

Fusion

Cosmic < coherent > Harmony

Brain < coherence > TA < coherence > Mind

Matter <<< coherence >>> Mid Mind << coherence >>> Spirit

Adjutant Mind < coherence > Spirit of Truth < coherence > Cosmic Mind

Intellectually <<<<< coherence >>>>> Mindfully <<<<< coherence >>>>> Morontially

Involuntarily <<<<< coherence >>>>>> Free Will Control <<<<< coherence >>>>>> Volitionally

Physical <<<<<<<< coherence >>>>>>>>> Wisdom <<<<<<<< coherence >>>>>>>>> Spiritual

Worship

Counsel

Knowledge

Courage

Understanding

Intuition

Protoplasm

Personalitree



Physiologies that might be receptive to spiritual influences in our body, brain, mind, and mid-mind.

In this course we will look for ways to explain, using physics and physiology, how the very different spiritual energies might interact with our material energies. We will look for possible coherences in the electrochemical physical functions of body and brain, that might shed light on spiritual to material inter-associations. We will also look at our mindal/emotional overcontrol of these physiologies and perhaps find ways to improve our ability to detect, enhance and improve receptivity and capacity of spiritual influences.

I am not suggesting a reductionist mechanism wherein our self-consciousness and therefore our God consciousness could be reduced to the motions of matter but as it says in **12:6.3**

Mind alone can interassociate the physical forces and energies of the material level with the spiritual powers and beings of the spirit level.

Spirit is a real force, a real power and a real stimulus to producing spirit substance but I am not suggesting that we will find spirit substance in our material bodies, what I am suggesting is that we may find the effect of spiritual luminosity on the solar radiometer of our minds.



Spirit substance (quality) is just as responsive to spirit gravity as the organized energy of physical matter (quantity) is responsive to physical gravity. Spiritual values and spirit forces are real.
7:1:3 (82.2)

Can we be materially influenced by spirit forces? Does a progressing mind yield a progressing spirit?

In time, man's body is just as real as mind or spirit, but in death, both mind (identity) and spirit survive while the body does not. ... And so your Greek figure of speech—the material as the shadow of the more real spirit substance —does have a philosophic significance. 12:8:16 (141.1)

We will explore some of our physical functions that could show evidence of spiritual influence.

30,000-foot - Paradise Perspective

We are under the influence of material gravity from below, and mindal and spiritual gravity from above.

Material gravity will ensure that our dust remains under the control of Urantia gravity but our mind as it guides our choices, decisions, and steadfastness, will help us to transfer the seat of our material identity to our more enduring morontia soul.

At the top there are:

Spirit Perfections – In the Eternal Son, Deity Absolute, ideal spirit.

Mind Perfections – In the Third Source and Center, ideal mind.

Matter Perfections – In Paradise, the stationary source of energy and perfect material patterns.

At the bottom there is:

Unqualified Absolute, pattern less energy with potentiality.

There is a tension between these two extremes and the Universal Absolute, facilitates its resolution. Over time, energy patterns improve the order and stability through involuntary energy tension relieving, ever improving the organization of matter up to the stage of sentience. After establishing sentience, the responsibility for improvement is passed over to the sentient being. At our stage, we recognize the tensions from above and using our 3 cosmic intuitions (causation, duty, and worship) we logically continue that stabilization, organization, and cooperation towards perfection.

There are three theories of causation:

Upward: Scientific Causation (energy-matter makes us what we are)

Downward: Spiritual Causation (God makes us what we are)

From a scientific perspective, if the universe was created based on a downward causation scenario of structural formation, we'd see large collections of matter fragmenting into smaller structures like galaxies. If it were purely an upward creation, mutual gravitation would gradually bring matter together. Instead, our universe appears to be an amalgam of both. The universe is not described well by either scenario. So, the more plausible scenario is:

Up/Down: Science – Spirit Causation (Energy-matter makes it possible. We make it perfect)

In this course, we are going to examine some of the ways that we are resolving these top – down and bottom – up tension quests for perfection, from both external physiological and internal psychological perspectives using our God given body (to feelingly experience) our brain (to discover, recognize and choose), and our mind (to build patterns of thinking to facilitate future growth).

There are perfect patterns in Havona, and we will try to conceive of ways that those patterns can somehow influence our progress towards paradise.

The areas we are going to investigate are:

Week 1

1. Physiology of Body Consciousness
2. Connectedness and Coherences
3. Brain, Mind and Consciousness

- 4. Types of Consciousness
 - 5. Current Theories of Consciousness
- Week 2
- 1. Intercellular Consciousness
 - 2. Epigenetics
 - 3. Neurotransmitters
 - 4. Homeostasis
 - 5. Brain Waves
 - 6. Picturizations
 - 7. Activity Regulated Cytoskeletons & Synaptic Adhesion Molecules
 - 8. The Maturing Brain
 - 9. Thought Adjuster Reception
- Week 3
- 1. Changer, Adjuster, Controller
 - 2. Microtubules
 - 3. Microtubule Quantum Coherence
- Week 4
- 1. Electromagnetic Continuum
 - 2. Physiologic Continuum
 - 3. Single and Multiple Quantum Coherences
 - 4. Time Consciousness
 - 5. Multiple Physiological Clocks
 - 6. Thought Feedback Loop
 - 7. Near Death Experiences
- Week 5
- 1. Emotional Processes
 - 2. Emotional Self-Mastery
 - 3. Thinking Processes
 - 4. Sentience and God Consciousness
 - 5. Top-Down and Bottom-Up Perspectives
 - 6. Soul Physiology
- Week 6
- 1. Soul Fusion
 - 2. Philosophy of the Physiology of Spiritual Influences

We are going to look for techniques to be more aware of morontial or spiritual influences, and look for ways to discover, connect, and improve the ways we think and behave in these following areas:

- 1. Magnetic coherences
 - a. Nuclear resonances
- 2. Electrical coherences
 - a. Electromechanical resonances
- 3. Combined Mechanical and Optical coherences.
 - a. Microtubules
 - b. Neurotubules
- 4. Intellectual coherences
 - a. Psychological

- b. Philosophical
- c. Near Death Experiences
- d. Emotional

While examining these, we will look for coherences that could involve:

- a. Our actions
 - i. Serving
 - ii. Praying
 - iii. Worshiping
- b. Our Soul
 - i. Formation
 - ii. Growth
 - iii. Awareness
 - iv. Fusion

As we do this, we will try to take the lead from our master.

“Jesus possessed the ability effectively to mobilize all his powers of mind, soul, and body on the task immediately in hand. He could concentrate his deep-thinking mind on the one problem which he wished to solve, and this, in connection with his untiring patience, enabled him serenely to endure the trials of a difficult mortal existence—to live as if he were “seeing Him who is invisible.” 127:3.15 (1400.7)

Please join me in this exploration and discussion course. There won't be “right/wrong” questions but there may be a few suggestions for further research. I hope to see you soon. Thanks.

Physiologies of Body Consciousness

Our gut goes from acid to alkaline, charging the battery. This electricity is then discharged to make ATP (cellular fuel) in the electron transfer processes in each cell's mitochondria. (ref 29) The electric potential, stored in ATP, facilitates motion and inter/intra cellular communication. All communications involve this biochemical electricity which results in either hydrophilic (binding) or hydrophobic (repelling) interactions. Some fundamental intercellular communications are pain, effort reduction, tension relief and their corollary; pleasure seeking. As we manage the tension between these two extremes, the reptilian brain stem functions as our sensory input/output hub. It passes signals on to multiple areas of the brain for storage and they send back an "intelligent" response as we continuously reflect, cross reference, and choose.

“The evolutionary type of knowledge is but the accumulation of protoplasmic memory material; this is the most primitive form of creature consciousness. Wisdom embraces the ideas formulated from protoplasmic memory in process of association and recombination, and such phenomena differentiate human mind from mere animal mind.” 101:6.4 (1111.8)

Connectedness and Coherence

“The far-flung physical universe coheres in the Isle of Paradise; the intellectual universe coheres in the God of mind, the Conjoint Actor; the spiritual universe is coherent in the personality of the Eternal Son. ... Man's Adjuster is a fragment of God and everlastingly seeks for divine unification; it coheres with, and in, the Paradise Deity of the First Source and Center.” 2:7:7 (42.8)

Can we connect an electron to the whole universe? Can we connect science and spirit? Can we harmonize brain functions, spirit senses, sights, and insights? Can spirit give us the ability to recognize valuable influences? Is insight the shadow of spirit luminosity? Let's examine some of the laws of physics that might be involved in the interactions between the eternal and the temporal, the infinite, and the finite, the spiritual and the mindal, the morontial and the material, spirit, and brain.

“Always should the domains of the physical (electrochemical) and the mental response to environmental stimuli be differentiated, and in turn must they all be recognized as phenomena apart from spiritual activities.” 65:7:8 (739.4)

Brain, Mind and Consciousness

The mind is a personal-energy system existing around a divine spirit nucleus and functioning in a material environment. 12:9.6 (142.1)

Our mind differs from our brain. The brain is a tangible part of the whole body, whereas the mind is the consciousness of our brain's activities and therefore, intangible. The brain and body actively prioritize things and have a pre-prioritized status, but our identity involves not just the electrochemical status of our body/brain, nor just our mind's self-consciousness but rather the super additive results of their cocreation. We are constantly aware of our current state and compare it with a review of the past and anticipate the consequences of our actions.

0:5.8 (8.8) 2. Mind. The thinking, perceiving, and feeling mechanism of the human organism. The total conscious and unconscious experience. The intelligence associated with the emotional life reaching upward through worship and wisdom to the spirit level.

Let's look at some of the living electrochemical activities of our animal brain and see if we can find some of those intangibles that determine how we prioritize things with the goal of becoming more spiritually minded. (ref 0:5:7)

The physical brain with its associated nervous system possesses innate capacity for response to mind ministry just as the developing mind of a personality possesses a certain innate capacity for spirit receptivity and therefore contains the potentials of spiritual progress and attainment. Intellectual, social, moral, and spiritual evolution are dependent on the mind ministry of the seven adjutant spirits and their superphysical associates. 65:6.10 (738.3)

The different states of brain consciousness:

- unconsciousness - disrupted connectivity state of the brain.
- sub consciousness – a state of suppressed brain input activity.
- deep sleep – a delta wave dominant, immune system strengthening, body repairing state of the brain.
- hypnagogia – a creative transition from wakefulness to sleep.
- light quiet sleep – a period of hypothalamus (link to the endocrine/hormone system) shut down.
- rapid eye movement (REM) – an active dream sleep, when thermostat regulation is suspended.
- wakefulness – a beta wave dominant state of free will controlled thinking.
- superconsciousness - the pre-prioritized state of the brain that is not overtly involved in input analysis or decision making.

Side Note: Microglia, a type of neuroglia or glial cell in the brain and spinal cord, the macrophage cleanup cells, are most active during deep sleep.

Looking at our multiple states of consciousness prompts some questions. What influences these various states of our brain's activity? What extracts or filters active thoughts from stored memories? How does our awareness shift from material to spiritual, from "me" to "we", from adjutant to cosmic thinking? Where does our consciousness of God come from? Let's use our creative wakefulness (and perhaps our hypnagogia and our superconsciousness) to look for some logical connections between intelligence and consciousness, between cellular interactions and spiritual growth.

Types of Consciousness

Consciousness is stated to be a multifaceted and complex phenomenon, and has been categorized in various ways by psychologists, neuroscientists, and philosophers. Here are some of the different types or aspects of consciousness:

Wakefulness or Arousal: This is the most basic sense of consciousness, referring to the state of being awake and responsive to the environment, as opposed to being asleep or in a coma.

Phenomenal Consciousness: This involves the subjective experience or qualia — the 'what it is like' aspect of consciousness. It encompasses the sensations, perceptions, dreams, and feelings that are part of our conscious experiences.

Visual Consciousness: Visual awareness, functioning between phenomenal consciousness and access consciousness. (ref 25)

Access Consciousness: Defined by philosopher Ned Block, this refers to the brain processes that make information available for verbal report, reasoning, and the control of behavior. It's more about the functionality and utility of consciousness.

Self-Consciousness: A higher level of consciousness where one becomes aware of oneself as an individual, separate from others and the environment. It includes self-recognition and self-awareness.

Meta-Consciousness: Thinking about one's own consciousness including reflecting on one's own thoughts, feelings, and sensations.

Narrative Consciousness: The human capacity to link events and experiences into a chronological and meaningful story involving personal identity and memory, constructing a narrative of 'self' over time.

Altered States of Consciousness: A state that differs significantly from normal waking consciousness and can be induced in various ways, such as through meditation, hypnosis, drug use, or through dreams.

Collective Consciousness: A concept primarily used in sociology and anthropology, referring to the set of shared beliefs, ideas, attitudes, common to a social group or society.

Non-Conscious Processes: The mental processes that occur outside of conscious awareness, such as implicit memory, automatic skills, and subliminal perceptions.

Cosmic Consciousness: A philosophical doctrine, referring to a higher, all-encompassing form of consciousness that connects the individual to the universe.

Each of these definitions consider different aspects of consciousness, from physiological arousal to complex reflective philosophical or cosmic perspectives. Understanding the various definitions highlights how multidimensional consciousness is.

Current Theories of Consciousness (ref 35)

Integrated Information Theory: IIT - Consciousness as a Web of Information

The more interconnected or integrated the system the higher the "Phi" consciousness.

Higher-Order Theories: HOT - Consciousness as Self-Reflection

The brain represents its own higher order of perception or mental state. Conscious experience is the result of thoughts about thoughts, self-representation or metacognition. (ref 50)

Biological Naturalism: Consciousness as a Biological Naturalism Phenomenon

An emergent biological phenomenon of purely physical biological mechanisms in the brain where specific neural correlates of consciousness (NCCs) form a minimal set of brain mechanisms when producing a particular conscious experience.

Panpsychism: The Universal Consciousness (ref 41)

Consciousness as a fundamental property of the universe, akin to mass or charge. All physical entities, from electrons to galaxies, possess some form of consciousness or proto consciousness.

Neural Darwinism: Theory of Neuronal Group Selection. The Evolution of Consciousness

Consciousness emerging through a process of selection among groups of neurons, akin to the principles of natural selection.

Global Workspace Theory: GWT - Consciousness as a Central Information Hub

Consciousness arises from the integration and sharing of information across different brain regions and functioning as a central information hub, allowing various cognitive processes to communicate and cooperate.

Quantum Consciousness Theory: Quantum Mind Theory

Quantum Consciousness Theory is based on the idea that microtubules, which are tiny protein structures found within cells with DNA, can facilitate quantum computations.

We are going to focus on the Quantum Mind Theory.

Physiology of Body Consciousness

Our digestive system is involved in all these consciousness states. Our gut (sometimes called the second brain) has capabilities that may surpass our brain's intercommunication ability. It has its own nervous system, known as the enteric nervous system. The cells in our body communicate with each other and they have a direct pipeline to the brain via the Vagus nerve. Our gut's food processing mechanism moves serially from acidic to alkaline, charging the battery, and it is electrically aided by being grounded through our connection to mother earth. We eat proteins of one form (plant or animal), break them down into their constituent parts (amino acids, di and tri peptides) and then reassemble them into the proteins we need. The human body makes 80,000–400,000 different types of proteins for many different purposes. The processes of using the electro-motive power to extract and rebuild the necessary building blocks for the cells of our body co-evolved with us. Life Carriers designed us to be energetically active. We can control the ways we discharge the battery, and we will try to see how we can wisely direct that electrical discharging process.

Our cells communicate with each other by mechanically directly contacting neighboring cells or by transferring electrically patterned peptide signaling molecules with hydrophilic (water attracting) and hydrophobic (water repelling) patterning. Interaction between cells is determined by the electrical surface properties (positive – negative being attractive and like charges being repelling). All cells possess a common genetic constitution, but they are influenced by their cellular environment, and their position in their nearby electrodynamic field. The thing that determines whether their DNA folds into a brain cell protein or into a gall bladder, is its electrical environment. The cell's formation is controlled by an extra-biological guiding principle, called “entelechy” which literally means “the realization of potential”. (ref 48. Levin)

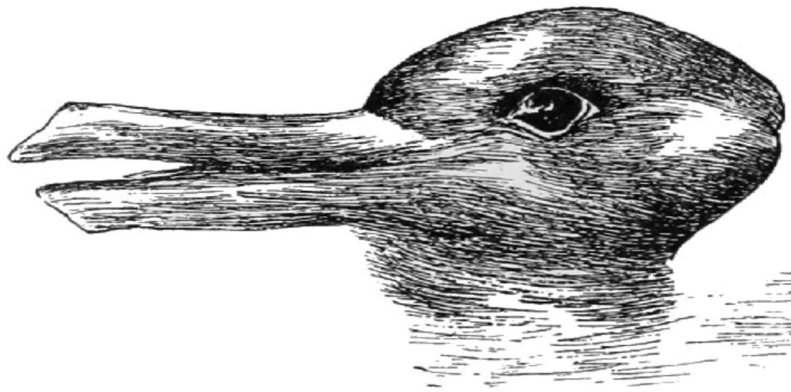
Peptides form the basis of non-immune system signaling molecules and there are up to seventy different types of peptides. Peptides are small portions of digested or manufactured proteins, and form signaling molecules like endorphins (ref 13), hormones, and neurotransmitters. These signaling messenger molecules connect the cells of the body's endocrine (bodily functions), and nervous systems, cascading electro-chemical messages between cells, along nerves, up the spinal cord, to the brain stem, the amygdala, the hypothalamus, the thalamus, the pineal and pituitary glands, and then on to other areas of the brain for appropriate responses. These peptides form the base of the periaqueductal gray (PAG) area of the brain stem which is the hub for self-awareness and pain mitigation. This is also the hub for our qualia, the internal and subjective sense of our perceptions, the introspectively accessible aspect of our brain. Qualia is our self-organizing, self-referring and self-actualizing psychosomatic network that gives us our intrinsic properties of experiences (think sub and superconsciousness). Peptides manage the biochemical overcontrol of our 34,000 possible emotions and play a crucial role in assisting the activities of our immune system, by integrating mental, emotional, biological activities and eventually our spiritual wellbeing. They color, predict, and change our behaviors, our moods, and our unique emotional tone (ref 20).

There are no hard-wired emotion control circuits in the brain. Emotional responses are controllable.

