

Article

Transcendent Nature of Human Consciousness (Part I)

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Abstract

The usual question put is, “How does the brain generate consciousness?” It is proposed that a more potent and interesting question is, “How does consciousness generate the brain?” This question presumes that consciousness preexists and transcends its earthly material embodiment - that human consciousness is global, extending beyond the neural boundaries of the brain, beyond self-awareness, beyond sentience. To propose and argue the transcendent nature of consciousness, one might boldly assume that it *transcends everything material* - that consciousness transcends every aspect of the material world, indeed the observable cosmos. This paper explores the ultimate nature of consciousness and suggests that human consciousness transcends its physical embodiment while interlinking quantum phenomena in neurons with a universe of pure thought. We experience it in the space-time milieu of the physical world, which provides a physiological vehicle for consciousness to put things into spatiotemporal order - to satisfy an innate intellectual urge to bring order out of chaos. At the quantum mechanical scale of human consciousness, this remarkable and enigmatic phenomenon may be explained by several quantum consciousness theories. Apparently, our transcendent consciousness consists of waves of signals that activate neural networks which orchestrate the signals into thoughts and actions. On the grand scale, it may be argued that a transcendent omnipresent consciousness is an extra-ingredient: one that preexists, specifies, and evolves tangible instrumentalities: mind/brain neural networks as its living vehicles. A conceptual framework is described to illustrate the transcendent nature of consciousness and its relation to the physical world. The proposed framework is based on deductions and information revealed primarily by waveform phenomena which are demonstrably transcendent. An essential feature of the framework is the mesostratum; a signal transmission modality. This paper suggests ways to access and explore the mesostratum and suggests necessarily nonreductionist approaches for the study and exploration of human consciousness.

Part I of this two-part article includes: Introduction; Primordial Consciousness; Penrose and Platonic Reality; and Mesostratum Reality.

Key Words: mesostratum, thought signals, information, waveforms, Plato’s world, mental world, physical world, transcendent, consciousness, memes, qualia, observer.

Introduction

In *Consciousness Explained*, 1991, Daniel Dennett, wrote, “Human consciousness is just about the last surviving mystery. . . Consciousness stands alone today as a topic that often leaves even the most sophisticated thinkers tongue-tied and confused. . . . With consciousness . . . we are still

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Note: An abstract version was presented at Toward a Science of Consciousness 2014.

in a terrible muddle. . . And, as with all the earlier mysteries, there are many who insist - and hope - that there will never be a demystification of consciousness.” In *The Journal of Consciousness Studies*, 1995, David Chalmers wrote: “Consciousness poses the most baffling problems in the science of the mind. There is nothing that we know more intimately than conscious experience, but there is nothing that is harder to explain. All sorts of mental phenomena have yielded to scientific investigation in recent years, but consciousness has stubbornly resisted.” The mystery of consciousness revolves around the question: How can living physical bodies in the physical world acquire such phenomena? Neither Dennett’s reductionist approach nor Chalmers’ non-reductionist approach has thus far provided the pivotal concepts needed to resolve the question. This paper suggests a transcendent mesostratum which links consciousness to the physical world.

Chalmers observes that subjective information processing invariably accompanies sensory and neural signal processing. This subjective activity arises from accumulated experience; even when lacking the cognitive cohesion that overrides the transience of sentient life events. We do not just retain visual sensations; we judge the quality of colors, the contrast of dark and light, the quality of depth in a visual field; with iconic images that are conjured up mentally, that are felt emotionally, and inspire a stream of conscious thought. What unites these states of consciousness putatively transcends and elaborates accumulated experiences.

In *The Conscious Mind: In Search of a Fundamental Theory*, David Chalmers introduced the notion of the hard problem of consciousness. According to Chalmers, the hard problem of consciousness is explaining how we experience it with respect to: (1) sensory inputs and the mysterious modes of their neural processing and (2) qualia phenomena where the processing is accompanied by ineffably subjective aspects of conscious experience (which apprehend the redness of red, the beauty of mathematical forms, love, the *selfness* experience). These phenomena are related to physical neurological brain-states, but are not identical to brain states because they are experienced but are empirically unmeasurable, unquantifiable. They are seemingly constructs of consciousness; a consciousness that assigns reality, meaning, value, quality to what is being experienced by the sentient self-aware body.

