Epigenetics 3.

Summary

Adding energy will alter the structure of our polymer proteins within tissues in the body to slow aging and reverse disease. If you have obstructive sleep apnea, you may now realize why your upper airway structures change when you get this disease. A lack of energy will increase the masses of tissue in your upper airways, which helps you in wakefulness and screws you in sleep. This also explains why we see the changes in enlarging brain size with trauma or the enlargement of the heart in heart failure. Fixing the anatomic changes is best done by adding energy back to your body and not from having surgery to widen your upper airway. Eating carbohydrates all day long, living indoors in fake blue light, and using technology gadgets that utilize dehydrating electromagnetic frequencies is not how a quantized system works optimally. Just because you can do it, does not make it correct for your biology.

This is where the application of new ideas and therapies I have formed for diseases of the brain make quantum sense, not classic biologic sense. It also shows you why evidence-based medicine and paleo dogma maybe your fastest way to a demise. The model of how a cell works radically alters our perception of what is therapeutic or detrimental. When therapies are advocated and they do not work, we need to consider asking better questions from the perspective of this new paradigm of how a quantized cell works physiologically in the

electromagnetic field it finds itself in. The more non-native EMF your cells face, the shorter your telomeres become. The process is reversible. Medicine and the lay public do not see this yet. I do because of what is in this blog. It is time for us to realize there is a lot more to the evolutionary story of human physiology than we currently believe.