**“At any moment of time, in the blood stream of any human being there exists the possibility of upward of 15,000,000 chemical reactions between the hormone output of a dozen ductless glands.”
65:6.6 (737.6)**

As these peptide-based chemical reactions cascade along nerves, their “critical first stop” is the brain stem and medial limbic region of the brain, where they are sorted and prioritized before furtherance to the neocortex for responses or for memory storage. Sensory inputs are dealt with via the amygdala and the sympathetic (fight or flight) nervous system and balanced by the parasympathetic system which regulates “rest and digest” functions. There are 86×10^{10} neurons transmitting signals at about 120 m/s or 275 mph. There are 100×10^{14} synapses of which 250,000 are firing at any one moment. If we think of the synapses as the pixels of a camera and the firing rate as the number of pixels that are changing from frame to frame, then the refresh rate of the image occurs at $(100 \times 10^{14}) / 250,000 / 275 = 1,454,545$ frames per hour or 24,242 per second.

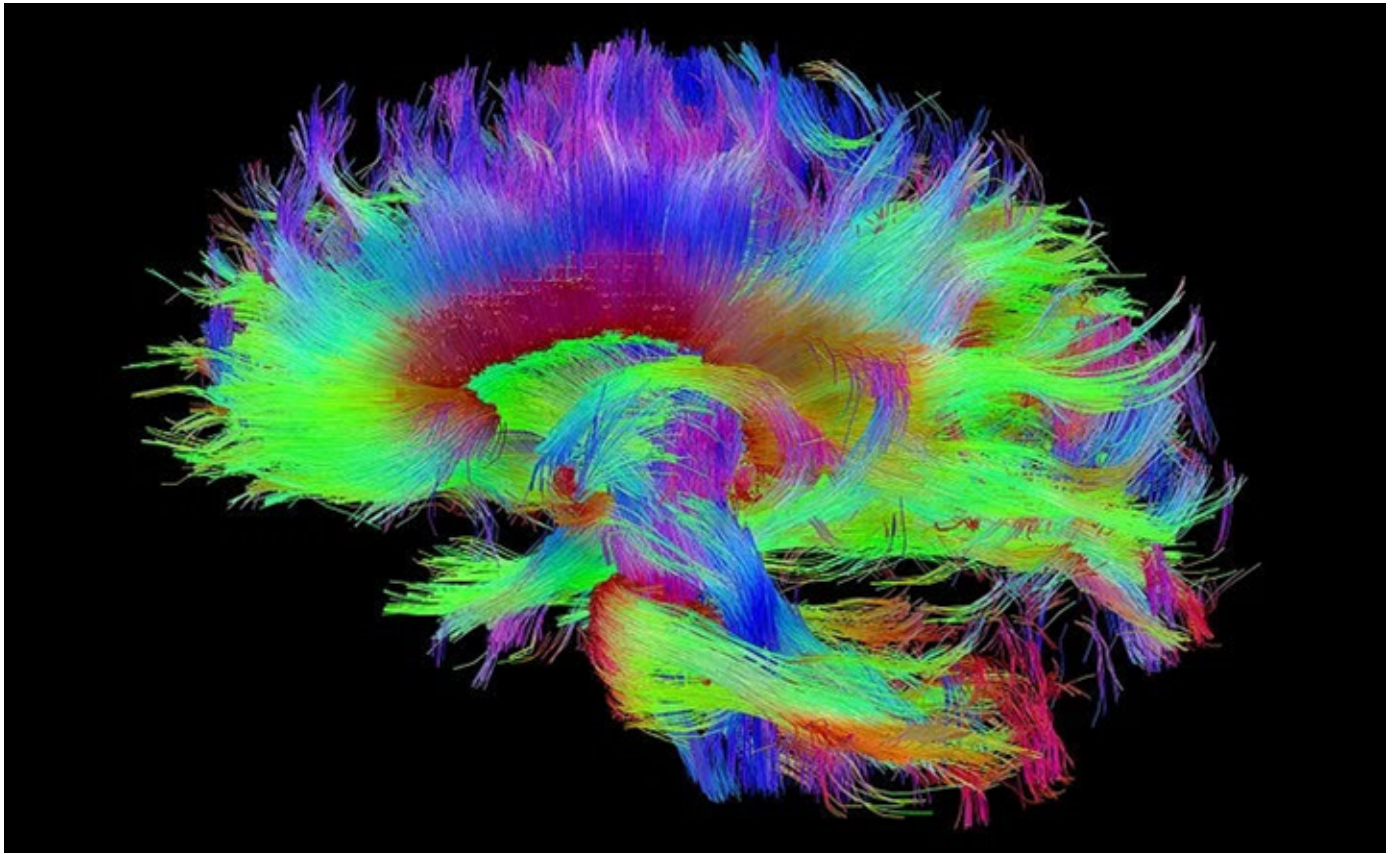
To handle the continuum of signals that need consideration, the brain has about 86 billion neurons and 100 trillion synapses all capable of intercommunication. This is 10 to the millionth power of possible states, so the flow of information is more like constantly moving three dimensional images. For example, the brain can form a three-dimensional image from the electrochemical signals received as light from an object hits dozens of parallel stacked disks in the rods and cones of the retina. Each disk has a seething liquidity of receptor molecules moving in a “random” manner. A light triggered molecule collides in this semi liquid sea, with a nearby molecule, transferring a smaller signal molecule amplifying the signal. Similarly, other cells in the body have “random” motion collisions with neighboring cells that transfer messenger molecules which determine their interactions. In the case of the eye, these interactions cascade electrochemical signals in a chain reaction



down the optic nerve to the visual cortex of the brain which creates the visual image, but our conscious image is made up of much more than just the visual image. Our consciousness image includes everything that is happening, along with all our memories, related thoughts, qualia, gut reactions, future intents, and current actions. It is interesting to note that there are ten times as many neural connections coming back from the various cortex areas of the brain, as there are going out from it, so the mid brain is sharing the current inputs with all other associated areas of the brain for continuous reflecting, cross referencing and choosing. In effect, we are continuously observing and relating our current self with our past self. (ref 10)

Is it a Duck looking left or a Rabbit looking right?

“The human mind does not create real values; human experience does not yield universe insight. Concerning insight, the recognition of moral values and the discernment of spiritual meanings, all that the human mind can do is to discover, recognize, interpret, and choose.” 196:3.10 (2094.9)



Brain Wiring Networks

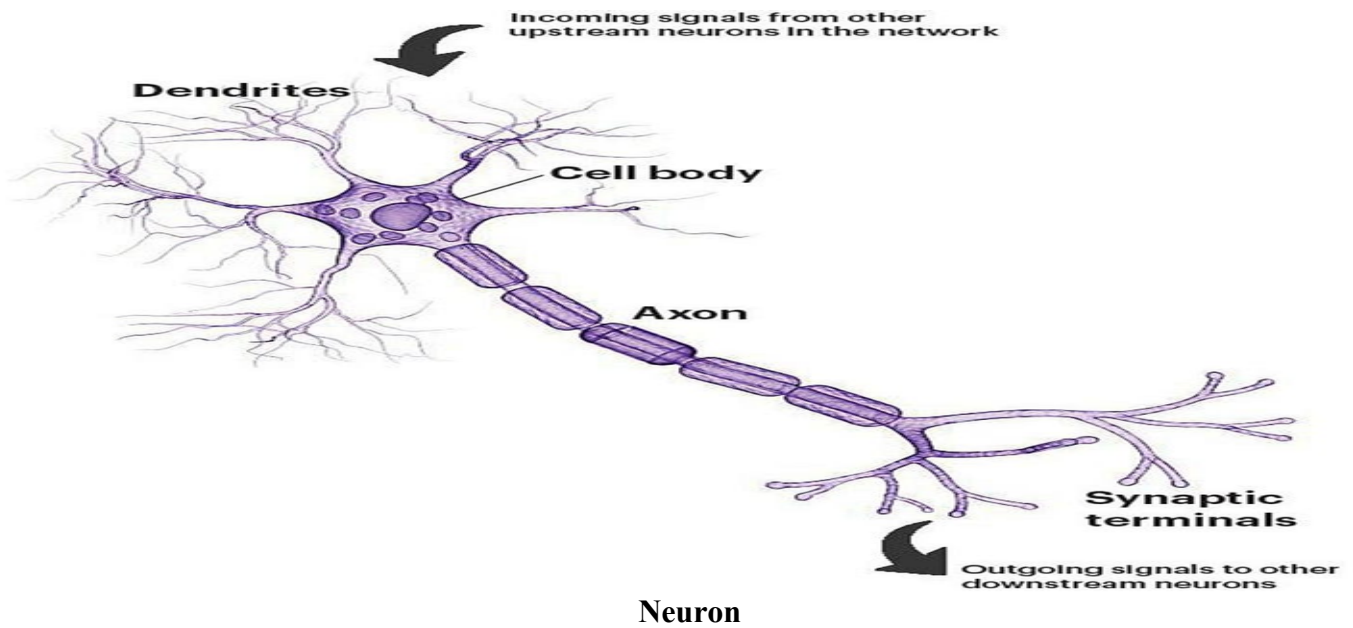
“Ideas are not simply a record of sensations; ideas are sensations plus the reflective interpretations of the personal self; and the self is more than the sum of one’s sensations.” 133:7:7 (1534.6)

Side note: The most important part of the brain, the neo-cortex, is almost the same everywhere. It manifests material uniformity.

Intercellular Communication

Communication between individual cells of the body is aided by cellular cytoskeletal structures, eicosanoids (immune system) and nerve cells. Let’s first look at nerves of which there are two types, sensory (incoming) and motor (outgoing). The sensory nerves are made of many sections varying in length from 0.1 mm to a meter. Nerve stimulation has a trigger voltage below which there is no response and above that voltage the nerve fires. Peptide neurotransmitters are chemical messengers that are released, to communicate, unidirectionally, to the next nerve segment.

The frequency of firing encodes the information as it is transmitted via the peptides and action potential along the nerve. Each segment intercommunicates at their intersections and these intersections do not actually touch, instead, they have a 40-nanometer gap between them called the synapse. At one end, are the synaptic vesicles which contain these peptide neurotransmitters.



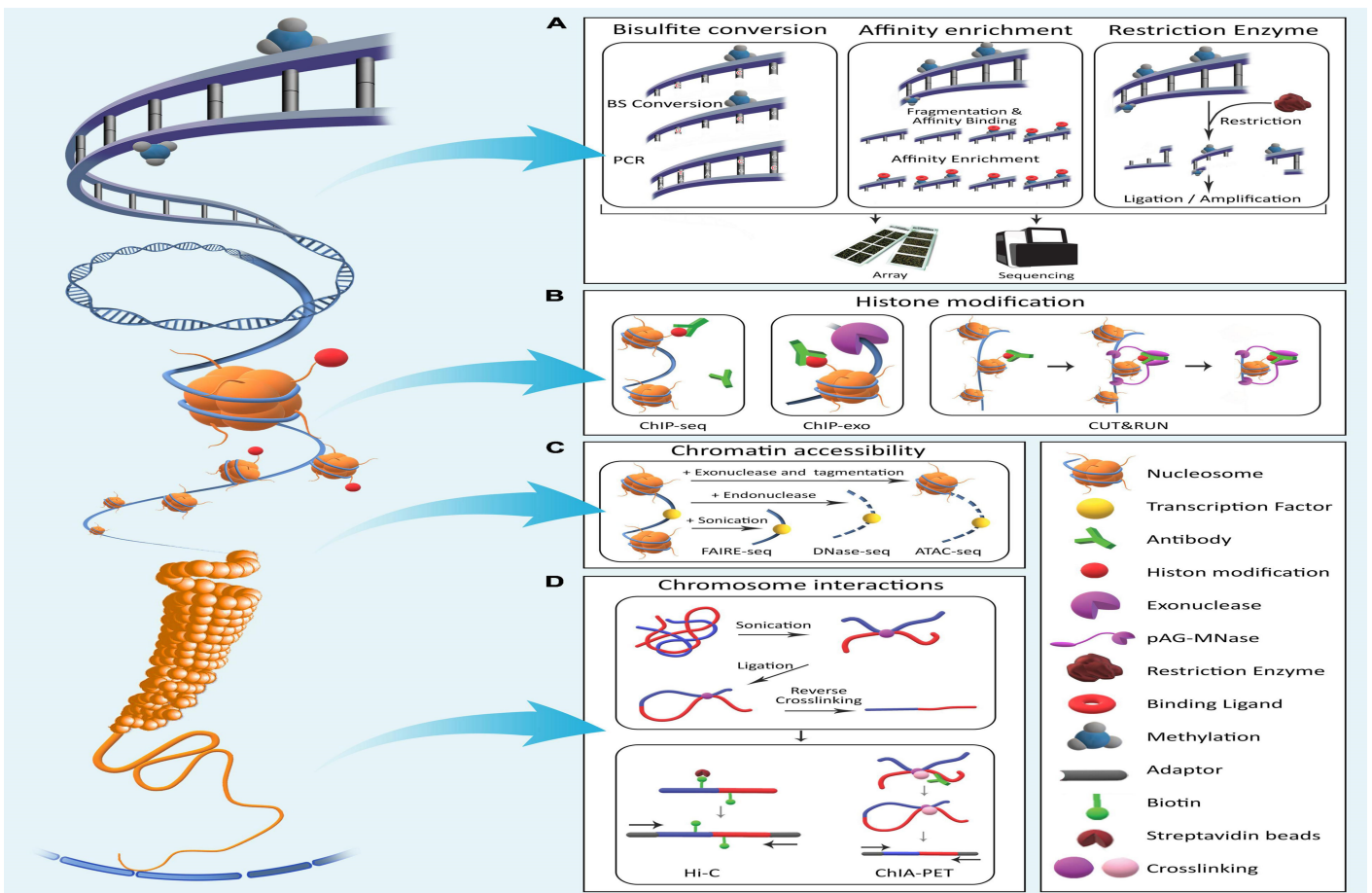
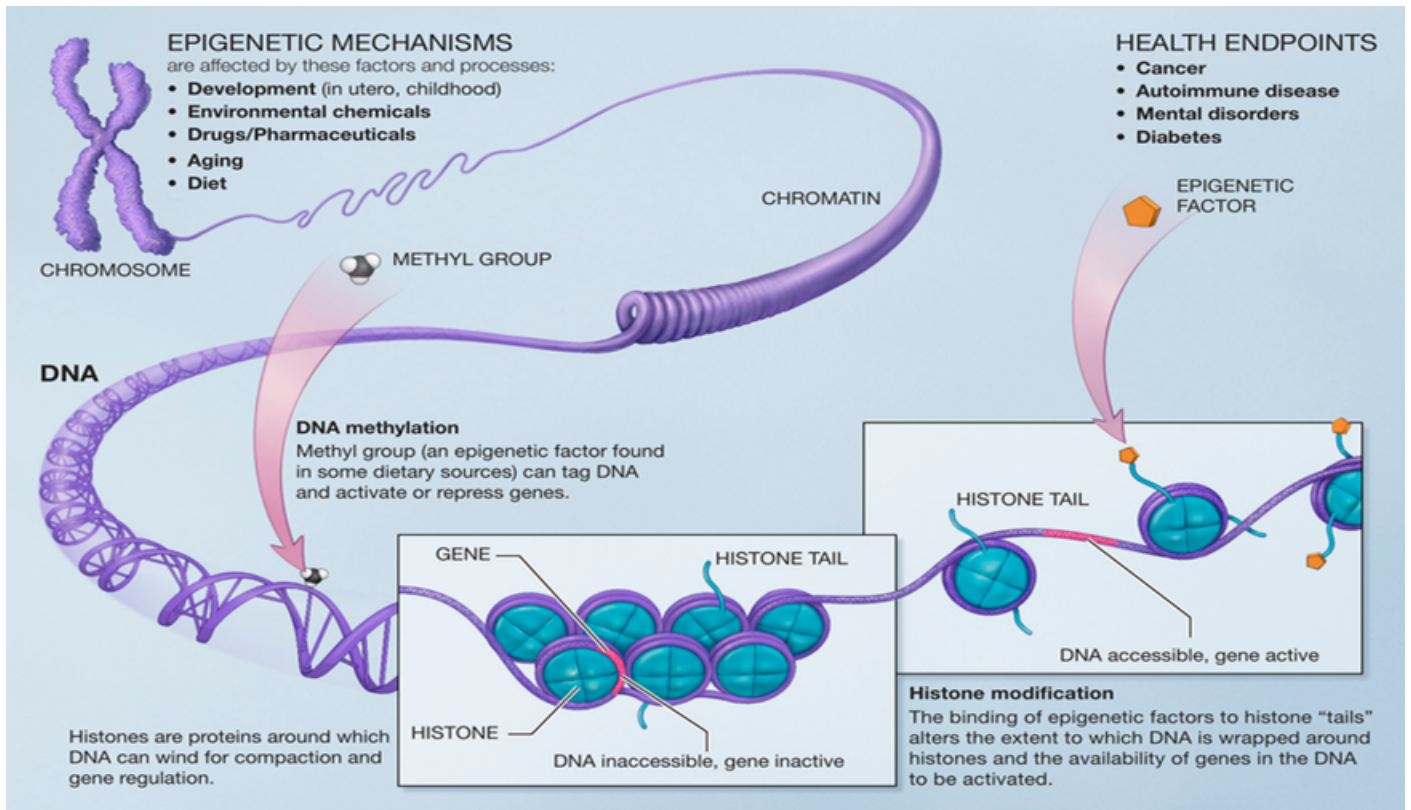
Neurotransmitters are prepositioned at each synapse as a function of our emotional predisposition and transfer their influence as they are released. Their concentrations can be changed by two main processes: epigenetic methylation (the replacement of a methyl group in place of a hydrogen atom on the appropriate DNA gene segment) and our emotional self-mastery. An example of epigenetic modification would be when a gene is modified to make the enzyme catechol-O-methyltransferase (COMT) which breaks down the neurotransmitters, dopamine, epinephrine, and norepinephrine.

The chemicals that are released from a synapse when triggered, are a function of the genetic and epigenetically modified synapse chamber shape and their current electrical status. Their electrical predisposition (which is influenced by previous activity) is determined by the local concentrations of calcium, potassium, and sodium (ref 47) ions in, and around the neurotransmitter chamber itself. For example, abrineurin (BDNF or Brain-Derived Neurotrophic Factor) is a signaling protein that can enhance neuroplasticity and its levels can be boosted by exercise (ref 15), ketosis, magnesium (L-Threonate) intake and good sleep. (ref 57) One emotional condition, fear, involves the presence of calcitonin, a gene-related peptide, which is created by all fears and this peptide relays signals to other areas of the mid brain. Fear is mediated by dopamine from the amygdala. (ref 9)

Side note: Current research shows that fears can only be mitigated by building new stronger neural chemical pathways rather than trying to ignore the old ones.