The notion of a transcendent consciousness escalates the hard problem because it is experienced indirectly, esoterically, and when experienced it is not always obvious to the unprepared or unattuned mind. By my thesis it indirectly commands the body and evaluates its experiences: it is a *motivator* and *observer* - a transcendent *occupant* the body - perhaps it is that which is usually called the subconscious. It communicates - or we communicate with it - subconsciously in subtle ways - if not by imagery or verbal exchanges then through insight, inspiration, introspection, meditation. Possibly, lucid dreaming, near death and out-of-body experiences, and certain types of hallucinations are extreme examples.

In *The Emperor’s New Mind* Roger Penrose claims he receives insights from Plato’s world - by my thesis from his transcendent consciousness, via the mesostratum. The initiating inspiration is essentially nonverbal. Penrose writes, “Almost all my mathematical thinking is done visually and in terms of nonverbal concepts, although the thoughts are quite often accompanied by inane and almost useless verbal commentary, such as ‘that thing goes with that thing and that thing goes with that thing’ . . . I often calculate using specially designed diagrams which constitute a

shorthand for certain types of algebraic expression. This is not to say that I do not sometimes think in words, it is just that I find words almost useless for mathematical thinking.”

Einstein, Pauli, Schrödinger, Heisenberg, Eddington, and Jeans, espoused a form mysticism that connotes communication with their transcendent consciousness. Einstein spoke of a cosmic feeling that inspired his reflections on the harmony of nature. Apparently mystical insights achieved by quiet meditative practices can be a useful guide in formulation of foundational scientific theories. Kurt Gödel spoke of the “other relation to reality” by which he could directly perceive mathematical objects, such as infinity. Gödel was able to achieve this by adopting meditative practices. Heinrich Hertz said, “One cannot escape the feeling that these mathematical formulas have an independent existence of their own, and they are wiser than even their discoverers, that we get more out of them than was originally put into them.”

Conventional theory almost always avoids embracing transcendent phenomenon in deference to the strict guidelines of reductionist empiricism. Virtually all physics theorists and cosmologists disdain ascribing a transcendent aspect to any part of objective reality. Many adhere to the convention that reality is that which is material, tangible, observable, definable, measurable - relegating any esoteric excursions from objective reality to realms of randomness or to a probabilistic mystery or to an ethereal scrapheap of nonreductionist unprovable or unshareable subjective babble.

This paper proposes that it may be possible to make more progress in the study of consciousness and consciousness science if theorists, physics theorists, physiology theorists would tentatively concede that we are immersed in a complex transcendent universe; that we exist in a subset of an ultimately unknowable reality. We should refine existing theories to incorporate evidence of transcendent phenomena and attempt to remove mysteries by questioning and understanding. Indeed, at this juncture, we should begin questioning objective-theoretical precepts with which we may have become much too comfortable. Karl Popper wrote, “Science must begin with myths, and with the criticism of myths,” but then cautioned, “Whenever a theory appears to you as the only possible one, take this as a sign that you have neither understood the theory nor the problem which it was intended to solve.”

It is not unreasonable to contend that human consciousness transcends its physical embodiment yet somehow interlinks quantum phenomena in our neural networks with a universe of pure thought. This kind of linkage is discussed in *Information and the Nature of Reality - From Physics to Metaphysics*, a compendium of commentary by philosophers, scientists, theologians carefully contemplating about and speculating on the transcendent aspects of consciousness as a conveyor of supernal intelligence and information.

Even by acknowledging the transcendent nature of consciousness, the hard problem of consciousness may persist; and will perhaps remain permanently unresolved or be incompletely resolved. It is likely that by its *presumed* nature and definition, *transcendent consciousness is constantly evolving and reinventing itself*. The resolution offered here may be incomplete, but an inconclusive attempt is better than no attempt at all.

