

QUANTUM META-PHYSICS

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1. QUANTUM PHYSICS AS SPIRITUAL PATH

I wonder if I am becoming addicted; I can't get enough of quantum physics, which has captured—and simultaneously liberated—my imagination beyond belief. My appetite for what it is revealing feels insatiable. The more I study it, the more I feel as if I am mutating, metamorphosizing, becoming quantum-physicized into a higher state of coherence in my very soul. Words fail me when I try to describe the realm of pure and utter magic that is quantum theory. Unlike a typical addiction—wherein energy gets drained—the more that I enter(tain) the world of quantum physics, the more creative energy makes itself available to me. I feel convinced that what it is revealing to us is of crucial importance for the future of humanity.

Science is the wisdom tradition par excellence of our modern age. Quantum physics, its crowning jewel, can be likened to a genuine spiritual path in that its study becomes a “royal road” beyond both physics and the physical dimension into the realm of meta-physics. Quantum physics' return to metaphysics was inevitable, for physics began with the gnostic search for what Einstein calls the “Old One” behind all phenomena. To mainstream physics, however, the word “metaphysics” is now akin to a swear-word, a synonym for “loose thinking,” a code-word for unscientific thought. In modern physics as it is commonly practiced today, being “metaphysical” is used as a derogatory euphemism for condemning a theory which doesn't fit into the common, agreed-upon consensus framework. It is as if the perspective of contemporary conventional physics wants to “purify” its discipline from the stain of metaphysics. Mainstream physics claims it is not interested in metaphysics, asserting that it makes no metaphysical assumptions, as it is only interested in seeing reality as it is. Yet, hidden within this very viewpoint is, paradoxically, a tacit form of metaphysics. This metaphysics lies in the unexamined assumptions implicit in the perspective that physics makes about the nature of reality, assumptions so implicit as to be not even recognized as assumptions. The spirit of quantum physics, however, challenges the

underlying and unexamined metaphysical assumptions of mainstream physics, at the same time providing the doorway for a radical new form of metaphysics to emerge.

Metaphysical considerations are unavoidable if we are truly interested in comprehensive knowledge of the whole and not merely in practical, material concerns. Metaphysics, according to its most common modern definition, has to do with a transcendent realm “beyond” what is perceptible to the senses, which is precisely what quantum physics points towards. The term is related to “mysticism,”¹ which is based on the word “mystery,”² implying something hidden. Physicists and metaphysicians are both in the business of wondering about the universe. Contrary to the pejorative associations that the word mysticism has within the modern scientific community, the genuine mystical path is closely akin to the path of science in that mystics accept only that which is revealed through direct, immediate experience. The word “experiment” is etymologically derived from the word “experience.” Mystics are those who experiment with their experience and are therefore empiricists, drawing conclusions in a way that is in the true spirit of science. The discoveries of quantum physics make the insights which were once considered mystical “transparent,” readily available for all of us to see the world through its liberating perspective. We ourselves are an essential part of the mystery that is being unveiled through quantum physics. To the extent that we are interested in truth, or the nature of reality, or God, or who we are, we are all metaphysicians. Quantum physics is hinting at something beyond what we normally think of as physics, reaching beyond even what we consider the physical world. Quantum physics is pointing at the very thing that it itself—and in fact the whole universe—is an expression of.

In my recent article [Quantum Physics: The Physics of Dreaming](#), I continually evoke the genius of physicist John Wheeler, who is widely considered one of the greatest scientists of the twentieth century. A lover of wisdom, Wheeler did work in quantum physics that reached beyond the formalism of physics into the realm of metaphysics in its original philosophical sense. Quantum physics is the most successful scientific theory—as far as its capacity to make accurate theoretical predictions that precisely match with experimental data—of all time; there aren’t even any competitors. The majority of corporately trained and funded physicists are content to take their theory for granted, however, just using it for practical ends, rather than being curious about where it came from and what it indicates about the nature of reality. Thankfully, physicists such as Wheeler are interested in the deeper philosophical meanings and implications of their mysterious theory. Commenting on quantum theory, Wheeler says, “It’s a sausage grinder. We drop our problems in, and turn the crank, and get out the answers. Where did the sausage grinder come from?”³ It is as if a miraculous object bestowing earth-shaking knowledge has fallen from the heavens, helping us to develop undreamed-of technologies; but no one really knows why it works, what it means or, ultimately, what it is revealing to us. Wheeler is not just interested in the practical aspects of solving equations, making predictions, developing engineering applications and building technologies, but is willing and impelled to contemplate the big questions, such as why is our universe a quantum universe in the first place? He asks, “Why is the quantum there? If you were the Lord, building the universe, what would convince you we couldn’t make a go of it without the quantum?”⁴

The shadow side of “science as a modern-day wisdom tradition” is that it can, and often does take on the qualities of a religion, with all of its taboos and heresies that violate the open-minded spirit of the scientific method. The tenets of science, which can easily resemble a disguised form of religious dogma, call for its adherents’ intellectual and emotional allegiance in a way that borders on the irrational. People who have been indoctrinated into the dictates of this

scientific creed, as if hypnotized or under a spell, can find it difficult or even impossible to imagine that the world can be anything other than the way they have been taught that it is, as if no other way of thinking or knowing about things has ever occurred to them. The still-dominant attitude of “scientific materialism”—with its hidden metaphysical belief in an objectively existing world—has erroneously excluded the subjectively experienced mind from the domain of the natural world to the point that “scientific knowledge” has come to be equated with “objective knowledge.” And yet, quantum physics has proven there’s no objective anything. Writer Octavio Paz wonders, “Perhaps tomorrow’s metaphysics, should man feel a need to think metaphysically, will begin as a critique of science, just as in classical antiquity it began as a critique of the gods.”⁵

Sometimes the greatest breakthroughs in science happen because someone has the courage to recognize and speak out loud what others have turned a blind eye towards. The ever-emerging discoveries of quantum physics are thirsting for the next generation of daring thinkers to further unfold its deeper meaning. For daring and gallantry are needed in science, as in battle.