Epigenetics

Let's look more closely at epi (above) genetics. There are two kinds of DNA; nuclear DNA located in the nucleus of all our eukaryote cells, and it usually has two copies per cell, and maternal DNA, located in the cell's mitochondria, which contains 100–1,000 copies per cell. These DNAs are made up of two 1.8-meter-long strands of small nitrogen-containing nucleoside compounds; adenine (A), cytosine (C), guanine (G), and thymine (T). We can choose to be reactive or proactive in gene expression using epigenetic reprogramming and our emotional control ability.



Epi (above) genetic DNA change techniques

DNA is present in most of the cells in our body and the thing that determines whether it acts like a brain cell or gall bladder is the way it is folded. DNA is made up of segments called gene segments and the combinations of these patterns are called its “gene expression” or “allele”. The complete gene expression is called your epigenome. There are parts of the DNA that are called “supergenes”, and these segments are not open for modification but there are three things that can control its related gene expression; its electrical environment, small DNA segments called “enhancers” and methylation “tagging.” These change the final folded shape, and the final folded shape determines the protein’s function, i.e. whether it is a brain cell or a gall bladder.

It is estimated that neurons in the human brain have over 4000 unique enhancers which are not shared by other species. Gene expression (the DNA folded pattern) determines which proteins are produced and that shape can be changed by the addition of methyl groups at strategic locations along the DNA strands but there are three other major methods of “epi” (above) genetic tagging or modification: histone acetylation (adding an acetyl group to histone proteins), chromatin compaction (wrapping the DNA around another protein) and nuclear organization (spatially arranging the chromosomes).

There are long-term gene expressions (think brain or gall bladder) and short-term ones. An example of a short-term gene expression would be when some comment angers you. An emotional response causes changes in the gene expression of certain cells, which does things like increase your blood pressure, adjust your breathing, tense your muscles, or stand the hair up on the back of your neck.

Side Note: There is also some recent research called DART (ref36) or direct current-actuated regulation technology, into the use of applied direct-current voltages to promote gene expression.

Neurotransmitters

DNA plus epigenetics and their electrical environment, determine the manufacture and release of peptide neurotransmitters and some of their main influences are as follows:

Serotonin (95% of which comes from the gut): anxiety, current happiness, sense of wellbeing, appetite, mood, memory, and sleep.

Dopamine: unexpected benefit, motivation, pleasure, future happiness

Note: Alcohol or sugar levels increase dopamine levels by activating the nucleus accumbens (pleasure/reward center) and this sets the “current expectation level” above which dopamine is then released. This is called “The Pleasure Trap” or addiction. (ref 53)

Glutamate and Gamma-Aminobutyric Acid (GABA): balance, excitement versus the urge to be calm.

Note: The blend of these determines our level of maturity and is the most active of the neurotransmitters. Cells in the synapse area fall into two categories, neurotransmitters (function) and glial (protectors) except for glutamate astrocytes that function as both. Extracellular glutamate stimulates Ca²⁺ release from the astrocytes’ intracellular stores, which triggers glutamate release from astrocytes to the adjacent neurons.

Norepinephrine (aka - noradrenaline): alertness

Acetylcholine: focus, learning and memory, parasympathetic nervous system

Oxytocin (a hormone and a neuropeptide with more pronounced, prolonged effect): orgasm, social recognition, pair bonding, anxiety, group bias

Endorphin (neuropeptide): current pleasure, self-esteem

Neurotensin (neuropeptide): like dopamine, but specifically for the differentiation of “good” from “bad” thoughts (stems from a survival perspective but may be involved with moral choices as well)

Melatonin (hormone): circadian rhythm (primarily from the pineal gland)

Life Carriers **36:2:15 (398.2)** get huge credit here for engineering intricate channels in our cell walls that creatively change shape with electrical potentials to open and close allowing this flow of these motivating chemicals in this dynamic environment. The flow through the cell walls of the chambers and their surrounding conditions are affected by previous stresses, anxieties, and fears of the future (among other things).

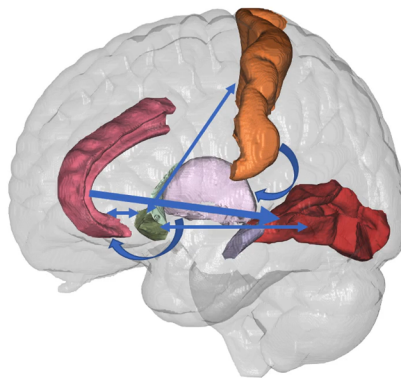
Homeostasis

A major component in maintaining homeostasis is (ref 43) the hypothalamic-pituitary-adrenal (HPA) axis, which is an intricate, robust, neuroendocrine mechanism, that has similar physical attributes to neurons. It mediates the effects of stressors by regulating metabolism, immune responses, and the autonomic nervous system (ANS). The HPA (ref 16) axis cascades down endocrine pathways that respond to negative feedback loops involving the hypothalamus, anterior pituitary gland, and adrenal glands.

“Anxiety was a natural state of the savage mind. When men and women fall victims to excessive anxiety, they are simply reverting to the natural estate of their far-distant ancestors; and when anxiety becomes actually painful, it inhibits activity and unfailingly institutes evolutionary changes and biologic adaptations. Pain and suffering are essential to progressive evolution.” 86:2.1 (951.3)

“All physical poisons greatly retard the efforts of the Adjuster to exalt the material mind, while the mental poisons of fear, anger, envy, jealousy, suspicion, and intolerance likewise tremendously interfere with the spiritual progress of the evolving soul.” 110:1:5 (1204.3)

Pain and the use of drugs (poison with one beneficial side effect) to mitigate pain is a classic case of misinterpretation. Dramatic neural activity is interpreted by the brain as a need to pay attention. We can ignore pain by distraction. Opioids don't block pain, they over stimulate the pleasure centers of the brain to distract the senses. We can also distract the brain's focus on pain either physiologically with vibration or cold or psychologically with mental distractions.

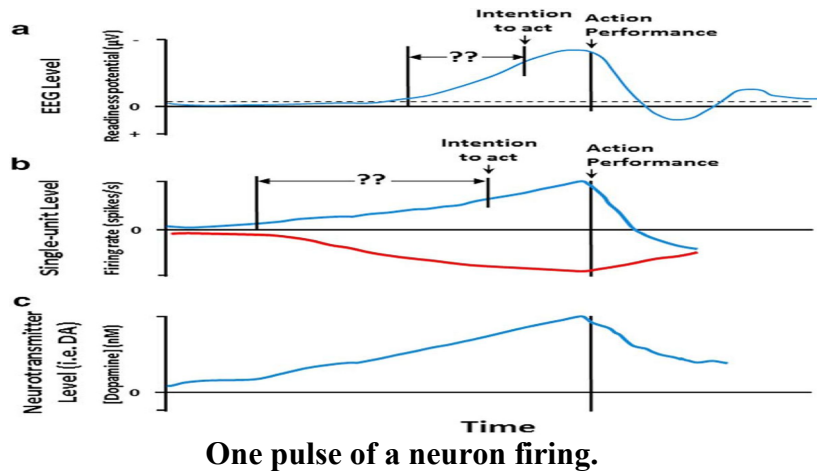


Our initial emotional conditions relate to our calmness, which in turn relates to our trust in God. Above this calm or frenetic initial electrical energy state, there is an on/off, nerve firing, transmission mechanism. The intensity and duration of the firing voltage, and frequency of firing repetition, determines which neurotransmitters are released from the synapses. High voltage, high frequency, longer duration stimulations, are involved in the more intense reactions and can be calmed by low, meditative frequencies.

“Jesus taught the appeal to the emotions as the technique of arresting and focusing the intellectual attention.” 152:6:4 (1705.4)

Brain Waves

Benjamin Libet conducted experiments that demonstrated that we unconsciously think about an action, up to 300 milliseconds before we are conscious of that thought. This implies that our superconsciousness or mid-mind is really in control.



The experience of the realization of the reality of unconscious religious growth is the one positive proof of the functional existence of the superconsciousness. 100:1.9 (1095.4)

Imagine this preemptive action happening at all our brain wave frequencies from the lowest at 4 Hz up to our highest functioning range of over 100 Hz.

All this neuro-peptide electro chemical activity shows up as brain waves and these individual excitations cascade in waves of various overlapping scales of neural avalanches.

The lowest, delta wave frequencies, those experienced in deep meditation (ref 21, 38) and worship, generally have the highest amplitudes, and interestingly, are the dominant frequencies in a young child's brain. At those early ages our mystery monitors function as Thought Changers.

“From the arrival of the Adjuster to comparative full growth, about twenty years of age on Urantia, the Monitors are sometimes designated Thought Changers.” 107:0.7 (1184.2)

The higher frequencies and more entrenched ways of thinking (as the neurons become myelinated – coated to speed transmission) may become dominant by age 25, except in perhaps periods of meditation, true worship, and deep sleep.

Electro-chemical signals between each nerve segment are triggered at 5 to 50 times per second and a propagation signal ripples along the nerve as a wave of action potential. These ripples of action along the nerve are a pulse above the base voltage, and they shuttle the electrical pulses at between 200Hz and 300Hz. On a related note (pun intended) the frequency of this wave of action potential varies for individual events and equates to musical notes between G 196Hz and D 294Hz. This may be why music is often relaxing and it is interesting to note that live music is more effective in producing positive amygdala neurofeedback. (ref 23, 54)

“Tuneful syncopation represents a transition from the musical monotony of primitive man to the expressionful harmony and meaningful melodies of your later-day musicians.” 44:1:13 (498.4)

Electrical activity of the brain is usually divided into three categories:

1. Spontaneous activity
2. Evoked potentials
3. Single neuron events

Spontaneous activity is measured on the scalp or on the brain and is called the electroencephalogram. This signal goes from under 1 Hz to about 50 Hz and this activity goes on continuously in the living individual.

Evoked potentials are those components of the EEG that arise in response to a stimulus (electric, auditory, visual, or spiritual) and these signals are usually below the noise level and therefore not readily distinguished. One must use signal averaging to “see” these over the background noise.

Single-neuron events can only be examined using microelectrodes which impale the cells of interest. These include neurotubules events.

Our Spontaneous brain activities (ref 6,7) are quite frenetic, as can be seen in a typical electroencephalogram, EEG, snapshot of the electric fields emanating from the brain’s activities.

The electrically associated and massively cross-correlated bio electrically initiated signals of all the brain’s synaptic interactions can be grouped and parsed into ranges reflecting their general functions as follows:

Gamma (40 to 100 Hz not shown above) – involved in recent **intellectual activity**.

Beta (12 to 40 Hz) – involved in **executive functioning**.

Alpha (8 to 12 Hz) - involved in **relaxed cognitive functioning**.

Theta (4 to 8 Hz) - involved in light **meditation** and sleep.

Delta (0 to 4 Hz) - involved in **deep meditation**.

Nearly all our cells can generate electricity, but electrons don’t flow like along a wire; instead, an electrical charge jumps from one cell to the next until it reaches its destination. The speed at which these electrical signals travel can vary greatly, depending on the type of neuron and whether the neuron is myelinated, but speeds range from 1 to 100 meters per second.

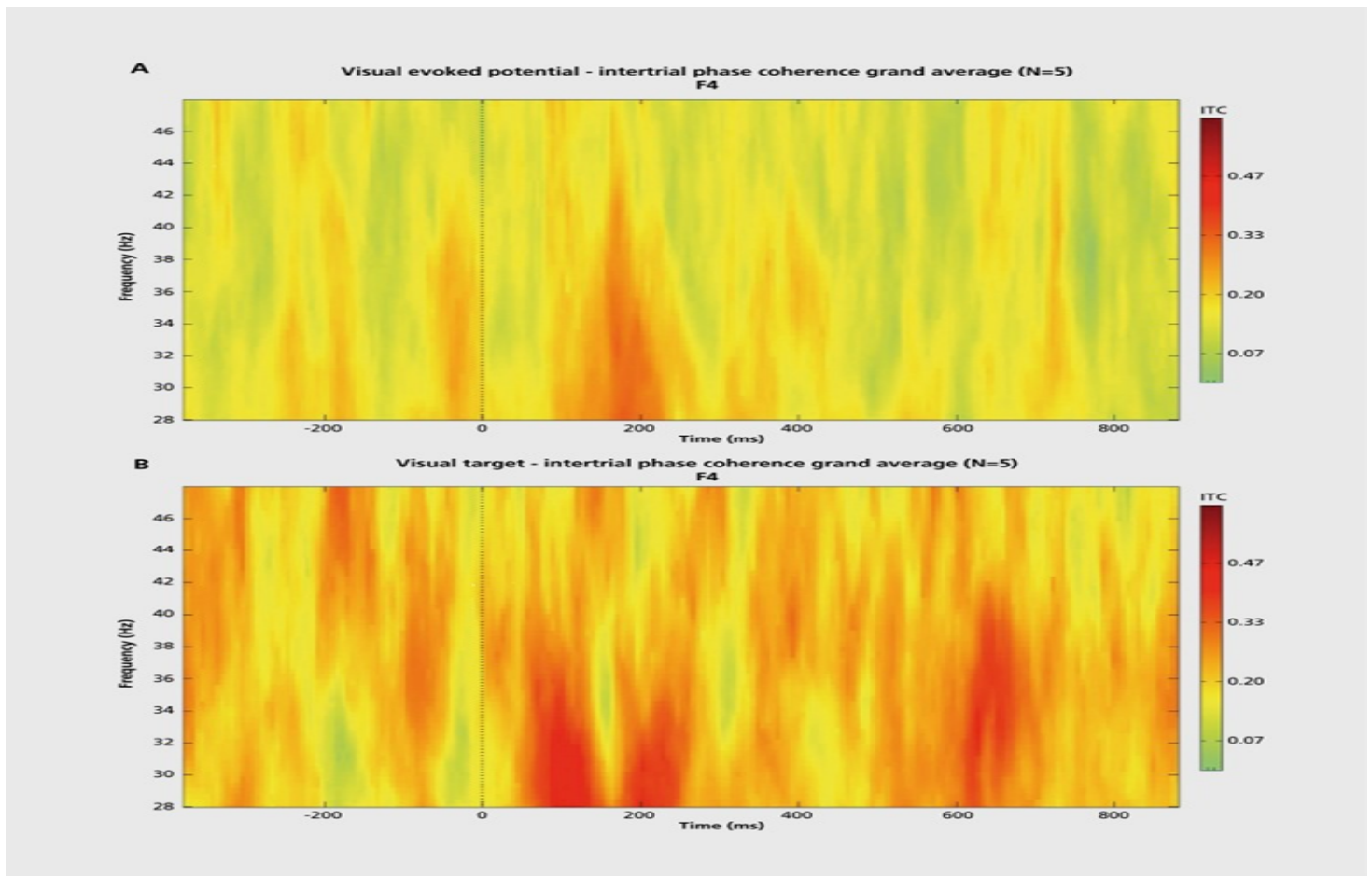
Voltage variations have a drift velocity of charge carriers (generalized patterning) that flow at about 1 – 2 mm per sec (0.006 ft/sec). Voltages in the images below represent +/- 30 micro-Volts above the much higher action potential ripple voltage base (initial conditions) of -70 milli-volts.

It may be that when we lower the base voltage, when we are calm, we make the “signal pattern” (+/- 30 micro volts) more “visible”

In the Thought Changer phase, Delta waves and massive cross communication between nerves dominate. The delta wave frequencies (0 to 8 Hz) can be replicated in a deep meditative state, or worship. Perhaps engaging in complete parental trust in our father would allow slower thinking and cross communication between brain cells, or perhaps in enjoying a particularly soothing piece of music, we would be able to **“resemble the unsuspecting trust of the child mind” 196:0:11 (2089.1)** and as **167:6:1 (1839.6)** says; **“Verily, verily, I say to you, whosoever receives not the kingdom of God as a little child shall hardly enter therein to grow up to the full stature of spiritual manhood.”**

Picturizations

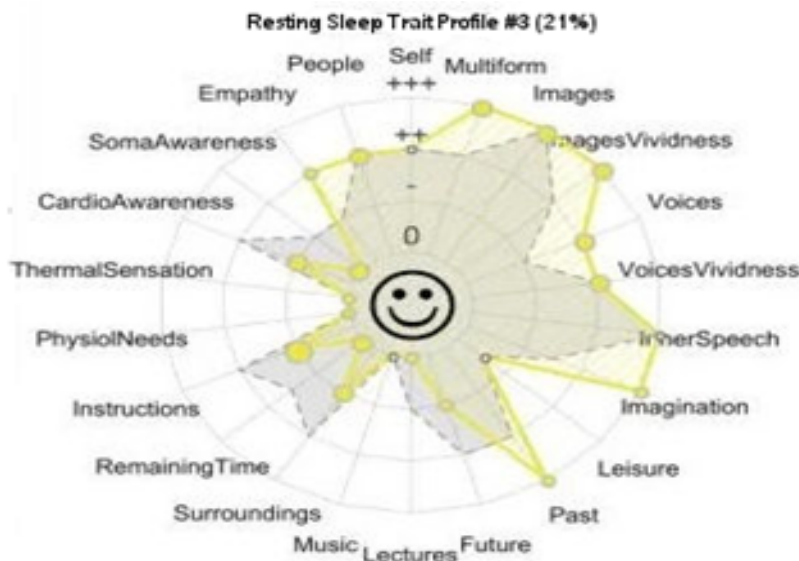
A published study in Science Advances in April 2022 shows that the brain passes information like waves throughout the brain. Picture a three-dimensional volumetric cascade of electro chemical excitations. The wave particle interactions within this volume, cascades wavelets of activity move and create more ripples in the mind pool. Wave peaks and troughs interfere or augment and influence other neurons. Our thoughts are cross correlated in any one memory (smells, relationships, expectations etc.). When we get to the thought controller stage of cooperation, by actively trying to align wills, we become more receptive to changing the overall patterning. Couple this, with quantum level “random” involvement and it might be seen how the adjutants or Thought Adjuster might be able to influence these general superconscious or mid-mind patterns. As these patterns align, reflective thinking will adjust our thoughts via emotional, epigenetic management, and our neural activities might harmonize, amplify, and align these 3-dimensional volumetric images.