Primordial Consciousness

To rationalize a transcendent consciousness one needs to assume that it transcends *everything* material - every aspect of the physical world, indeed the entire observable cosmos. This bold concept suggests taking an inventory of the content and nature of the cosmos. One may begin by allowing that *our* cosmos is probably one of countless many, and that its observable content is only a minuscule subset of an unbounded transcendent universe. Star-centered planetary systems with their entourages of globular habitats, many harboring sentient self-aware life, are probably inevitable components of any self-contained cosmos. Evidence is accumulating that uncountable putatively congenial globular habitats are diffusely dispersed throughout galaxies and the cosmos. How does it happen - what is the validity of the inference - that myriads of these globular habitats engender conscious inhabitants that explore the nature of their consciousness and ponder its role in the vastness of the cosmos?

This paper explores aspects of the proposition that our material reality is part of a greater transcendent reality in which we are immersed through our consciousness. Moreover, this paper attempts to explain the nature of the transcendent reality by positing a foundational framework. First, a review of carefully considered, highly imaginative almost mythical, concepts of primordial consciousness insights are given.

Arthur Stanley Eddington in *The Nature of the Physical World* concludes, "The stuff of the world is mind-stuff. . . The mind-stuff of the world is, of course, something more general than our individual conscious minds. . . Consciousness is not sharply defined, but fades into subconsciousness; and beyond that we must postulate something indefinite. . . yet continuous with our mental nature. . . It is difficult for the matter-of-fact physicist to accept the view that the substratum of everything is of mental character. But no one can deny that mind is the first and most direct thing in our experience, and all else is remote inference."

James Jeans exclaimed in *The Mysterious Universe*, ". . . the universe begins to look more and more like a great thought than like a great machine." Perhaps, an omniscient consciousness creates just such a great machine, the dynamic milieu of the cosmos, and then endeavors to put things into spatiotemporal order, to bring order out of chaos; as contemplated by Ilya Prigogine and Isabelle Stengers in *Order out of Chaos*.

In his foundational work *Ethics* Baruch Spinoza may well have declared: "Consciousness is one, that is, only one substance can be granted in the universe. Whatsoever is, is in Consciousness, and without Consciousness nothing can be, or be conceived. Consciousness is the indwelling and not the transient cause of all things. All things which are, are in Consciousness. Besides Consciousness there can be no substance, that is, nothing in itself external to Consciousness." I simply substituted *Consciousness* for *God* in Spinoza's original seventeenth century declaration. This recasts Spinoza's profound insight about the nature of the universe and emphasizes his contention that God is an abstract and impersonal entity. One might say God *is* a transcendent omniscient consciousness (a consciousness which humans and perhaps other sentient creatures share).

It may be that such an omniscient transcendent consciousness needs the tangible and that its tangible manifestations need consciousness, to apprehend order in chaos, perhaps at least locally, to bring order out of chaos. This creative aspect of consciousness was articulated by John Archibald Wheeler as, “We are participators in bringing into being not only the near and here but the far away and long ago. We are in this sense, participators in bringing about something of the universe in the distant past.” (*At Home in the Universe*) He was, I suggest, echoing the previous adaptation of Spinoza’s insight and asserting our presumed primordial participation in and our emanation from a universal consciousness and therefore our involvement in a grand cosmic scenario of creativity in malleable portions of objective reality.

Ludwig Boltzmann hypothesized a self-aware entity that arises due to random fluctuations out of a state of cosmic chaos. This entity, named the Boltzmann brain, putatively arose spontaneously to produce the current level of cosmic organization with its multitude of individual self-aware entities. Boltzmann never specified *in what* or *in what manner* the random fluctuations arose, but asserts for every cosmos with the level of organization we see in ours, there should be an enormous number of Boltzmann brains floating around in as yet utterly unorganized environments. This concept anticipates the idea, discussed later, that Boltzmann brains are not ‘hard-wired’ neural entities but coherent informational signal parcels.

One way to look at the Boltzmann brain is that it requires a reversal of entropy. This leads to the paradox of how a seemingly chaotic cosmos can produce isolated pockets of order and organization - a localized reversal of entropy. This organized entity is spawned as pockets of order out of chaos - an ethereal brain or mind. It becomes self-aware and contemplates its origin and its mission within the entropy-generating milieu that spawned it. Boltzmann should have further considered whether the process was really a random fluctuation as opposed to the awakening of a primordial transcendent consciousness predisposed to the deliberate design of thinking entities which are distinct from their chaotic milieu.