Two-dimensional image slice of three-dimensional brain activity

It may not be so much the dominance of a single frequency, as it is the harmonies of all the frequencies. When we look at the complexity and unorganized nature of the EEG traces, you can see the way the electrical activity clusters spatially and how challenging the task of the Thought Adjuster is. The larger red areas represent stronger thought drivers.

Recent research (ref 52) done on the brain at rest by Cremona, Joliot and Mellet (2023) derived “thought profiles” from a cluster analysis of data from nearly 1,800 French university students. In addition to tried-and-true measures, this group completed a novel survey of resting-state personality dynamics, the ReSQ 2.0 and found 7 core pathological character traits. (ref 52)



Scientist Pulin Gong at the University of Sydney also found spiral patterns that exhibited intricate and complex dynamics, moving across the brain’s surface while rotating around central points, known as phase singularities. (ref 34)

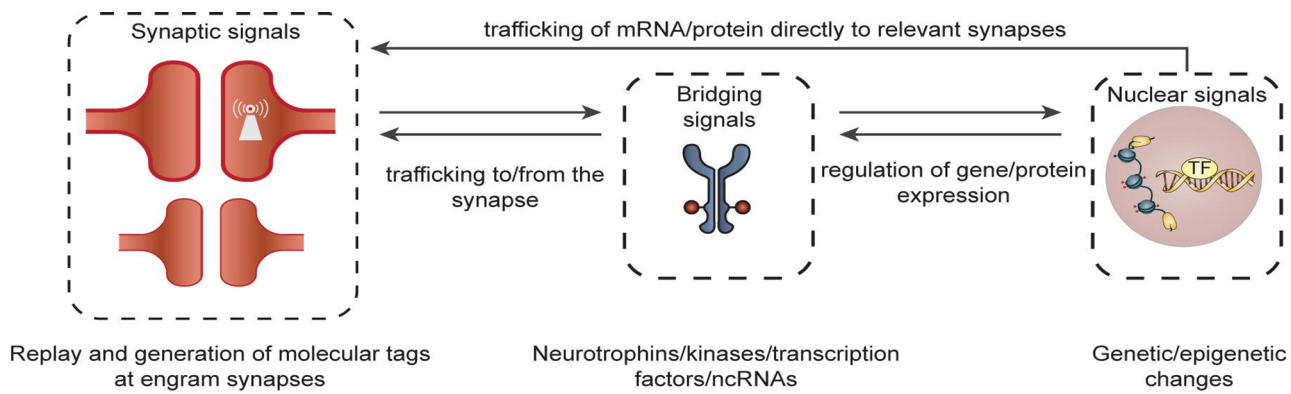
“At such times, and sometimes during sleep, the Adjuster is able to arrest the mental currents, to stay the flow, and then to divert the idea procession; and all this is done in order to effect deep spiritual transformations in the higher recesses of the superconsciousness.” 109:5:1 (1199.2)

The Thought Adjuster, throughout our life, is trying to “realty-ize” our thoughts (create harmonized electrical images) as a function of the mind that “knows quantity, reality, meanings” when we “**feel the mutual creation**”. 111:3.6 (1219.5)

Activity Regulated Cytoskeleton Peptides & Synaptic Adhesion Molecules ARCs and SAMs

At the base of life itself is RNA. Ribonucleic acid (RNA) is a polymeric molecule that is essential for most biological functions, either by performing the function itself (non-coding RNA) or by forming a template to produce proteins (messenger RNA). RNA and deoxyribonucleic acid (DNA) are nucleic acids. Nucleic acids are one of the four major macromolecules essential for all known forms of life. (ref 27)

Communication between brain cells is also essential and it is aided by activity regulated cytoskeleton (ARC) peptides which are proteins in our brains that spread information through a messenger RNA like process.



There are also SAMs that are like a peptide glue that cements our nano-scale neural networks. The mRNA molecules carry genetic information and make special proteins that change the firing voltage at synaptic junctions and influence the combinations of inputs from other nerves. For memories, neurons that fire together wire together, and neurons that fire out of sync, fail to link. Out of all the possible energy states, the system will converge (be SAM glued) to a local electrical minimum, also called a local attractor state. Local attractor minima states are existing memories and ways of thinking.

mRNA Process

ARCs influence local electrical minima by causing a protein to fold in a specific manner, called a capsid which moves from neuron to neuron creating preferred pathways. This process of RNA sharing exchanges information between synapses for specific functions such as memory correlation and SAMs strengthen and confirm these relationships.

These established relationships primarily impact the synapse receptors found in the brain and they are the foundation of human cognition and intelligence (ref 44).

Some of these foundational areas of the brain are as follows:

Frontal lobe: Voluntary movement, attention, short term memory tasks, *motivation*, planning, and speech.

Parietal lobe: Proprioceptive and mechanoreceptive, involved in language processing.

Temporal lobe: *Decoding sensory input* (visual and auditory) into *derived meanings for retention* of visual memory and language comprehension.

Occipital lobe: Taste, visceral, pain and vestibular functions.

Limbic lobe: *Emotions*, modulation of visceral and autonomic functions, *learning and memory*.

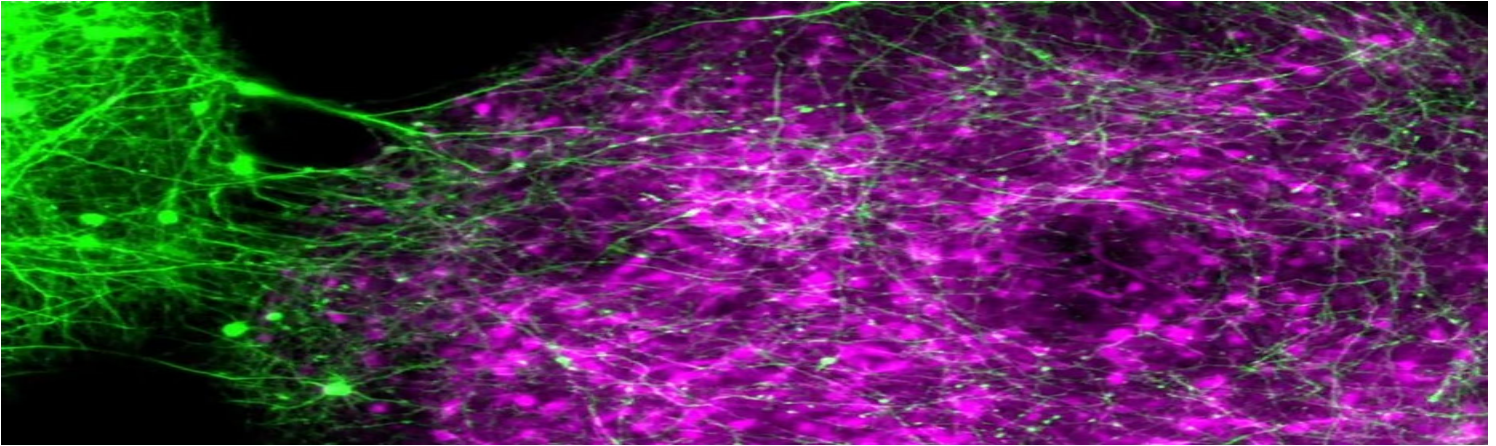
Note: The Thought Adjuster is likely most interested in those functions shown in *bold italics* since these are ones that help us grow our souls in “**certain trying intellectual and testing social situations**”

101:3.4 (1108.3)

It is interesting to note that the dominant frequencies for the lobes of likely Thought Adjuster influence range from 10Hz to 23 Hz. The frontal lobe (motivation) is 22 to 23 Hz and the temporal lobes (derived meanings) superior 10 Hz, middle 23 Hz, inferior 10 Hz.

The Maturing Brain

The maturing areas of the brain include the frontal and parietal lobes, the insula, and the subcortical structures. But a more interesting feature of the maturing brain involves the “white matter” that gradually envelopes the nerve cells in all these areas. This “white matter” coats and insulates the active transmission portions of the nerves by the formation of myelin sheaths on the neural transmission segments. These onion skin like protein insulative coatings thicken with age and allow much faster information propagation but greatly limit their cross communication as the pathways become more defined and we become more fixed in our ways of thinking. We are defining the preferred voltage pathways and the voltages that are required to “get out of the rut”. Before these insulating sheaths formed (up to about age 25) our thoughts are slower, much more cross connected, more influenced by emotions, socialized thoughts, and highly influenced by peer pressure.



New neurons grow from one area and connect into another.

Thought Adjuster Reception

Related to the early child brain plasticity, is the reception of the Thought Adjuster at our first moral decision, which begs the question: What peptides in the brain are involved in moral choices? What parts of the brain are involved in moral sensitivity, emotion, motivation, cooperation, ethics, respect, and the differentiation of good and evil or other altruistic behaviors? What is different about the child brain that allows the Thought Changer to “change”, versus “adjust”, our thoughts? Moritz Köster’s research published in Science Direct in 2021 shows that young children’s “4–5 Hz theta rhythm” (ref 51) increases when they meet unexpected events.

Aristotle, “Give me a child until he is 7, and I will show you the man.”

One neurotransmitter that comes into play at this early age is neurotensin. Neurotensin is a neuropeptide that functions like dopamine in that it acts like a reward for appropriate behavior, but specifically for the differentiation of “good” from “bad” thoughts. Like dopamine it establishes a threshold level and then “rewards” when behaviors elevate above the current level of behavior. It stems from a survival perspective where we learned which behaviors benefitted our survivability but at our stage of evolution may now be more involved with moral and cosmic choices.

In our early “formative” and presumably more trusting, stress-free years, the child’s brain is more open to learning (e.g., walking, talking, socially interacting). What we are forming is called your “connectome”, and this forming or patterning continues up to about age 25 after which this neuroplasticity slows down. It is interesting to note that the balance of glutamate to GABA, (excitement versus the urge to be calm) changes

throughout childhood and into adolescence, as glutamate levels increase then level off as adulthood approaches. We are establishing our “... **preconceived opinions, settled ideas, and long-standing prejudices.**” 109:5:3 (1199.4)

After 25 perhaps the “old dog”, Zen teaching applies: “A full cup cannot take on more water.”

Even with age, our ability to evolve or “take on more water” is still possible because our brain produces up to 700 new neurons a day and these new neurons, plus epigenetics and our free will emotional control, allow us to change our thinking habits. Our brain’s ability to adapt involves several mechanisms and this neuroplasticity helps us to shape and fine tune our receptivity. These adaptability, cross pollination and growth mechanisms include microtubules, microtubule-associated proteins and activity regulated cytoskeleton peptide proteins.

There is an area of the brain which specifically deals with tenacity and willpower. It is called the anterior midcingulate cortex. It is involved in certain higher-level functions, such as attention allocation, reward anticipation, decision-making, impulse control, performance monitoring, error detection, and emotion control. It grows with the challenges that are found between the anvil of justice, the hammer of suffering, and the necessity for anguish and fear.

Let’s look at some functions that are not age related.

Changer, Adjuster, Controller

Whether young, mid-life or old, some brain functions are similar. Let’s look for common denominators of how the Thought Changer, Adjuster, Controller, might all interact at the fundamental level of human thinking, and how we can help that process.

“The Adjuster finds it almost impossible to register these inspiring spirit leadings in an animal mind so completely dominated by the chemical and electrical forces inherent in your physical natures.” 110:7.6 (1213.1)

Let’s think about how the pure spirit Thought Adjuster, and other pure spirit influences, like the adjutant mind spirits, or even the unqualified absolute, might influence us in this material, electrochemical milieu.

“While the hereditary legacy of cerebral endowment and that of electrochemical overcontrol both operate to delimit the sphere of efficient Adjuster activity, no hereditary handicap (in normal minds) ever prevents eventual spiritual achievement.” 109:5.5 (1199.6)

If we think of the Thought Adjuster as a holographic fragment of God, each fragment, once it steps out of infinity and into finity, would be a low-resolution image of God and the whole of creation. To improve the resolution of the image we have of God and the meaning of Life we can cumulatively add our own low-res image perspectives with other people’s images and understandings, to get higher and higher resolutions and visualizations of the overall image. With each perspective we get a better understanding of material creation and the forces behind it.

How can we get a “**wise co-ordination of material and spiritual forces**” 110:6.17 (1211.2) to augment cosmic visualizations? How might we provide the “**favorable conditions**” of “**loyalty, sincerity, humility, and patience**” that are the “**fulcrums**” for spirit growth? “... **he speaks within the human heart as a still, small voice ...**” 148:6:10 (1664.2). How might we calm the “white noise snow” cacophony and lower those

voltage thresholds that might allow us to cross pollenate our thinking and hear that “still, small voice” and see the big picture?

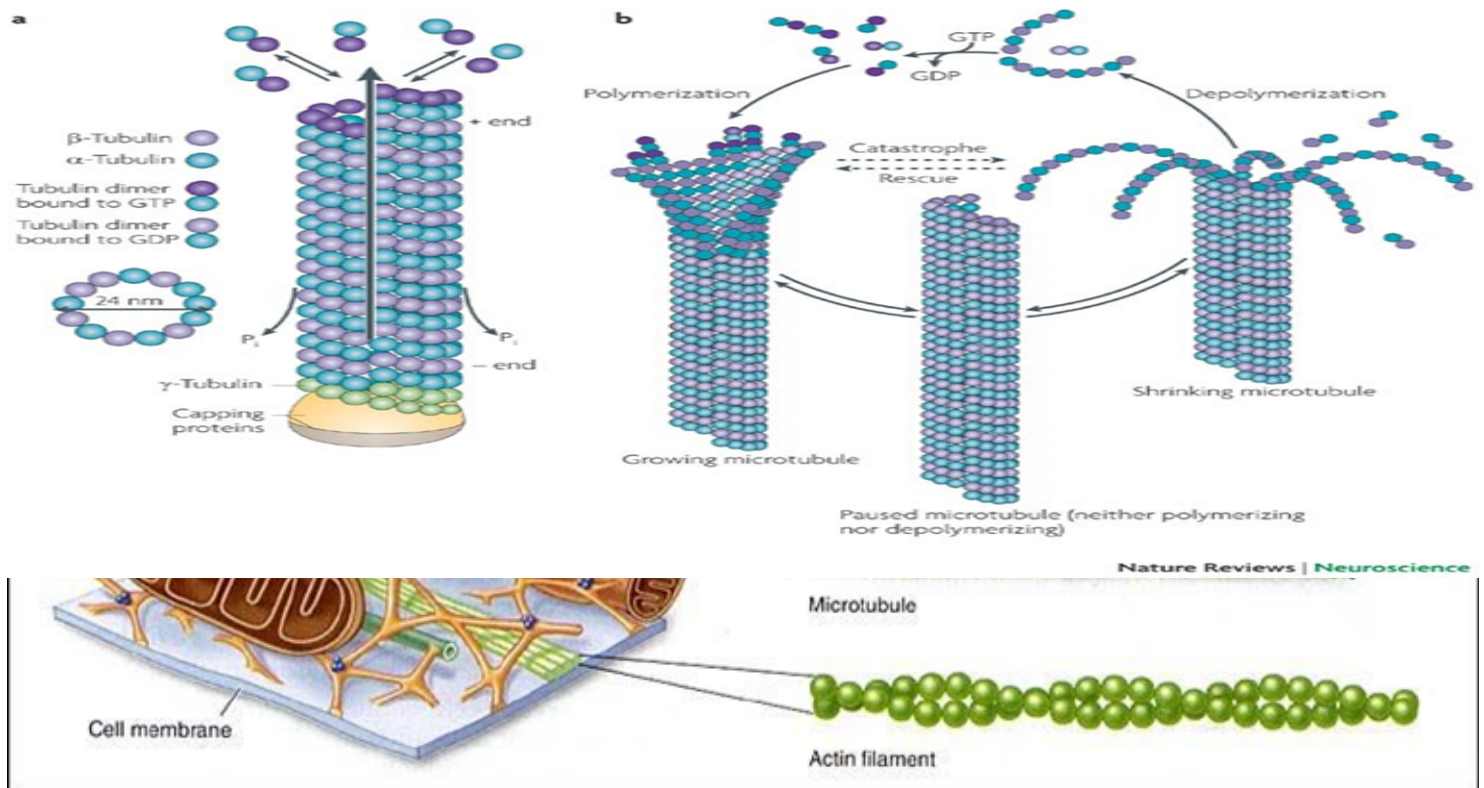
When we are taught to “... remain for a time in silent receptivity to afford the indwelling spirit the better opportunity to speak to the listening soul.” 146:2:17 (1641.1) perhaps we are being taught to emulate the delta dominant wave state of early childhood which would allow extra processing time and interassociation of thoughts which would affords the Thought Adjuster better opportunity for communication to our soul or superconsciousness. Perhaps this will help us to be more open to child-like learning.

Microtubules

One of the main mechanisms for giving us time between sensor input and reaction, are the microtubules which form the basic structure and communication function of our cells. Microtubules are tiny cylinders strung between cells and they are ever-changing in length and intercellular information exchange.