Even if design were absent, a question still remains: Is the emergence of the thoughtful transcendent brain perhaps predestined or potentiated by parameters inherent to the chaotic milieu? Indeed, this brain-like activity implies the emergence of intelligent signals devoid of and not requiring a physical neural network, or any ‘hard wiring’ at all. It will be clear that the mesostratum demonstrably supports such transcendent signals and waveforms independently of the physiostratum.

In *What is Life?* Erwin Schrödinger described a theoretical awakened, growing, evolving potentiality as utilizing *negentropy*. Schrödinger elaborates on the marvelous faculty of living organisms, to delay decay towards thermodynamic equilibrium (heat death) by feeding upon negative entropy, attracting, consuming a stream of negative entropy into itself - to compensate the entropy increase it produces by living and maintaining itself on a stationary and fairly low entropy level. The physical results of this negentropy are sentient thinking creatures and beings endowed with the capacity to contain consciousness.

From Eddington to Spinoza, from Boltzmann to Schrödinger, are we being enthralled with some masterfully conceived mythology or perhaps being exposed to primordial *memories* and/or *reflections* of a transcendent consciousness - to which special individuals have better access than

most? There is no empirical foundation for Boltzmann brains or Schrödinger's negentropy or Wheeler's participatory cosmos builders. Of course, there are but a few who would dare question the currently accepted mythology of the beginning and minutely detailed history of the Big Bang. After all, the mathematics is consistent and beautiful (more about that later).

A virtually unchallengeable observation is that it requires an immense dynamic cosmos and a tremendous amount of time to produce minuscule pockets of intelligent consciousness on congenial life-friendly globular habitats. According to Stephen Hawking it also requires a grand design. In *The Grand Design* Stephen Hawking explains how “. . . understanding of the laws governing us and our universe [may] lead to a unique theory that predicts and describes a vast universe full of the amazing variety that we see.” Hawking's *laws of the universe* are putatively so exquisitely formulated that they govern the assembly of the cosmos down to the minutest details of forces, fields, and quantum particles.

Hawking does not explain where the grand design and laws of the universe originate and reside; how they initiate the cosmos. He avoids suggesting a consciousness that conceives and directs the process. Hawking advocates the idea that, “Spontaneous creation is the reason there is something rather than nothing, why the universe exists, why we exist. It is not necessary to invoke God to light the blue touch paper and set the universe going.” But, implicit in Hawking's *universal laws and grand design* is the conjecture that they *preexist* the emergence of the material cosmos.

Hawking eschews God as a first cause and prefers instead what might be termed Darwinian cosmology. He espouses a *multi-universe* concept because it allows the means by which a particular finely tuned universe, such as ours, may evolve and survive as one among many, if it is fit to survive. In their struggle to survive, some universes may succeed, others may fail. Some enjoy extended lives, while many collapse, become extinct due to poor or profligate use of available resources beyond permissible parameters. The most interesting of those fit to survive are universes possessing physical properties that produce environments for evolving and sustaining self-aware beings like us.

Quantum electrodynamic scientists and cosmologists are ironically content with the notion that the entire material content of the cosmos popped out of a transcendent void. The nature of this void and its tangible products are interesting because human consciousness is one of those products. This omnipotent void has been described by Heinz Pagels in his book *Perfect Symmetry* as, “The most complete void that we can imagine . . . no space, time or matter. It is . . . without place, without duration or eternity, without number . . . yet this unthinkable void converts itself into the plenum of existence . . . a necessary consequence of physical laws.” Pagels then wonders, “Where are these laws written into the void?” and he then infers, “It would seem that even the void is subject to law, a logic that existed prior to time and space.” Or as Stephen Hawking implies in *The Grand Design* - laws that *preexist* the emergence of the material cosmos.