Microtubules

Microtubules are constantly growing or shrinking in length from 0.000004 in (0.1 um) to 0.002 in (50 um) by a dynamically unstable process called treadmilling (technically guanosine triphosphate, hydrolysis) where the dimers (individual peptides) are lost at the negatively charged end and more are added at the positively charged “centrosome” end. The tubes are made up of 13 individual heterodimer (joined but different) tubulin polypeptide filaments, arranged in parallel around a circular salt water filled cavity. (ref 46



Treadmilling

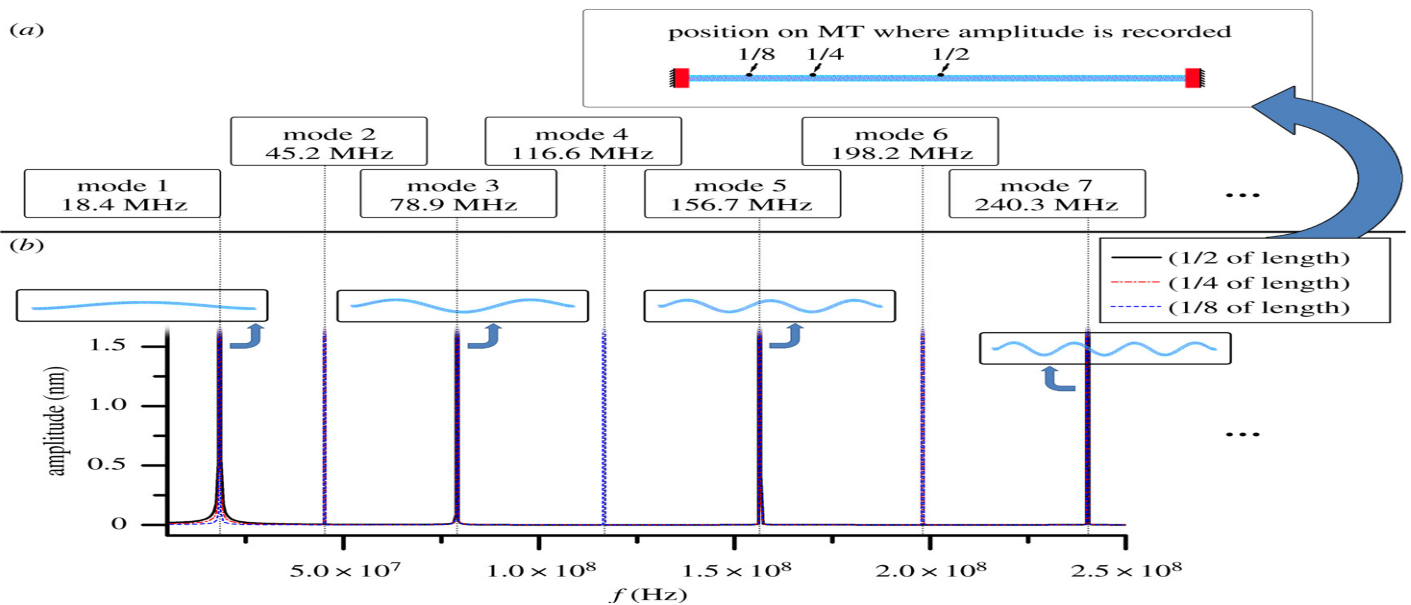
The filaments have a distinct electrical polarity that can generate an internally coherent, self-sustaining (soliton), electromagnetic field (ref 12, 37) along each of the 13 filaments, and collectively these tubules are

sufficiently insulated from neighboring cells to prevent electrical interference facilitating decoherences (not being influenced by neighboring electric activities) in the order of 10^{-6} seconds. Microtubules are found in all eukaryotic cells (cells with our DNA in the nucleus) so this strengthening and weakening of the cellular intercommunication process is going on throughout the body although we are probably most aware of its influence in the brain where these microtubules are called neurotubules.

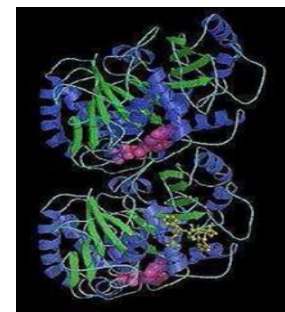
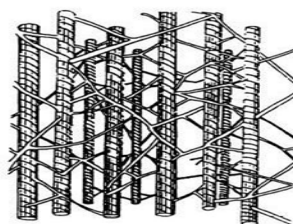
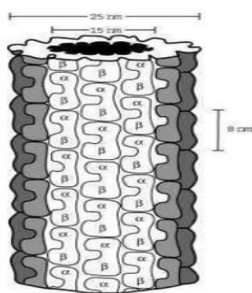
Microtubules, being made up of crystal-like protein dimers surrounding the partially electrically conductive water filled inner core, shuttle the electrical pulses from cell to cell as the pulses move down the individual filamentary strands by a process of cascading luminescence and the length of the tube causes a delay in the propagation called “delayed luminescence”. The signals along the tubules resonate at twelve frequencies clustered in 4 ranges: kilohertz, megahertz, gigahertz, and terahertz frequencies. Specifically (100–400 KHz, 10–30 MHz, 100–200 MHz, down to the 708-inch wavelength) in the mechanical vibration range, 1-20 GHz (11.8-to-5.9-inch wavelength) in the radio wave range, and at 526 and 686 cm^{-1} (THz) in the heat, far infrared range (molecular bond stretching and bending) and 276 and 334 nm in the ultraviolet (electron jump) range. It is interesting to note that at certain frequencies the conductivity of microtubules increase in a “ballistic” manor by a factor of 1000. This electro-mechanical MHz frequency range interacting with the electro-optical range (ref 14), may be where we “delicately touch” (and perhaps cohere with) our morontial selves.

Perhaps morontia material is optical in nature, just above our electromechanical MHz frequency range.

“... vibrations of commingled material and morontia activities ...” 189:1:1 (2020.4)



Mechanical Vibrational Frequencies of Microtubules

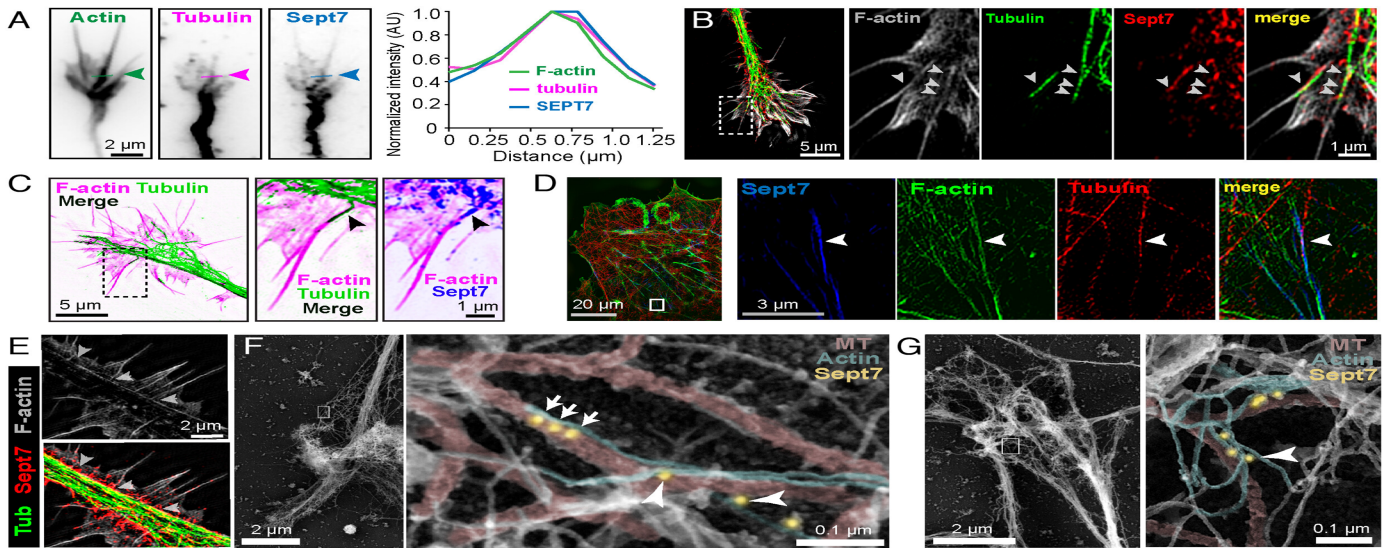


Microtubules communicate between all cells with DNA but function most poignantly in the medial temporal lobe of the brain as a facilitator of cross-communication between brain cells. This is analogous to the cross communication of the child brain before the formation of the insulative myelin sheaths, but this cross communication is now controlled by the free will of our thoughts (think of this as the coordination of material light, intellectual insight, and spirit luminosity) **0:6.8 (9.10)**.

“Human consciousness rests gently upon the electrochemical mechanism below and delicately touches the spirit-morontia energy system above” 111:1.5 (1216.6)

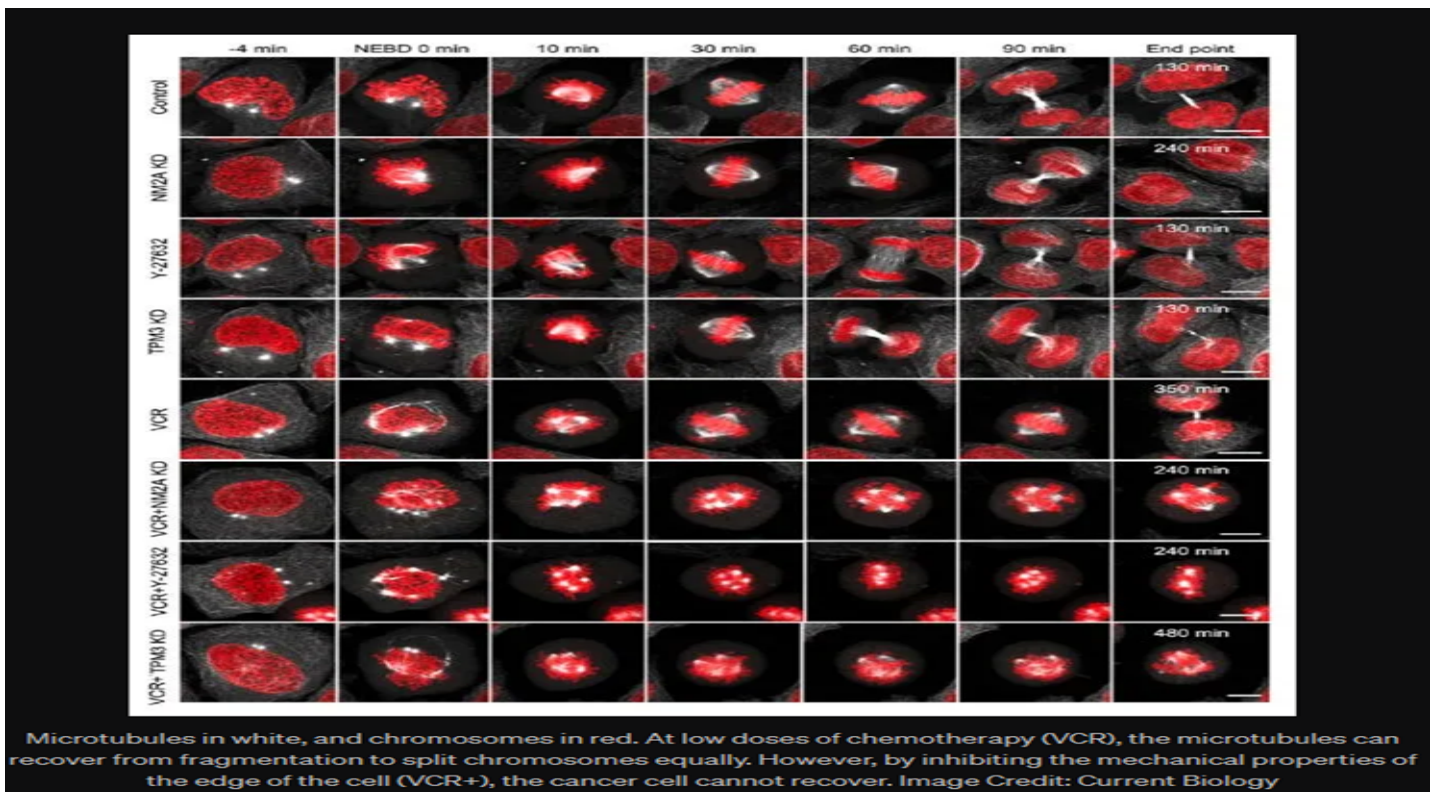
The alternating polarities of the A and B dimers that make up the individual filaments and built-in transistor like electrodynamic properties that allows their energies to be amplified and harmonize with other energies by a form of electro-optical coherence. (ref 60.) This bioluminescent optical coherence happens when a wave travelling down the filament, splits into two or more separate streams (in this case cascading down neighboring filaments) and then these streams interact with each other in a phenomenon called super radiance. Super radiance means that they act both collectively and coherently. The organization and patterning of the time delays both along and between tubules, allows them to function as information modifiers. Because microtubules are arranged in specific patterns and because they are connected by microtubule-associated proteins (MAP1, MAP2 and tau proteins) which act through a process of phosphorylation, and because their interconnected “nodes” tune or “orchestrate” the optical oscillations in what is called “Orchestrated Objective Reduction” (OOR ref 1, 2, 3,) they form the basis for our self-consciousness. The rings of the microtubules also form qubits (quantum oscillating dipoles) on the filaments since they are super positioned (situated vertically on top of one another) in resonant rings in helical pathways throughout the lattices of the microtubules. Depending on the orientation of the electric fields to the microtubule (or actin filament) axis, there could be three types of ionic waves generated: (a) Longitudinal waves propagating along the protein polymer’s surface, the polymer acts like a conduction electrical cable with its inherent resistance but also a capacitance. (b) Helical waves propagating around and along each protein polymer, and there could be three or five such waves propagating simultaneously corresponding to a 3-start or 5-start geometry of a microtubule. (c) Radial waves propagating perpendicularly to the protein polymer surface. If an electric field is oriented at an angle to the polymer axis, all these wave types may be generated simultaneously. This allows the microtubule to function as a qubit, that can carry information in more than just a binary manner. Theoretically they can encode information in an infinite number of ways. Orchestrated Objective Reduction is presumed to function in discrete tiny units of time related to the Plank scale of 10^{-35} seconds, that collapse mesoscopic (intermediately sized) objects on a timescale relevant to neural processing. Since microtubules can respond to four octaves of vibration (mechanical, radio, heat, ultraviolet) they facilitate down stepping of higher frequencies into our low frequency functional ranges. At their lowest electric energy frequencies, they vibrate due to their molecular charge separation, and at the highest frequencies they vibrate due to their electron or nuclear spins. This “orchestra” not only gives us a time delay between a sensory input, but it also affords us the overview of our reaction to that input. It is a kind of pre-consciousness which allows for the consciousness of our consciousness. It does this by introducing a time delay of up to 500 milli seconds between the electrical impulses from the sensors (proprioception, vision, auditory, tactile, vestibular, interoception, and taste inputs etc.) and the post processing of these stimulations.

Side note - olfactory stimulations, smells, go directly to the frontal lobes.



Septins and Actins (binding proteins)

Septins colocalize with overlapping microtubules (ref 40) and together with actin filaments facilitate intercellular crosstalk.



Microtubules and chromosomes interact at every cell division.

“... true spiritual experience, is the experiential realization of the cosmic reality of the observation of the observation of all this relative synthesis of the energy materials of time and space.” 112:2.12 (1228.7)

Microtubule - Quantum Coherence

**“Every impulse of every electron, thought, or spirit is an acting unit in the whole universe.”
56:10.14 (647.5)**

Continuous can't be reduced to discontinuous. You can't separate the parts from the whole. Neither can you separate the parts of the body from the whole body nor the whole body from the universe. At the quantum level, things directly act as aspects of the whole and they derive their very definition and meaning from that whole. In our case, the Thought Adjuster, being a fragment of the spiritual whole, and the ultimatons, being a part of the material whole, may be our localized representation of the whole. One possible overlapping modality between material, temporal and transcendental, spiritual energies and “the whole” is the quantum electromagnetic energy level. (ref 33) Let's look at those areas of the brain and nervous system that function at the quantum level. The probabilistic quantum level has some interesting overlaps with the timelessness of spirit energy like, time simultaneity, quantum tunnelling, and action at a distance. (ref 8)

The “whole” has been called many things; the ether, the quantum field, the quantum vacuum, the metric field, the Higgs condensate, a cosmic superconductor, or even an overall instructional interaction where matter tells spacetime how to curve and spacetime tells matter how to move. The Urantia Book calls it God the Supreme. The Quantum Consciousness Theory states that the quantum phenomena in the microtubules, facilitated by their unique properties involves quantum mechanisms, such as superposition, entanglement, and wave-particle duality, these all allow for the generation of consciousness in ways that classical physics cannot explain. It supports the idea that particles exist in a state of entangled probability until observed. In our case, the collapse of the wave function is observed by us as a thought and is observed and reality-ized, by the Thought Adjuster.

Side note: Neurons individually transmit at about 100 m/s and there are 100 billion neurons x 200 firings per second x 1,000 connections each = 20,000,000,000,000 bits of info being transmitted per second, so thought/mind/pattern functions are well above the speed of light (6,671,281,903 times) and therefore could be considered too be functioning outside of time.

Microtubules have an ability for quantum superposition creating their ability to exist in multiple states simultaneously until a measurement or observation is made, at which point the system collapses into one definite state. Quantum entanglement occurs when particles (because they come from the same source) become interconnected in such a way that the state of one particle directly influences the state of another, even when they are separated by vast distances. They demonstrate the reciprocal interaction between field and particle. This quantum coherence is an area where classical mechanical behaviors overlap with the wholistic ones and may involve our interface with Supreme spirit energies.

General relativity looks at past events while quantum mechanics is the probability of future events happening. The wave property of particles appears when we start looking into the future of that particle. It is a probability wave because the future is probabilistic. Wave function collapse is what we perceive as the present moment and is what differentiates the past from the future. GR is making measurements in the observed past and therefore, predictable. QM is attempting to make measurements of the unobserved future and therefore, unpredictable but free will controllable.

The quantum level of our material consciousness may interact with spiritual consciousness in the equivalent of the collapse of the wave function. (ref 11)

“The far-flung physical universe coheres in the Isle of Paradise; the intellectual universe coheres in the God of mind, the Conjoint Actor; the spiritual universe is coherent in the personality of the Eternal Son. ... Man’s Adjuster is a fragment of God and everlastingly seeks for divine unification; it coheres with, and in, the Paradise Deity of the First Source and Center.” 2:7:7 (42.8)

“The endless sweep of relative cosmic reality, from the absoluteness of Paradise monota to the absoluteness of space potency, is suggestive of certain evolutions of relationship in the nonspiritual realities of the First Source and Center—those realities which are concealed in space potency, revealed in monota, and provisionally disclosed on intervening cosmic levels.” 42:10.1 (480.4)

Side Note: At near absolute zero (no molecular motion) matter can take on new forms (Chiral-Bose state, Bose-Einstein condensate). Paradise has no molecular motion.

So why do we care about all this? Because thoughts have biological consequences (think blood pressure, heart rate, epigenetics), but more specifically your thoughts control the growth of these microtubules and may affect your spirit receptivity.

“It is to the mind of perfect poise, housed in a body of clean habits, stabilized neural energies, and balanced chemical function, when the physical, mental, and spiritual powers are in triune harmony of development that a maximum of light and truth can be imparted...” 110:6.4 (1209.4)

The speed of neuron transmission from sensor input to reaction determines the thought cascade. If thoughts of hate and anger are faster than love and forgiveness, they tend to dominate. So, where’s the spirit influence in all this?

Quantum coherences only occur at subatomic levels and to a limited degree, in the ultraviolet (electron jump) range. The bioluminescent to mechanical cascade mechanism made possible by the interactions of the ultraviolet resonance frequencies of the microtubules allows us to cohere with non-local energies. Quantum coherence could facilitate influence from the spirit of truth, God the Supreme or the universal absolute.

Here are a few luminous possibilities to consider:

Perhaps morontia material is optical in nature, just above our electromechanical MHz frequency range. This could be the **“... vibrations of commingled material and morontia activities ...” 189:1.1 (2020.4) “where material light, intellectual insight, and spirit luminosity interact.” 0:6.8 (9.10)**

It is interesting to note that scientists can make light behave like atoms and molecules by forcing different environments. They call this “hard light”.

Perhaps the bioluminescence of microtubules is also why Adam and Eve “gave forth a shimmer of light” as they might have had more predominant microtubules?

Perhaps the bioluminescence of the microtubules is hinting at concept of the “pilot light” of paper 107?

Perhaps the bioluminescence of the microtubules is the “light of truth”?

“Human consciousness rests gently upon the electrochemical mechanism below and delicately touches the spirit-morontia energy system above” 111:1.5 (1216.6)

“... true spiritual experience, is the experiential realization of the cosmic reality of the observation of the observation of all this relative synthesis of the energy materials of time and space.” 112:2.12 (1228.7)

As we said before, microtubules function most poignantly in the medial temporal lobe of the brain as a facilitator of cross-communication between brain cells. This massive cross communication is like the child brain in the Thought Changer phase, before myelin sheaths formalized and sped up our thinking patterns but these neurotubules in the brain now facilitate this cross communication and they are controlled by our free will. These particle interactions in the mechanical range and the quantum interactions in the optical range are not only coupled locally with each other, they are also entangled with the cosmic whole by Quantum Coherence.

“Every impulse of every electron, thought, or spirit is an acting unit in the whole universe.” 56:10.14 (647.5)

Since at the quantum level, individual things act as an aspect of the whole and derive their very definition and function from that whole, the Quantum Consciousness Theory says that the quantum phenomena in the microtubules, facilitated by their unique electrically isolated properties, involves all these quantum mechanisms, superposition, entanglement, and wave-particle duality. This link between the atomic and material levels allows for consciousness in ways that classical physics (think mechanical brain activity) cannot explain.

Microtubules, more appropriately neurotubules, hold a state until a measurement or observation is made, at which point the system collapses into one definite state (a thought). Quantum entanglement occurs when particles become interconnected in such a way that the state of one particle directly influences the state of another, even when they are separated. This can be locally in the brain or over vast distances. Quantum coherence allows for the overlapping of local mechanical behaviors with wholistic ones. This may involve our interface with, our adjuster, the Spirit of Truth, the Supreme or the Absolutes. At the quantum coherence level, our material consciousness may interact with spiritual consciousness in the equivalent of the collapse of the wave function.

Roger Penrose (originator of the OOR theory & 1990s Nobel laureate for physics) says it this way, “consciousness arises when a large number of microtubules in the brain reach a state of quantum coherence, called a “self-collapse of the wave function.”

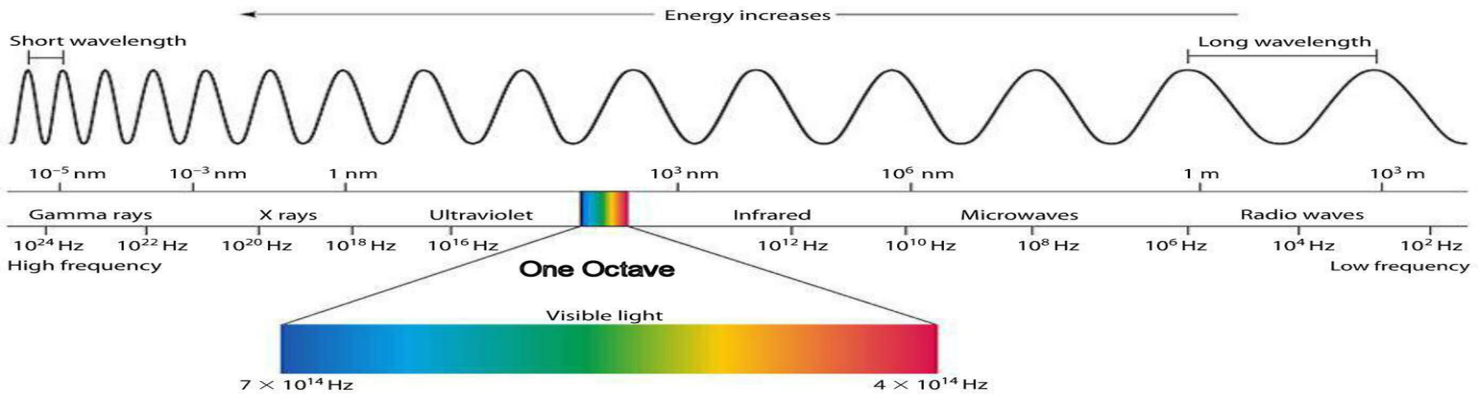
“The far-flung physical universe coheres in the Isle of Paradise; the intellectual universe coheres in the God of mind, the Conjoint Actor; the spiritual universe is coherent in the personality of the Eternal Son. ... Man’s Adjuster is a fragment of God and everlastingly seeks for divine unification; it coheres with, and in, the Paradise Deity of the First Source and Center.” 2:7.7 (42.8)

Electromagnetic Continuum

Let’s look at this from the perspective of the overall electromagnetic continuum. We live and move and have our being in an electromagnetic continuum.

“Light, heat, electricity, magnetism, chemism, energy, and matter are—in origin, nature, and destiny—one and the same thing, together with other material realities as yet undiscovered on Urantia.” 42:4.1 (472.12)

According to The Urantia Book there are 100 octaves in our local universe. 42:5.1 (474.5) Science currently is aware of 81.



Electromagnetic Spectrum

Within each of these octaves, the energies have the inherent ability to interact. At very low frequency the interactions cause heat. Higher frequency interactions facilitate the formation of molecules. The next octave results in the formation of material atoms. It is my conjecture that the next octave is the realm of morontia material, essentially “hard light” where light acts like material atoms but is made entirely from photons instead of fermions and bosons.

Modern unified field theory describes the four primary forces (strong, electromagnetic, weak and gravity) and how they interact in this continuum. My supposition is that we function in the MHz and lower optical range, morontia involves the ultraviolet range (hard light comingled with matter). Above that might be the spirit frequency ranges. Each of these ranges can be influenced by absonite and absolute patterning. If spirit energy is high frequency stuff and it is going to interact with the finite, it needs to find ways to influence using sub harmonic resonant frequencies.

The pattern or organization of our body’s biological system is established and maintained by a complex electrodynamic field, which is in part determined by its atomic physicochemical components and which in part determines the behavior and orientation of those components. This field is electrical in the physical sense and by its properties it relates the entities of the biological system in a characteristic pattern and is itself in part a result of the existence of those entities and can be influenced by the whole.

The Thought Adjuster’s challenge then is to learn which frequencies in his vocabulary (likely above the 10^{24} Hz range) can find sub harmonic resonances with our low frequencies. This is where the microtubules come in with their ability to interact with both light frequencies (ultraviolet in the 10^{15} Hz range), and our material neurons functioning in the kilo Hz range. Microtubules might be the sub harmonic resonant step-down mechanism.

“The Thought Adjusters would like to change your feelings of fear to convictions of love and confidence; but they cannot mechanically and arbitrarily do such things; that is your task. In executing those decisions which deliver you from the fetters of fear, you literally supply the psychic fulcrum on which the Adjuster may subsequently apply a spiritual lever of uplifting and advancing illumination.” 108:5.8 (1192.3)

“Literally” “the psychic fulcrum” might be “Christ like” “Spirit of Truth” patterning of microtubules. It may be that what you do in the time between sensory input and your reaction, your free will intervention, allows you

choose to remain animally, fear based, materially conscious, or you can pattern your microtubules by co-creatively focusing on values, Christ consciousness. Your microtubules will grow and shrink as required to maintain those prechosen superconscious patterns of thinking. Evoking the “mind of Jesus” (activating the Spirit of Truth) may allow temporary changes to microtubule lengths that facilitate temporary Christ like thinking and with repetition these patterns might become our homeostatic norm.

The spirit of truth is “**fact as well as in truth**” 52:5:5 (596.3)

Until the TA learns to speak directly to us, or we can quiet our mind chatter to better hear those harmonics, the only available interactions may involve quantum coherences where the part senses being a part of the whole.

Physiologic Continuum

Just as there is an electromagnetic continuum, from the stationary isle of paradise, through the high frequencies of spiritual realities, down to the megahertz ranges where we function, there is also a physiologic electromagnetic connection continuum. At the very base of our individual physical identity, there is our fundament descriptor, our DNA. Our DNA gives us our potential. Our DNA has the potential of creating the multiplicity of proteins that make up the various cells in our bodies. Based on our DNA, each cell creates the proteins necessary to be what it is supposed to be. Some become brain cells while others become gall bladders. How does DNA know what to become? How does it know how to fold to become a brain or a bladder cell? It turns out that the electric environment of the cell has that “knowledge”. As the cells are multiplying, as the DNA strands are unzipping and multiplying, they are influenced by the electric fields that surround them. Their folding is also modified by any epigenetic manipulations, and this determines what proteins are being formed. In other words, the DNA folding in the brain electrical milieu becomes brain cells and those folding in the bladder electrical patterns become bladder cells. This was experimentally demonstrated by Michael Levin in his work with flatworms. Electrical intercellular communication is facilitated in part by microtubules because of their negative surface charge. This intercellular communication based on its electrical interactions, not only determines what is being formed but it also establishes the cell’s cooperation with neighboring cells.

Side Note: Cancer cells are still the original cells (brain or bladder), but they have stopped their microtubule communicating with neighboring cells. (ref 45) They have rebelled and think they can make it on their own.

The sensing of our electromagnetic environment, (ref 49) with its associated communication mechanisms, determines our flow, from DNA to protein, from cell to neighboring cell, from neighbor to neighbor, from man to God, from day to day, from year to year, from here to eternity. It’s all about relationships. These relational flows are all influenced by our body, our self-awareness, our calmness, our local focus, and our overall God consciousness. All these influences affect how smoothly these processes proceed and we in turn, influence the people around us, enhance our sense of connectedness, and our sense of cosmic citizenship, the Supreme, and God himself.

Single and Multiple Quantum Coherence – SQC and MQC

First, we should define what we mean by quanta. Quantum, in physics, is a discrete quantity of energy proportional in magnitude to the frequency of the radiation it represents. Essentially it is the smallest transferable/exchangeable energy packet. In light it is a photon, in electromagnetism it is the gluon, in gravity it may be the ultimaton although physicists are still looking for the graviton.

In the electromagnetic nature of our physiology, there may be possibilities for magnetic coherences with spiritual forces.

For example, very recent research into the nature of consciousness (ref Non classical Brain Function Kersken and Lopez Perez 2022) found evidence of multiple quantum entanglement using fast nuclear magnetic resonance (echo planar) imaging, to study brain protein physiology. They found that the thought processing areas of the brain function at the quantum level and using an intermolecular approach known as multiple spin echo (boosting the initial T2 echo) they found that different areas of the brain demonstrated multiple quantum coherence. In addition, there was evidence of single quantum coherence in the cerebral fluid itself showing up in the dipole-to-dipole interactions like the normal T1 (fat enhanced) T2 (water enhanced) relaxation and rotational symmetry measurements.

Let's reflect for a moment on magnetic resonance. The magnetic resonance process involves placing the subject in a strong magnetic field and then superimposing a variable radio frequency electromagnetic field. The nuclei of the individual molecules, aligned by the strong magnetic field, are vibrated (jiggled) out of alignment, and the time taken to realign (T1 and T2 relaxation times) are a function of the properties of their nucleus. The fact that water has a strong tendency, and most other molecules have a general tendency to align with a magnetic field, implies an overall reference field. In the magnetic resonance machine, the nuclei align with the coils, on Urantia the nuclei align with the earth's magnetic fields, in the universe fields align with the energies flowing out of Paradise. We have a magnetic orientational relationship (coherence) to Paradise.

Side Note: To build a reference map, time consciousness is required. To orient the map, we need a cosmic orientation. The nuclei of our cells may be providing that orientation.

By using cross-recurrence-quantification-analysis, to characterize and quantify interrelationships between nonlinear time responses, researchers also found a 300 to 450 millisecond delay between the EEG signal and the related blood flow pulse oximetry signal. (Think heart mind relationships.) This delay was found to be location specific and was a function of awareness and wakefulness.

Side note: Quantum Coherence in microtubules is temperature dissipation limited, "warm, wet and noisy" causes decoherence. so mental noise or things that raise our core body temperature and inflammation prevent coherence. Remember too, that thermoregulation stops during REM sleep so stay cool, calm, and collected. (ref 4)

Magnetoencephalography (MEG) studies show brain oscillations of specific frequencies can be found in the cerebral cortex. E.g. localized frequencies between 80 and 200 Hz have been related to epileptic seizure events. Magnetoencephalography may also demonstrate a magnetic alignment or orientation with Paradise since our cells have this tendency to exhibit a magnetic bias or orientation.

There is a "brain atlas" (voxel map) that shows the various frequencies that dominate the areas of the brain and MEG is a tool that has been used to study the dynamics and connectivity of these large-scale brain activity (as opposed to atomic level connectivity) and their interactions with the body and its environment in functional body and other brain states. MEG measures the magnetic fields produced by the electrical activity of the brain (as measured in delta, theta, beta, gamma wave activity) using arrays of SQUIDs (superconducting quantum interference devices) or SERFs (spin exchange relaxation-free) detectors.

Remember the “random” nature of molecules transferring their signaling molecules as they bump into their neighbors? This so-called randomness may be another possible area of spirit influence, at the macro or large-scale brain activity, and this would show up here as another form of coherence.

“... the phenomenon of stimulus-response is not a mere mechanical process since the personality functions as a factor in the total situation.” 112:1.13 (1227.3)

Time Consciousness

The entorhinal cortex (EC) is the early critical first stop area of the brainstem/midbrain and functions as a network hub for memory, navigation, and the perception of time. For material processes, our perception of time is really our conscious perception of the patterns of electrical energy at multiple levels in our bodies.

To achieve the “integration of diverse elements, relationships, or values” (Webster’s definition of coherence) we need to cross-reference time and space. To relate space, the EC has grid cells that fire when we move (imaginatively or actually) that gradually build a memory map or grid reference of our location and since we measure motion by time, the EC then needs a time reference. To perceive time, the brain needs a repeatable or stationary reference. There are a few ways to get a time reference. One would be our circadian rhythm; another would be the rhythmic pulsations (3.75 to 7.5 Hz) coming from the limbic hippocampal regions as seen in the Theta waves. Another would be the gradual buildup of different chemicals. Yet another possibility would be if the EC could reference something stationary or “outside of time”. This could be the influence of our changeless personality, our homeostasis, or the timelessness of the Thought Adjuster.

“Personality is uniquely conscious of time, ...” 112:0:16 (1227.6)

The EC with its time derived grid map, is also the main interface between the hippocampus (limbic, “fight or flight” declarative memories and spatial relationship) and the neocortex (computation, attention, thought, perception, and episodic memories). The EC-hippocampus system can time sequence the past, present, and future as related variables so plays an important role in autobiographical, episodic, semantic, and spatial memories including their formation, consolidation, and optimization during sleep. The Thought Adjuster and Theta wave periodicity are both most prominent during sleep. **110:5:5 (1208.4)**

The entorhinal cortex hub of the brain, with its myriad of logic circuits, continuously responds and adapts to stimuli, strengthening some connections, and weakening others. The process of intercommunicating and strengthening or weakening also involves the lengthening or shortening of cytoskeletal microtubules. (ref 39)

We see time as the observation of things evolving and there are two kinds of time:

1. Mind time: the observation of energy/matter changing locations (motion).
Chronos - time duration as measured by a chronometer or a Chronoldek.
2. Spiritual time: Spiritual progress or our movement towards God/unity.
Kairos – representing information at the right or opportune time as measured by The Ancients of Days.

Our different perspectives of time tend to influence our actions. We experience time materially as a sequence of events whereas we experience time spiritually by the effects of time on our sense of happiness and security.

Memories need sequence and we need memories to evaluate our progress. The genes in our DNA give us our geological and ancestral memory, and our life experiences give these ancestral memories current and localized, present day, meaning. We relate our history to our current location and time sense, and then integrate that into the larger chronologic, cosmic, timeless perspective to give it more meaning.

Side Note: Recent Alzheimer's research has found that the EC is larger for those individuals who live longer. From the Urantia Book's perspective, a larger EC can look further back in time and extrapolate further into the future.

Multiple Physiological Clocks

“There is a direct relationship between maturity and the unit of time consciousness in any given intellect.” 118:1.3 (1295.3)

The entorhinal cortex, with its relationship to theta waves and the time sensitivity of microtubules give the brain a fundamental sense of time but there are many other ways to sense time. Special “time cells” in the hippocampus are linked with “place cells” by shared firing properties. Other cells measure time (like it's time to rest) by the buildup and breakdown of proteins. Our circadian rhythms, at the daily level, are sensed by the rotation of the earth in the brain's insular cortex region of the brain and radiation from pulsars may give our atomic nuclei a time sense for interstellar correlations.

Typically, a sense of time is related to the buildup of some chemical. In the case of daily tiredness, it is the balance between adenosine and melatonin. At the hourly level, we are aware of chemical changes (hunger, thirst etc.). Microtubules give us an awareness at the millisecond level, and nuclear spins give us a reference at the attosecond level. All these evaluations are made in the present, although the past created this current condition.

Remember the Urantia Book definitions of time? Mind time (material motion) and spirit time (movement Godward). Our body sense time electrochemically by relating to its surroundings, perhaps we should intellectually sense our spirit time, by sensing and relating it to the cosmos.