This paper contends that Heinz Pagels' *universal void* is the *mesostratum*, a transcendent substrate, which contains the physics, logic, design, energy and infinite dormant potentialities

needed to spawn the cosmos - perhaps uncountable coexisting cosmoses. These dormant potentialities may include an infinitude of extra dimensions as well as a continuum of compact dimensions postulated in quantum theory, superstring theory, and Edward Witten's M-theory. Seemingly, the void contains a library of all possible instructions, signals, waveforms, formulae, and processes for the formation of countless habitable worlds, complemented with consciousness endowed beings. This transcendent aspect of the mesostratum facilities - in concert with our experiencing the material world - sets the stage for exploring the contemporary state of consciousness.

Penrose and Platonic Reality

Rather than speculating on the beginning, evolution, and complex history of a cosmic consciousness, this paper contemplates contemporary local manifestation and attributes of consciousness that may be accessed individually. It will be seen that these local manifestation and attributes can be explained in terms of the physical sciences, in particular in terms of quantum mechanical wavefunction phenomena that transpire in the mesostratum of which Plato's world as described by Roger Penrose is simply a subset.

Roger Penrose, argues that we discover the laws of nature in Plato's world of perfect forms. He elaborates on his own experience with Plato's world and diagrams its relation to the physical world and the mental world in *The Emperor's New Mind* and *The Road to Reality - A Complete Guide to the Laws of the Universe*. Does Plato's world actually exist, in any meaningful sense? Penrose affirms: "This was an extraordinary idea for its time, and . . . is indeed an immensely valuable one. It tells us to be careful to distinguish the precise mathematical entities from the approximations that we see around us in the world of physical things. . . . Does this not point to something outside ourselves, with a reality that lies beyond what each individual can achieve?" (*The Road to Reality*).

Penrose concludes that the Platonic world of perfect forms exists and that nature and the mind draws from and depends upon its inexhaustible reservoir of ideal entities. Although perfect forms are not found in the physical world, there is ample evidence that nature utilizes the mathematical objects and formulae of Plato's world. Penrose asserts a remarkable interplay and communication among the triplet he designates as the Platonic, mental, and physical worlds. The interplay is manifested by the manner in which mathematical discoveries, experimental results, the concrete world, and human consciousness are intertwined via the transcendent aspect of Plato's world of perfect mathematical forms/objects.

Certainly, mathematicians and physics theorists draw upon these resources, usually unknowingly, attributing their innate brilliance. Putatively, there is an osmotic interface between Plato's world and the physical world; an interface and process that elevates individual consciousness far beyond its material integument. This conceptual interface can facilitate exploring the interplay of intangible and tangible aspects of the universe and examining how human consciousness fits into a preternatural milieu. I'm intrigued by and eagerly explore the

notion that human consciousness, indeed my consciousness, transcends its ambulating integument and its neural network boundaries and potentially partakes in Plato's world.

As a physics theoretician, Penrose prefers to limit his interest to Plato's world of mathematical concepts. In *The Emperor's New Mind*, he writes, "I imagine that whenever the mind perceives a mathematical idea it makes contact with Plato's world of mathematical concepts. . . . When one 'sees' a mathematical truth, one's consciousness breaks through into this world of ideas, and makes direct contact with it. . . . When mathematicians communicate, this is made possible by each one having a *direct route to truth*, the consciousness of each being in a position to perceive mathematical truths directly, through this process of 'seeing.' . . . The mental images that each one has, when making this Platonic contact, might be rather different in each case, but communication is possible because each is directly in contact with the *same* eternally existing Platonic world!"

Penrose and some other prominent mathematicians believe that truly beautiful mathematical findings come only after a visit to the Platonic world of mathematical objects. Apparently, only a few mathematicians and theoretical physicists are able to have such a highly irregular experience as visiting the Platonic world. Most mathematicians and physicists can neither understand nor accept Penrose's Platonic position. The irony is that when mathematicians and physics theorists describe phenomena that govern physical and subatomic interactions (such as the flow of electricity, magnetic attraction/repulsion, electron orbitals, quantum probabilities, wave functions, etc.) they describe purely mathematical objects that ostensibly exist only in Plato's world, indeed in the mesostratum - which I propose is a transcendent hyperspace continuum - the energetic substrate of our physical world, the physiostratum. A corresponding paradigm shift is needed; which would allow physicists to comfortably regard the mesostratum continuum as complementary to particulate physical reality, which it demonstrably is!