Thought Feedback Loop

The locus coeruleus (sometimes called the “Blue Spot” of the brain) is an area of the brainstem that is the primary source of the neuromodulator norepinephrine. It is involved with our physiological responses and is critical for numerous functions including the response to stress (ref 19), attention, emotion, motivation, decision making, learning and memory. The locus coeruleus-norepinephrine (LC-NE) system with its phasic (time sensitive) and tonic (amplitude sensitive) microtubules functioning at a quantum level, is capable of instantaneous, as well as time-based influencing of our thought processes. These could be involved in our feedback loop, of thought, realization of that thought, and reflection of the consequences of that thought. Slight changes in the time delays may be one way that the adjutant mind spirits or our Thought Adjuster or for that matter the Unqualified Absolute, might nudge our thinking towards mid-mind functioning. The Thought Adjuster may influence our thinking by nudging the time delays of the cascades of electron jumps as they flow through the microtubules of the brain on route to the executive areas and then, more importantly, back again (times 10) for reflective thinking. This may be most effective at the thought precursor stage (based on our preauthorized allowances) because after that, our active free will takes full control of the thought processes. Exceptions may be in the case of deep meditation, (ref 32, 38) and worship where the lower frequencies can be given a few more milliseconds for reflective cross pollination of our thinking.

“Come into the kingdom free from prejudice and preconception; be open-minded and teachable like an unspoiled child.” 170:2.20 (1861.2).

Heterophenomenology is the study of first-person phenomena, from the third-person point of view. This may be our awareness of the feedback loop, between the thought precursor, the thought, and the realization that we can (with spirit guidance) physiologically influence that self-reflective thought process.

Near Death Experience – NDE

Most NDEs (ref 17) result in positively transforming changes and sudden spiritual growth. People often report (a) separation from the body with a heightened, vast sense of consciousness and recognition of death; (b) travel to a destination; a meaningful and purposeful review of life, involving a critical analysis of all actions, intentions and thoughts towards others; (c) a perception of being in a place that feels like “home”, and (d) a return back to life. The near-death experience may have a spiritual result but let’s look at some of the electrochemical physiology that might be involved in this spiritual uplift. As blood flow drops, the oxygen levels which generate the cellular electric potential also drop. After clinical death there is a burst of Gamma frequency brain activity. Our thoughts are normally separated and specifically cross connected through troughs and zones of “local minima” voltages. A reduction of available energy to maintain these voltages may facilitate massive synapse cross communication (think life review, calmness, connectedness). It may also reduce the veto power of our free will and allow the adjuster’s patterning to dominate our thinking. Some drugs, (ref 30) like tryptamines (ayahuasca, psilocybin and DMT, N-Dimethyltryptamine, which are structured like serotonin), are called “Spirit Molecules,” and may have the similar effect of lowering the voltage walls of our thought channels allowing for decrease segmentation, longer temporal thought processing, and massive hyperconnectivity.

“When death overtakes a human being, the Adjuster remains in the citadel of the mind until it ceases to function as an intelligent mechanism, about the time that the measurable brain energies cease their rhythmic vital pulsations.” 112:3:4 (1230.2)

Emotional Processes

Emotions (ref 18), which are also controlled by peptides, are a function of the difference between what we anticipate and what we experience, and this is, in turn, a function of the time delayed processing of the sensory inputs that trigger those anticipations and our related reactions. Processing delays give us time to appropriately respond, rather than animalistically and immediately reacting to sensory inputs. This delay allows us to control our emotions, rather than having our emotions control us. Happiness results when our expectations match our experiences. Happiness evolves when we trust that whatever occurs is not only acceptable but beneficial. When we have a faith-trust in **“the gracious, acceptable, and perfect will of God.” 143:2.4 (1609.5)**

The ventromedial prefrontal cortex (vmPFC) comprises several distinct cytoarchitectonic areas in the medial temporal lobe. It is a key brain region supporting decision-making processes, and it has been shown to be one of the main hubs of the Default Mode Network. (ref 31) The Default Mode Network is a superconscious network activated during resting states such as meditation, hypnagogia (ref 24) and light sleep that mediates self-referential behavior, moral reasoning, recollection, and imagining the future. The vmPFC is a relay center that provides somatic markers connecting mental representations with secondarily associated emotions. When mental representations are being compared, contrasted, selected, and singled out, it’s the somatic, gut level,

(think serotonin) intuitive markers that dominate. (ref 28) One of the vmPFC's functions is to filter out the less relevant inputs, prioritize and connect the rest, in patterns for future reference.

Side Note: The adjutant mind may be a very restrictive filter on the infinite mind, limiting our discernment to those things necessary for survival whereas the cosmic mind may be a less filtered version of mind that allows more connected reflecting.

French philosopher Henri Bergson said it this way: "The function of the brain and nervous system and sense organs is in the main eliminative and not productive."

Consciousness of the connection between our emotions and our memories, allows us to look before we leap, as we imagine God's plan, our participation in it, and anticipate any future joy that may result from it. Emotions and our creative anticipatory imagination are influenced by curiosity (self-consciousness), aesthetics (material consciousness) and ethical sensitivity (God consciousness). The prefrontal cortex can also be an experience simulator capable of both the anticipation (looking) and the realization of the consequences of that anticipation (leaping) and their related emotional reactions (reflecting). We can simulate God's plan, our potential contribution to it, and our emotional reactions from our anticipated participation in it.

Passionate emotional involvement may be particularly useful in the zeal of execution, but we may want to limit those emotions that often distract us from God consciousness in our preparatory thought processes.

"Harness your energies and bridle your passions; be calm while you await the majestic unfolding of an endless career of progressive adventure and thrilling discovery." 195:5:10 (2076.1)

Emotional Self-Mastery

An emotional response causes changes in the gene expression of certain cells (which results in hormones, neurotransmitters, and other messenger molecules) which do things like increase your blood pressure, adjust your breathing, tense your muscles, or stand the hair up on the back of your neck. (ref22) One example of an emotional condition, fear, involves the presence of calcitonin, a gene-related peptide, which is created by all fears and this peptide relays signals to other areas of the mid brain. It is also a hormone that blocks the activity of osteocytes that break down the calcium in your bones and act within the central nervous system to inhibit gastric acid secretion. Fear is mediated by dopamine from the amygdala. Can you see how the dominoes are all influencing each other?

The planetary life-planning laboratories are situated on the second satellite of this world number two. In these laboratories the Life Carriers and all their associates collaborate with the Melchizedeks in the effort to modify and possibly improve the life designed for implantation on the *decimal planets* of Nebadon. The life now evolving on Urantia was planned and partially worked out on this very world, for Urantia is a decimal planet, a life-experiment world. On one world in each ten a greater variance in the standard life designs is permitted than on the other (nonexperimental) worlds.) 36:2.15 (398.2)

What things can we control that influence our actions at any one moment?

- our emotional state, the setting we are in, our brain state, current state of our amygdala (level of fear), our interpretation of the situation, environment, environmental memories, memory

interpretations, physical status, hormone levels (testosterone and other stress hormones, calcitonin GABA, etc.), neuroplasticity, upbringing, experience, permanent epigenetic modifications.

What things can't we control that influence our actions?

- cultural or genetic predisposition and our DNA.

There are implicit (emotional), explicit (intellectual) and functional memories in our schema or current mental model. Some implicit memories are present at birth. Our hippocampus centric, explicit memory, aided by our cognitive processes of thinking and understanding are different yet deeply interconnected to our implicit emotions, our feelings, and sensations.

The three main areas of the brain that control our emotions are:

The amygdala which controls our emotional responses, our memory, learning, visceral and autonomic functions, from within the limbic system.

The prefrontal cortex which controls decision-making and overrides our emotional responses.

The hippocampus, which controls memory formation, also contributes to cognitive and emotional processing, intricately weaving together their functionalities.

Peptides (hormones and neurotransmitters) manage the biochemical overcontrol of our 34,000 possible emotions and play a crucial role in assisting the activities of our immune system, by integrating mental, emotional, biological activities and eventually our spiritual wellbeing. They color, predict, and change our behaviors, our moods, and our unique emotional tone. For example, the hormone ghrelin determines our hunger, insulin triggers a gain of body fat, incretin tells us we are full, and leptin responds to too much body fat. The balance of hormones and neurotransmitters influence our emotions and there are no hard-wired emotion control circuits in the brain. Our emotional responses are free will controllable, but that control is incremental. Patience, determination, and consistency are required to change the neurotransmitters at each nerve synapse as they transfer signals, as they are released and themselves are modified by epigenetic methylation and our emotional predisposition. (ref 5, 56)

Recent research by Melissa Hogenboom showed a reduced structure of the amygdala (which indicated stress) and an increase in cingulate cortex (indicating improved emotional control).

Emotional Neurotransmitters:

Glutamate and Gamma-Aminobutyric Acid (GABA) - balance, excitement versus the urge to be calm, ensures homeostasis.

Calcitonin - Fear

Dopamine - Body's reward system, which includes feeling pleasure, achieving heightened arousal and learning, unexpected benefit, motivation, future happiness.

Norepinephrine, AKA noradrenaline - Sympathetic nervous system alertness.

Opioid peptide (oxytocin) – Orgasm, social recognition, pair bonding, anxiety, group bias.

Epinephrine AKA adrenaline – Fight or flight prep.

Serotonin – 95% of which comes from the gut, controls anxiety, current happiness, sense of wellbeing, appetite, mood, memory, and sleep.

The locus coeruleus “Blue Spot” of the brain could be involved in our biofeedback loop, of thought, realization of that thought, and reflection of the emotional consequences of that thought.

Thinking Processes

Some might visualize their thinking as a linear (male) process. Others may picture it as a plainer more matrix cross referencing (female) evolution of thoughts. Our thinking may be more like volumetric sculpting, and the Thought Adjuster may be able to “see” the wholeness image of our thoughts, and it may be that manipulations of the time delays would give the Thought Adjuster the ability to mold the overall dynamic sculpture. To help, we might think of changing the lighting to be more of a top-down illumination or turning up the contrast to make the shape more recognizable. This might be done by “effortless attention” to thought precursors (continuous communion with God) and cooperating with the Thought Adjuster’s (fear not) efforts. Perhaps at times when repetitions are involved (such as in music) we can be more helpful since we have multiple chances at fine tuning that picturization. Practice with quieting the unnecessary clouding of sensory inputs from the body and minimizing non-valuable, higher frequency thoughts, may also help.

“The Adjuster... is the higher and truly internal spiritual stimulus of thought in contrast with the external and physical stimulus, which reaches the mind over the nerve-energy mechanism of the material body.” 108:6.4 (1193.3)

In a spiritual sense our curiosity about God consciousness and our willingness to be influenced (to share the inner life) may allow us to imagine the source of that illumination and to creatively extrapolate, from that mental spiritual safe zone, the realization of the resultant enduring peace.

“Since this inner life of man is truly creative, there rests upon each person the responsibility of choosing as to whether this creativity shall be spontaneous and wholly haphazard or controlled, directed, and constructive. 111:4:9 (1220.8)

The attainment of cosmologic levels of emotional equipoise, calmness, equanimity, and happiness may involve time delayed responses. It is like *injecting a fragment of eternal timelessness* into our frenetic thinking. It can likely be encouraged by the “effortless attention” and “restful spiritual exertion” of worship. **143:7:7 (1616.9)** It may also be aided, by a truly relaxed approach to:

- “1. Curiosity - Hunger for harmony and thirst for beauty. Persistent attempts to discover new levels of harmonious cosmic relationships. The satisfaction associated with satiated curiosity.**
- 2. Aesthetic appreciation - Love of the beautiful and ever-advancing appreciation of the artistic touch of all creative manifestations on all levels of reality. The calmness associated with being in beautiful surroundings.**
- 3. Ethic sensitivity - Through the realization of truth, the appreciation of beauty, which leads to the sense of the eternal fitness of those things which impinge upon the recognition of divine goodness in Deity relations with all beings; and thus, even cosmology leads to the pursuit of divine reality values—to God-consciousness.” 56:10.5 (646.6)**

All these lead to the emotional calmness of knowing that it is a friendly universe managed by a loving father. Perhaps this is like the emotional calmness felt by Andon and Fonta after discovering how to make fire.

“Human experience is an interplay between an active and questioning personality and is equal to depth of a concept plus the recognition of its reality. This creative self-consciousness experience is driven by sensory discovery and the expectant imagination of related things, minds, meanings and spiritual values.” 102:4.2 (1123.2)

Sentience and God Consciousness

Let’s look at the bodily functions that help our mind to calmly relate to God as creator, controller, and upholder. It is possible that time delays, combined with quantum coherence, and these other physiological enhancements, are proportional to our degree of sentience, our self-consciousness, and God-consciousness.

“In the mortal experience the human intellect resides in the rhythmic pulsations of the adjutant mind-spirits and effects its decisions within the arena produced by encirclement within this ministry.” 117:5:7 (1286.5)

Intuition (instinct), understanding (rationalization), courage (loyalty), knowledge (ideology), counsel (socialization), worship (zeal), wisdom (symmetry) may be related to patterning and cross communication of brain cells. The functioning of the adjutants would then be related to microtubule lengths, their associated time delays, (ref 61) and their MAP patterning in the brain. Microtubules don’t function until there is dissipation-less electrical energy transfer (insulation from surrounding tissue) and this is critical for allowing quantum coherence. This only occurs when microtubules are suitably insulated and are greater than 10^{-6} m in length. Is this the initial condition needed for the adjutants of worship and wisdom?

The Spirit of Truth may function to provide a bias superimposed on the overall patterning of these microtubules and their associated ARC propagation time delays. This patterning may be a general electrical bias overlaid in the white matter surrounding the brain, together with the patterning of the microtubules themselves as influenced by the flow of ARC activity. These patterns might be **“the living way from finite consciousness to transcendence of consciousness” (117:3:3 & 7:7.4 & 52:5:4 & 101:3:3)**. This patterning may allow for the functioning of the Spirit of Truth and this patterning may have been derived from *the patterning of Michael’s own microtubule structures* as he arranged them, in his own brain and body, 2000 years ago.

“On Urantia the establishment of this “new and living way” was a matter of fact as well as of truth.” 52:5:5 (596.3)

Our biases result from the lengths of the tubules and established trigger voltage thresholds which are constantly changing. The fact that we can influence the lengths of these microtubules in these para crystalline-like structures, and our calmness (think base voltages versus trigger voltages) suggests that over time, we can develop “habits of thinking” (patterning our thoughts the way Jesus did). The stable patterns of these cascade phenomena may become our **“religious habits of thinking” and our “conditioned spiritual reflex” 100:1.8 (1095.3) 160:3.2 (1777.3)** and since we become more like the one we worship, **(5:5:14 & 133:4:9)** this may be the basis for our soul growth and stabilization of purpose.

Top-Down and Bottom-Up Interpretation

Spiritually, **“creator consciousness seems to proceed from thought-value, through the word-meaning, to the fact of action.” 118:5.3 (1299.3)** From our bottom-up perspective, our progress seems to proceed from facts to thoughts, to meanings and then to the value of those meanings.

Materially, this perspective might be thought of as organizing electrical energy, volitionally. That is, to use our free will to control our thoughts and organize them to be receptive to spirit energy symmetry. Our task may be to harmonize these two reciprocal perspectives.

“Scientific, moral and spiritual insights are the self-consciousness of reflective thinking and make it possible for man to function as a rational and self-conscious personality in science, philosophy, and religion” 16:6:9 (192.5) (think three cosmic intuitions).

“Matter-energy is the mathematical logic of his senses; mind-reason knows their moral duty; spirit-faith (worship) is his spiritual experience. These three intuitions, if unified by patterning their relationships, produce a strong combination of factual science, moral philosophy, and religious experience that validates our experience with things, meanings, and values.” 16:6:10 (192.6) (think cosmic circle attainment).

It seems to me that cosmic circle attainment involves material (think epigenetics) intellectual (think emotion) and spiritual (think faith trust) progress. Education may sharpen and unify these patterns of thought processing in our mind. Civilization may express these meanings and values; life may experience them, and religion may ennoble them. There is a calmness associated with the realization of their inevitable perfection.

During our formative years we are functioning primarily at the animal (fear your enemy) survival level. Once we have confidence in an afterlife and God’s plan, our task becomes to invert this bottom-up, survival of the fittest, mentality to a top-down love our enemy, cosmic perspective. This may require that we gradually, over time, change our thinking and entrench the Jesus inverted ways of thinking. I call this the Jesus flip (think, beatitudes, inevitabilities, selflessness).

"I say to you: Love your enemies, do good to those who hate you, bless those who curse you, and pray for those who spitefully use you." 140:3.15 (1571.2)

Soul Physiology

Let’s think for a moment of a possible mechanism to capture, at any instant, our mental patterns, material status and possibly a snapshot of our mid-mind, for transfer/transition to mansion world number one.

A fully grown human adult might have between 80–100 trillion cells and about 4 trillion of them do not have our own genetic material so these cells are not truly us.

The second law of quantum complexity says that complexity, like entropy, always increases up to a local or global maximum. We are living in a locally and globally entangled reality. This is demonstrated by the life after heat death of a black hole where even after thermal equilibrium (heat death) complexity increases due to quantum entanglement. The investigation of possible states takes longer than the time to get to thermal equilibrium. This is analogous to computer circuit complexity in a physical system complexity. Like a reverse cypher code (the code required to break a cypher). This implies that after material death (material heat death), the soul could continue its search for complexity.

In four-dimensional Minkowski relativistic space, the equation $E^2 = p^2c^2 + m^2c^2$ (where E = energy, p = momentum, m = mass, c = speed of light in a vacuum), implies that our biological luminescence has

momentum. Perhaps even momentum godward even after disassociation from our mass because of our association with the eternal nature of energy.

There is also the matter of colocation. Matter at the subatomic level is made up of fermions and bosons. No two fermions can occupy the same quantum state simultaneously, but multiple bosons (gluons, the particles that mediate the strong nuclear force, photons, and the Higgs boson, the so-called God particle) can. This hints at the complementary and coherent natures of matter and spirit.

Side Note: Chris Watson's *Entropy Scale Factor* (ESF) theory published in *Reports in Advances of Physical Sciences* on July 19, 2023. Said there is no need for dark matter if we use entropy (total information, order vs chaos) to describe gravity.

The Thought Adjuster might have a transcript of the salvageable thought pictures from our mind and memories. Our guardian angel may be aware of our DNA, with its epigenetic tagging and other modifications, representing the current physical status of our brain and nervous system. At death, a snapshot of this information, could be reduced to a numeric sequence.

“...the seraphic guardian eventually becomes the personal custodian of the mind patterns, memory formulas, and soul realities of the mortal survivor during that interval between physical death and morontia resurrection. 113:3.4 (1244.5)

“...your records, identity specifications, and the morontia entity of the human soul—conjointly evolved by the ministry of mortal mind and the divine Adjuster—are faithfully conserved by the destiny guardian together with all other values related to your future existence, everything that constitutes you, the real you...” 113:6.1 (1246.5)

“These phases and forms of soul, these once kinetic but now static formulas of identity, are essential to repersonalization on the morontia worlds; and it is the reunion of the Adjuster and the soul that reassembles the surviving personality, that reconsciousizes you at the time of the morontia awakening.” 112:3:5 (1230.3)

There is also the eternal aspect of photons. Microtubules emit bioluminescent photons at specific resonant frequencies in the infra-red and ultraviolet ranges. This luminescence is representative of the way we think and react to external stimulations. Photons are pure energy, have no mass and yet still have momentum and are eternal. It is possible that this momentum might continue even after our mass comes to rest. It is possible that our guardian angel could direct this light pattern information to mansion world number one while at the same time this numeric representation of luminescent energy could be memorized and relayed for initial patterning of our morontia body to **“... begin over there right where you leave off down here.” 47:3:7 (533.5)**

Experiential – Fusion

What does it mean to experience a complete, bottom to top, fear to faith, self to selfless, 180-degree flip?

“What is human experience? It is simply any interplay between an active and questioning self and any other active and external reality. The mass of experience is determined by depth of concept plus totality of recognition of the reality of the external. The motion of experience equals the force of expectant imagination plus the keenness of the sensory discovery of the external qualities of

contacted reality. The fact of experience is found in self-consciousness plus other-existences—other-thingness, other-mindness, and other-spiritness.” 102:4.2 (1123.2)

Our free will creative control of all our experiences may be in the quantum neuron limbic cerebral feedback loop of our consciousness, and perhaps our superconsciousness, where we *objectively* (materially) and *subjectively* (spiritually) experience the phenomenon of aspiring to be at peace and eventually, to be Godlike. Our free will control may allow spirit dominance to align our neuron activity to the Thought Adjuster’s preferred path, a fusion of paths. A fusion of purposes. A fusion of minds.

“And if this choice is made, sooner or later will the God-choosing son find inner union (fusion) with the indwelling God fragment, while this same perfecting son will find supreme personality satisfaction in the worship communion of the personality of man and the personality of his Maker, two personalities whose creative attributes have eternally joined in self-willed mutuality of expression—the birth of another eternal partnership of the will of man and the will of God.” 111:5:6 (1221.7)

What is this “inner union,” fusion of wills? In the physical world nuclear fusion occurs when electromagnetic energies of two atoms get close enough to be retained by their uniting weak force. Fusion results in the release of the extra energies that are no longer required.

It is conceivable that fusion with our Thought Adjuster may be like this phenomenon, wherein patterning of our neuronal material electro-chemical energies get close enough to the patterning of the morontial-spiritual energies of our Thought Adjuster to be retained by this God fragment. If the Thought Adjuster’s spiritual energy runs in similar paths as our material energies, these harmonized electro-chemical neural energies might get close enough to combine with our morontial energy, and both would fuse with the immediate release of the excess energy in “**Chariots of fire**”.

Philosophy of the Physiology of Spiritual Influences

Just like there are two kinds of time, there are two perspectives for our approach to God. The physical body and its external environment and our soul and its morontial environment. We tend to use our external reality to evaluate our progress and our physiology with its ability to sense cosmic quantum influences helps us but our real progress is in our internal reality, our soul mind, our creative Thought Adjuster influences and our identification with and attachment to, our spirit core.

“But mortal personality, through its own choosing, possesses the power of transferring its seat of identity from the passing material-intellect system to the higher morontia-soul system ... 112:5:4 (1232.5)

The processes we have investigated in this course are akin to applying the scientific method to our spiritual, external, and hopefully internal progresses and this can be viewed from at least three additional perspectives:

1. Discovery of facts as extrapolation of currently known facts.
2. Developing new techniques in ourselves.
3. Observing changes in ourselves during our investigations.

These processes may be integrated, and their individual strengths will be a function of our different experiences and their memories. Each of these growth mechanisms will build on new these new experiences as we move forward and integrate them internally.

In the inner experience of man, mind is joined to matter. Such material-linked minds cannot survive mortal death. The technique of survival is embraced in those adjustments of the human will and those transformations in the mortal mind whereby such a God-conscious intellect gradually becomes spirit taught and eventually spirit led. This evolution of the human mind from matter association to spirit union results in the transmutation of the potentially spirit phases of the mortal mind into the morontia realities of the immortal soul. Mortal mind subservient to matter is destined to become increasingly material and consequently to suffer eventual personality extinction; mind yielded to spirit is destined to become increasingly spiritual and ultimately to achieve oneness with the surviving and guiding divine spirit and in this way to attain survival and eternity of personality existence. 1:3.7 (26.1)

There is also an evolutionary physiology of spiritual influences. Thinking about God and service because of previously practiced familiarity with the developing idioms of cognitive neurobiology, we can learn to discriminate by introspection, the coding vectors in our internal axonal pathways, the activation patterns across salient neural populations, and their relationships to enhance our God likeness. This kind of thinking is called *Transcendent Naturalism* - circular cause/causality thinking and is broken down like this:

1. Matter/Energy – There is a continuum between the quantum realm and the realm of classical physics when more complex forms of matter abruptly lose their quantum properties in a phenomenon called “decoherence.” Quantum properties like entanglement suddenly disappear, waveform collapses, and matter becomes measurable. Classical matter has emerged from the quantum realm via this constantly occurring decoherence. This confirms that energy/matter has an emergent foundation.
2. Life. Autopoiesis - The circular pattern when something maintains and renews itself by regulating its own composition and conserves its own boundaries in a system of feedback loops.
3. Mind. Microtubules and neurotubules form the base of a 4E (“embodied, embedded, enacted, and extended) cognitive feedback loop.
4. Culture. As the cultures evolve, more sophisticated models emerge, culminating in “wisdom” which grows out of the wisdom of the individual as it is guided by top-down insight. There is not necessarily a direct connection between how things seem and how they really are. We are often mistaken in our self-reporting of how things seem unless we use a top-down perspective.

Summary

In every living plant or animal cell, in every living organism — material or spiritual — there is an insatiable craving for the attainment of ever-increasing perfection... 65:6.2 (737.2)

Microtubule lengths, microtubule-associated proteins, ARCs, SAMs, DNA enhancers, multiple types of epigenetic manipulations, the HPA axis, the vmPFC, several types of electromagnetic and optical quantum coherences, the consciousness of our consciousness, our creative picturization, slower lower frequency cross pollination, time consciousness, controlled emotional responses and super consciously patterned habits, are all things within our control and may involve some of the mechanisms that give our mind adjutants and Thought Adjuster some influence on our spiritual progress as we discover, recognize, interpret and choose to fuse.

“... electrical and chemical reactions are predictable. But mind can profit from experience, can learn from reactive habits of behavior in response to repetition of stimuli.” 65:6.8 (738.1)

“The human personality is not merely a concomitant of time-and-space events; the human personality can also act as the cosmic cause of such events.” 12:5.11 (135.10)

Do the patterns of our electro-chemical energies involve some of the physiologies that the Life Carriers used with Michael’s guidance and Mother’s energies to manage our brain-mind connections? Have we touched on some of their experiments here? Mystery remains, for a while longer while we discover Our Mother and her various physiologically ingenious ways of helping us find Father.

“As a reality in human spiritual experience God is not a mystery. But when an attempt is made to make plain the realities of the spirit world to the physical minds of the material order, mystery appears: mysteries so subtle and so profound that only the faith-grasp of the God-knowing mortal can achieve the philosophic miracle of the recognition of the Infinite by the finite, the discernment of the eternal God by the evolving mortals of the material worlds of time and space.” 1:4:7 (27.2)

Take Home Anchor Points:

Perhaps these one-liners will trigger your own ideas of how to materially, incrementally change and improve the interactions with your spirit helpers.

1. Your body supports your mind.
2. Your attitudes, thoughts, emotions, actions, and reactions change your electrochemical nature and spirit receptivity.
3. Patience and openness to thoughtful, reflective, change, may help.
4. Have child-like faith and trust in God but adult like focus.
5. Creatively, leap from a stable, calm, confidence in God’s plan.
6. Where your thoughts go, energy flows.
7. The physical to psychological link is bidirectional.
8. Emotions make epigenetic modifications to your gene expression on an instant-by-instant basis.
9. Align your anticipations with a top down, eternal perspective.
10. Let Paradise be the stable reference source of your electromagnetic fields.
11. Let your Thought Adjuster be your stable time reference for your material motion.
12. Invert your consequential thinking patterns to those of Jesus.
13. Try to be more aware of spirit time than your material age.
14. Get good deep sleep and worship often.
15. Be still, and know, that Mother’s processes, guiding us to find Father, are unfolding as they should.

Descartes’s famous saying “I think therefore I am.” becomes:
“My thoughts improve my electro-chemical responses; therefore, I am, and I will be.”

Inputs influence your nerves, which influence your amygdala, which influences your hypothalamus, which influences the release of peptides, which influence emotional and physical responses, which influences future reactions to similar inputs either towards inner calm or chaos.

Be a positive influence.

Said differently:

Your thoughts guide your physiology.

Your physiology guides your reactions.

Your reactions guide your character.

Your character guides your values.

Your values guide your intent.

Your intent guides **your thoughts**.

Let **your Thoughts** be Adjuster guided.

Thank you.

Any thoughts? or are you still looking for that “philosophic miracle” to makes sense of all this?

Glossary:

Activity regulated cytoskeletal memory reinforcing peptides (ARCS):

- Peptides function in an mRNA like process that lays down memory tracks and sets up the ways we process thoughts.
- Creates "... preconceived opinions, settled ideas, and long-standing prejudices."

Brain Waves:

- An electrical signal generated by a group of neurons sending signals to another group of neurons.

Coherence:

- Systematic or logical connection or integration of diverse elements, relationships, or values.

Consciousness of our consciousness:

- Thought, realization of the thought, and reflection of the consequences of that thought.
- Also involved in superconsciousness and soul consciousness.

Controlled emotional responses:

- Feelingly experiencing, without allowing emotions to hijack our intentions.

Creative picturization:

- True creativity happens in the mind since it circumvents antecedent causation.

Cytoskeleton:

- The network of protein filaments and microtubules in the cytoplasm (the material or protoplasm within a living cell, excluding the nucleus) that controls cell shape, maintains intracellular organization, and is involved in cell movement.

DNA enhancers:

- Genetically inherited and epigenetically controlled gene folding that supports higher level thinking.
- 4000 are specific to humans.

Electromagnetic quantum coherences:

- Influences "random" motions.
- Implies that random motion is controllable by such things as, Thought Adjusters, mind adjutants, Unqualifies Absolute.
- Shares "part and the whole" functionality. E.g., Individual/Supreme, material/spiritual, experiential/existential.
- Demonstrates coherence with Paradise.

Epigenetics:

- The study of heritable changes in gene function that do not involve changes in DNA sequence.

Epigenetic gene manipulations:

- Modifications to DNA that influences gene folding and the resultant protein shape and function.
- Influenced by our emotions, focus and repetitions.

Homeostasis:

- A relatively stable state of equilibrium or a tendency toward such a state between the different but interdependent elements or groups of elements of an organism, population, or group.

Microtubules:

- Hollow tubes that connect and communicate between cells.
- Lengths increase and decrease as a function of cellular interactions.
- Lengths are proportional to the time delays between reactions and responses.
- Can only exist if hollow, electrically cored, and isolated.
- Can be influenced by quantum coherence.
- Resonances are in the mechanical, far infrared (bond stretch), and UV (electron jump) ranges.

- The two optical ranges may relate to where “delicately touch” our morontial selves.

Microtubule-associated proteins (MAPS):

- Proteins that cross connect microtubules.
- Reinforced by repetitions of thinking patterns.
- Substitutes for cross communication that resulted from myelin sheaths.

Morontial Matter – Hard Light

- A few universities have successfully forced light to behave like atoms. With the addition of different energies, they have made light energy exhibit the natural tendencies of matter to form compounds. They are calling it “Hard-Light” and it may be an attempt to recreate morontia matter.
- 48:1:3 “one hundred physical elements, but likewise have exactly one hundred forms of a unique energy organization called morontia material.”
- 103:6:7 “The local universe consists of three degrees, or stages, of reality manifestation: matter, morontia, and spirit.”
- 189:1:3 “Mankind is slow to perceive that, in all that is personal, matter is the skeleton of morontia, and that both are the reflected shadow of enduring spirit reality.”
- Hard-Light (light that interacts with other light like atoms interact with other atoms) has been demonstrated.

<https://news.harvard.edu/gazette/story/2013/09/seeing-light-in-a-new-way/>

https://www.huffpost.com/entry/solid-light-created_n_5824268

Neurotransmitters:

- Chemical messengers that are made up of small amine (triangular pyramid, with the nitrogen atom at the apex) molecules, amino acids, or neuropeptides.

Peptides:

- A compound consisting of two or more amino acids linked in a chain, the carboxyl group of each acid being joined to the amino group of the next by a bond of the type -OC-NH. They are the building blocks of proteins.

Quantum:

- A discrete quantity of energy proportional in magnitude to the frequency of the radiation it represents.

Slower lower frequency cross pollination:

- Taking time to consider the social, cosmic, and eternal ramifications of thoughts.
- Equivalent to the injection of a fragment of infinity into temporality.

Super consciously patterned habits of thinking:

- Learning to use Spirit of Truth (mind of Jesus) like thinking.

Synaptic Adhesion Molecules (SAMs):

- SAMs are peptide memory glue.

Bold quotes are from *The Urantia Book*.

Definition of terms for none Urantia book readers:

Adjutant Mind – a level of consciousness limited to animal functioning in 7 variants (5 animal and 2 human).

Andon and Fonta – First humans.

Conjoint Actor - God of mind, combination of God the Father and God the Eternal Son.

Cosmic mind – a level of consciousness that makes us more aware of our part in the whole.

First Source and Center – God

Fusion – Combination of our energies with the indwelling God fragment, Thought Adjuster.

Isle of Paradise – Material center of the known universe.

Life Carriers – Biological engineers involved with our material assembly.

Mansonia One – First heavenly world.

Michael – Jesus

Morontia – Energy existing between the material and spiritual levels.

Mother – Ubiquitous nature of God.

Personality – Our unchangeable uniqueness as an individual.

Soul – a mechanism for salvaging the best of your experiences.

Spirit of Truth – Greater deity awareness made available on Pentecost by Jesus.

Thought Adjuster – a spirit fragment of God (spirit spark) in you.

Thought changer until about age 25, Thought controller after about age 40.

Ultimaton – Subunit of an electron.

Foot Notes

Foot Note: Schroedinger, in his 1944 Book “What is life”, argued that certain aspects of living organisms, such as both us and mutations (changes in the DNA sequence of a cell’s genome or a virus), might not be explainable by classical physics but required quantum concepts, for instance quantum leaps.

Foot Note: H. Fröhlich suggested in 1950 that macroscopic quantum coherent phenomena may be responsible for dissipation-free energy and signal transfer in biological systems through coherent excitations in the microwave region of the spectrum due to nonlinear couplings of biomolecular dipoles.

Foot Note: A.S. Davydov, proposed that solitonic excitation states may be responsible for dissipation-free energy transfer along the α -helix self-trapped amide in a fashion like superconductivity: there are two kinds of excitations in the α -helix: deformational oscillations in the α -helix lattice, giving rise to quantized excitations (“phonons”), and internal amide excitations. The resulting non-linear coupling between these two types of excitations is a Davydov soliton, which traps the vibrational energy of the α -helix and thus prevents its distortion (solitons are classical field theory configurations with finite energy).

Foot Note: S. Hameroff and R. Penrose, noted that one may view the tubulin protein dimer units of the microtubules as a quantum two-state system, in coherent superposition.

Foot Note: John Eccles proposed that each of the 40 million dendrons is linked with a mental unit, or "psychon", representing a unitary conscious experience. In willed actions and thought, psychons (ref 42) act on dendrons and, for a moment, increase the probability of the firing of selected neurons through quantum tunneling effect in synaptic exocytosis, while in perception the reverse process takes place.

Foot Note: Neoteny (the preservation of juvenile traits) may be part of the evolutionary civilizational process that encourages reversion to the “child-like mind”.

Foot Note: In 2013 researchers at the University of Michigan discovered that DMT is produced in the pineal gland in live rats. It is unstable, most active during REM sleep and disappears immediately upon death.

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61. <https://link.springer.com/article/10.1140/epje/i2011-11049-0> - Microtubule conductivity

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Morontia Material quotes:

Truth is beautiful because it is both replete and symmetrical. When man searches for truth, he pursues the divinely real. ... so to combine and associate material and spiritual energies as to produce a hitherto nonexistent phase of universe reality—morontia substance and morontia mind one third morontial, fabricated of the liaison of spiritual and material energy but beyond the range of mortal vision....material growths have a characteristic green coloration, but the morontia equivalents of vegetative life have a violet or orchid tinge of varying hue and reflection....This Jerusem broadcast-receiving station is encircled by an enormous amphitheater, constructed of scintillating materials largely unknown on Urantia ... Pause to consider: Mansonia number one is a very material sphere, presenting the early beginnings of the morontia regime ... You are mostly human on the first mansion world, just a mortal being minus a material body, a human mind housed in a morontia form—a material body of the morontia world but not a mortal house of flesh and blood ... While the basic morontia forms of life and matter are identical from the first mansion world to the last universe transition sphere, there is a functional progression which gradually extends from the material to the spiritual ... The early morontia life in the local systems is very much like that of your present material world, becoming less physical and more truly morontial on the constellation study worlds unique energy organization called morontia material ... The local universe consists of three degrees, or stages, of reality manifestation: matter, morontia, and spirit. ... morontia mind is a term signifying the substance and sum total of the co-operating minds of diversely material and spiritual natures ... The midway creatures have long denominated this evolving soul of man the mid-mind in contradistinction to the lower or material mind and the higher or cosmic mind. This mid-mind is really a morontia phenomenon since it exists in the realm between the material and the spiritual ... There is operative throughout all time and space and with regard to all reality of whatever nature an inexorable and impersonal law which is equivalent to the function of a cosmic providence.

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P99:5 KJV Bible substance, evidence, of “things” not seen.

Mind can have a spiritual inclination or influence “upon the mind, in the evolving soul, and with the indwelling spirit.”