Most consciousness theorists working toward a science of consciousness justifiably abide by the methods of the physical sciences that have proven so precisely successful in dealing with the tangible world and the exotic world of quantum electrodynamic phenomena. But, there is a problem of uncertainty even in that stalwart realm. It is worth noting Richard Feynman's summation regarding the peculiar behavior of elementary particles throughout the cosmos. Feynman wrote, "While I am describing to you *how* Nature works, you won't understand *why* Nature works that way. But you see, nobody understands that. I can't explain why Nature works in this peculiar way." . . . "The theory of quantum electrodynamics describes Nature as absurd from the point of view of common sense. And yet it agrees fully with experiment. So I hope you can accept Nature as She is — absurd." (*QED - The Strange Theory of Light and Matter*)

As an example of the absurdity, Feynman cites the "strange phenomenon of partial reflection" of photons which "wave theory cannot explain." When discrete quantum 'particles' impinge on a reflective surface, they are mathematically described as continuous waves. Quantum electrodynamics describes the propagation of light energy in terms of wavefunctions - of photon waves, but the price of this is a retreat to calculating *only the probability* that a photon will be

reflected or transmitted in a particular way . . . “without offering a good model of how it actually happens.”

Although agreeing with experiment, quantum electrodynamic mathematics (often described as beautiful, because beautiful mathematics seems preferable, precise, and just right) still does not explain the exact nature of the *quantumthings* that behave, according to Feynman, so absurdly. This paper offers a conceptual framework that attempts to remove the absurdity that vexed Feynman; it offers a Chalmeresque extra ingredient which promises to break the logjam imposed by some hard science dogmas. The extra ingredient is the transcendent mesostratum.

Feynman’s frustration is exemplified by the measurement problem associated with the transit of a quantum particle, say a photon, from source to detector which evolves according to the Schrödinger wavefunction and *spreads out* in space. But actual measurement in physical reality finds it deposited at a unique spot on a detector surface. The measurement does something to the process under examination. That something is unanticipated by the wavefunction, it is called *wavefunction collapse*. In this paper I adopt the notion that consciousness involves wavefunctions of thoughts, ideas, images, music, and many other kinds of esoteric signals; and that these impinge (*collapse*) on and are processed in concert by the brain’s neural network receptors, as described by the Penrose-Hameroff orchestrated Objective Reduction (OR) theory.

Penrose (*Shadows of the Mind*) suggests that the key to understanding consciousness may lie in reconciling quantum theory with general relativity; that *quantum-gravitational* effects not yet understood may be responsible for the collapse of the quantum wave function. Collaborating with Stuart Hameroff (*Toward a Science of Consciousness*), Penrose suggests that human cognition may depend on quantum wavefunction collapses in microtubules, the cytoskeletons of a neuron. Penrose and Hameroff suspect that wavefunction collapse in microtubules may be the physical-neurological basis of conscious experience. This is analogous to light-wavefunction collapses on the retina (perhaps of the order of trillions per square centimeter per second) which produce, replenish, and sustain the dynamical images we *see*. According to the Penrose-Hameroff theory, wavefunction collapses may be detected by gravitational agglomerations, that is, specific organizations of microtubule neural networks and associations.

However, wavefunction collapses are an auxiliary issue. Attention should be given to the wavefunction prior to its collapse, while it spans the mesostratum, carrying signals that inform consciousness. Cytoskeletal agglomerations should be regarded as receptors, collectively as antennae, attuned to transcendent mesostratum signals that form and sustain consciousness. Cytoskeletal agglomerations in the brain might function as resonant oscillators driven by energetic signals which emanate from the mesostratum. In free space, devoid of these receptor agglomerations, the signals simply dissipate as quantum foam.

The issue needing elucidation is the signal source, the origin of consciousness wavefunctions - the esoteric signals that produce and accompany the phenomena of consciousness. Resolution of this issue requires a conceptual framework or model that establishes the relation among the

mesostratum (the Platonic world), the physical world, and the mental world of consciousness (of pure thought or of the origin thought-signals/wavefunctions).

Mesostratum Reality

I posit the mesostratum in place of ether, which early in the last century was considered a substance that carries light waves (this was disproved and abandoned). It can be demonstrated that light waves, indeed all electromagnetic waves and fields, transpire in the mesostratum (a hyperspace, not a substance, transcending gravitational physicality by definition). This reality has been staring the physics community in the face since Thomas Young's double slit experiment and the Michelson–Morley interferometer experiment.

It is clear that any discussion of transcendent consciousness involves the mind, which in turn requires its own definition as a transcendent entity. I unabashedly define the *mind* as a triad of *soul ~ spirit ~ body* spanning three strata: (1) the *superstratum* (the transcendent domain of pure thought), (2) the *mesostratum* (the mediating domain of information, signals, energetic fields, and indeed Platonic perfect forms, templates, patterns), and (3) the *physiostratum* (the material domain of spacetime and temporal objective reality). In this context, *soul or core of being* is an individualized focus of a transcendent consciousness while *spirit* is a conveyor of signals (information) between soul and body. The soul/core reaches from the superstratum to the body/brain in the physiostratum via signals through the mesostratum interface.

The main burden of this paper is to demonstrate the reality of the mesostratum and, at least provisionally, as a concept that can help explain how a transcendent consciousness spawns, enables, and evolves human consciousness. A leap of blind faith is not needed for accepting the idea of the transcendent aspect of a human mind nor the existence of a transcendent mesostratum that mediates between the physiostratum and superstratum, between body and soul. One need simply observe that just as Platonic perfect forms and mathematical objects exist, Schrödinger wavefunctions, electron orbitals, probability functions, magnetic fields, electromagnetic waves, light waves, and other such *continuumthings* exist; and the mesostratum exists and is *necessary to subsume them*. It is apparent that mesostratum continuumthings like informational signals and mathematical objects transpire *outside* and *independently* of the particulate physiostratum and its discontinuous granular spacetime.

Lee Smolin, in *Three Roads to Quantum Gravity* notes that, according to loop quantum gravity, there is an atomic structure to space, describable in terms of the nodal spin networks invented by Roger Penrose (*The Road to Reality*). Smolin acknowledges that the most improbable and puzzling aspect of this atomized space is its apparent smooth and continuous nature. Smolin explains the smoothness by proposing that the granularity of space and concordant discontinuity of time are on the scale of Planck length (10^{-33} centimeter) and Planck interval (10^{-43} second). We, by default, regard spacetime as a smooth uninterrupted mathematical continuum while *that* attribute resides *only* in the mesostratum hyperspace continuum.

Continuum-things, like Plato's perfect forms, can only exist in the mesostratum hyperspace. Continuum-things are energetic and influence/govern the dynamic behavior of gravitational agglomerations of quantum-things in the physiostratum. Schrödinger's wavefunction, is a continuum-thing; it is essentially a mathematical invention that predicts probabilities regarding the quantum state changes of an energetic signal system with respect to time and space. The reality of the wavefunction is unquestioned because it describes the evolution of the quantum system's state very well. The endpoint event, which is detected - which is consciously experienced and observed in the physiostratum - is a wavefunction collapse during which according to John von Neuman, 'a miracle happens!' The miracle is that a specific quantum-thing suddenly appears here after being emitted way over there. The mystery is what happens while the quantum-thing is in transit in the mesostratum, decoupled from the physiostratum, before being redelivered to the physiostratum. The wavefunction evolution scenario - which plays out entirely in the mesostratum - is empirically unmeasurable; the collapse alone is manifest, when a quantum-thing suddenly lands in a physiostratum gravitational agglomeration of quantum-things and is *observed* - is detected/measured.

Since the mesostratum waveform evolution scenario is not observed, it may be declared to be a non-reality, reinforcing the notion that the only reality is one that is *observed and measured*. One might muse that neither the mesostratum nor wavefunction are objectively real and are therefore sufficiently transcendent to be dismissed by reductionists, empiricists, naturalists. More difficult is the acceptance of radical concepts such as the superstratum ~ mesostratum ~ physiostratum model. This model and its auxiliary paradigms are nevertheless useful because they help explain the operation of strings, quantum entanglement, non-locality, superluminality, and other esoteric phenomena in terms of transcendent continuumthings in the mesostratum hyperspace, as explained by Vary in *My Universe - A Transcendent Reality*.

String theory is being developed to describe the nature of quantum particles and gravitational agglomerations. In theory, strings are basic physical entities - different vibrational states of which represent the different elementary particles. A string can be visualized as a mathematical object in mesostratum hyperspace. In some versions of string theory, strings generate two dimensional extended objects called branes (an apocope of *membranes*). Theorists posit multi-dimensional manifolds, mathematical objects, that require many more than just four dimensions in mesostratum hyperspace (*Shape of Inner Space*, Shing-Tung Yau). In string and M-theory these extra, six or more dimensions, are 'infinitesimal'. String theorist say that these extra dimensions are not observed because they 'curl' up tightly in physiostratum spacetime. My thesis holds that they are unobservable simply because they are continuum-things in the mesostratum that cannot exist in the physiostratum particulate spacetime. Although additions of higher-order branes, manifolds, dimensions seem arbitrary, they are essential for the mathematical consistency of string theory and because they help link the five different kinds of string theory.

The superstratum and physiostratum commingle transparently in the mesostratum while each exists within its own unique domain. The physiostratum is conceptually a subset of the superstratum. Suffice it to say that we are aware of transcendent domains not as an objective realities, but indirectly because of their ubiquitous influence on material domains primarily at the

quantum level; and perhaps their influence on our experience of consciousness. The mesostratum's transcendent reality is demonstrated by considering *photons in transit*. When photons (light wave packets) traverse the mesostratum, they are decoupled from the physiostratum while *in transit* from a physiostratum source/emitter to a physiostratum receptor/detector (photo emulsion, CCD array, or human retina). The decoupling is self-evident because the *velocity of light* is a constant independent of the velocity of the photon source/emitter. This was famously demonstrated by the Michelson–Morley experiment in 1887. Photons (light waves, electromagnetic radiations) return to the physiostratum objective reality as quanta of energy - absorbed by agglomerate gravitational matter. This exemplifies the Penrose-Hameroff notion of orchestrated objective reduction (OR). When ORs (light wavefunction collapses) occur on human retinæ the result is quickly orchestrated as repeatedly refreshed images perceived by the brain.

I suspect the mesostratum is an osmotic interface between the transcendent Plato's world and the physical world, indeed, it is a dynamic substrate that elevates individual consciousness far beyond its material integument. This conceptual interface can serve well in examining the interplay of intangible and tangible aspects of the universe and examining how human consciousness fits into a preternatural milieu. I'm intrigued by and eagerly explore the notion that human consciousness, indeed my consciousness, transcends its ambulating integument and its neural network boundaries.

The mesostratum interface may be taken as the ZPF (zero point field) substrate, the theoretically omnipresent pervasive quantum foam, an energetic substrate. The concept of zero point energy was developed by Albert Einstein and Otto Stern in 1913, as a corrective term added to a zero grounded formula developed by Max Planck in 1900. Zero point energy is the lowest possible energy that a quantum mechanical physical system may have; it is the energy of its ground state. All quantum-mechanical systems putatively undergo fluctuations - even in their ground state - have a zero-point energy - a consequence of their wave-like nature.

Joachim Keppler (*Frontiers in Psychology* 4:242, 2013) suggests that neural network interactions with the all-pervasive ZPF signal radiation is the fundamental mechanism for consciousness. These interactions allow acquisition of ZPF information states that may even result in localized modifications of the ZPF itself. The essential function of this mechanism is the formation of stable attractors; cohesive dynamic systems with a set of physical properties toward which the systems tend to evolve. When realized physically in a neural network, the attractor may be a fractal structure known as a strange attractor. Depictions of attractors associated with chaotic dynamical systems have been one of the achievements of chaos theory. This complements the notion that a key function of consciousness is bringing order out of chaos. According to Keppler, suitable quantum waveform inputs induce a transition to an ordered phase that prompts a neural network assembly to become an attractor; a perfectly synchronized pattern of conscious activity;

Penrose-Hameroff orchestrated objective reduction. Given this scenario, the ZPF is an eminently suitable candidate as the substrate of consciousness. The ZPF is clearly a feature and attribute of the mesostratum; as it is defined in framework/model given in this paper.

(Continued on Part II)