2. PHYSICS IN TRAUMA

Consciousness has insinuated itself into the quantum physics laboratory, and mainstream physics has had a most interesting reaction: it has changed definitions, created new forms of logic and come up with the most ingeniously absurd theories so as to avoid directly dealing with what it has discovered. Physicist Banesh Hoffmann, an associate of Einstein, writes in his book *The Strange Story of the Quantum*, “Let us not imagine that scientists accepted these new ideas with cries of joy. They fought them and resisted them as much as they could, inventing all sorts of traps and alternative hypotheses in vain attempts to escape them.”⁶ It is as if the physics community is in denial about its own unsettling revelations. When asked about the metaphysical and philosophical implications of quantum theory, for example, their avoidance is captured in their well-known reaction: “Shut up and calculate.” As fascinating as its new discoveries are, the physics community’s unconscious reactions to its discoveries are at least as interesting, if not more so. As a student of the psyche, I can’t help but wonder what is being revealed by their reactions.

Niels Bohr, one of the founding fathers and principal interpreters of quantum physics, famously said, “Anyone not shocked by quantum mechanics has not understood it.” The worldview emerging from quantum physics has completely and utterly overturned and shattered the old, classical mechanistic ideas of how the universe works. It is as if the psyche of physics as a whole is having a nervous breakdown; the old structures upon which its view of the world has been based are melting down. To quote physicist Daniel Greenberger, “Einstein said that if quantum mechanics is right, then the world is crazy. Well, Einstein was right. The world is crazy.”⁷ Contemplated psychologically, it is as if the revelations of quantum physics are so shocking and discontinuous with the previously embraced classical perspective that they have induced a form of trauma in the entire physics community, what I call “Quantum Physics-Induced Trauma”—“QPIT.” The physics community’s unconscious reactions to its discoveries have the classic features of a trauma that they are in the process of integrating into their conscious awareness. It is traumatic to realize that the world that we thought we lived in doesn’t exist in the way we thought it did. Abraham Pais, an award-winning physicist who knew Einstein during the last decade of Einstein’s life, writes in his biography of the pre-eminent physicist, “As

a personal opinion, it seems to me that making great discoveries can be accompanied by trauma.” When we discover something that so completely changes and rocks our world, we can easily find ourselves disoriented, experiencing a shock that needs to be metabolized, digested and integrated. The physics community’s seemingly unconscious and irrational reactions to the appearance of consciousness on its scene—avoidance, denial, ignoring, rationalization etc.—are a typical response to an overwhelming trauma that cannot be integrated in the ordinary way. The physics community’s trauma is a natural reaction, a sane response to a mind-bending discovery that deconstructs the very foundation of the world they thought they had been inhabiting. The quantum is such a trauma to the classically conditioned mind; to take its revelations into oneself is to drink the transformational nectar of an initially disorienting, but ultimately radically liberating gnosis. Bohr takes the point about being shocked even further when he says, “If you think you can talk about quantum theory without feeling dizzy, you haven’t understood the first thing about it.” And as with any significant trauma, we are asked to assimilate what has been triggered within us.

As is often the case in trauma, there emerges an area of experience that is “off-limits” to talk about. Mention the word “consciousness” to corporately trained conventional physicists, and watch their knee-jerk re-action, as if we have just said a dirty word and broken a taboo. Instead of having a multidisciplinary, holistic vision akin to being modern day renaissance men (and women), the typical physicist of today practices what philosopher José Ortega y Gasset refers to as the “barbarism of specialization.” The visionary Buckminster Fuller referred to this dynamic as becoming “specialized to death” and felt it was in opposition to life. From this compartmentalized point of view, anyone who tries to synthesize knowledge from different disciplines is denounced as a dilettante and accused of speaking about something they are not “licensed,” “qualified,” or “credentialed”⁸ to discuss. How amazing that physics, in discovering the miraculous world of the quantum, simultaneously constructs a “don’t-go-there zone” regarding what we are and are not allowed to talk about. From the psychological point of view, the question naturally arises: why is mainstream physics so threatened? It should be pointed out that issues regarding consciousness have not been refuted but merely rejected by those in positions of power and influence, which seems less a scientific process than a political and psychological one. The fact of there being an unspoken elephant in the physics living room, of there being a mysterious secret that cannot be spoken about, are all signs, seen from the family systems theory point of view—which sees the world as a whole interrelated and inseparable system of relationships—of a “dysfunction in the family system” of the physics community.

It is not that physicists are merely disinterested in the appearance of consciousness on their scene; on the contrary, they have become “aggressively disinterested” in the metaphysical implications of their own theory. If we view the physics community as if it were an individual, it has an emotional “charge” (analogous to that of a subatomic particle) and is “reacting against” something in its own discoveries that is being triggered within itself. So often the greatest discoveries in physics are found by following with unbiased and open-minded curiosity the one anomalous thread in the prevailing theory—what to do about consciousness?—that doesn’t seem to fit. Interestingly, the current reaction of the physics community is the polar opposite: it is actively choosing to look away from what is in its closet, from the thread that is protruding through the cracks in its theory. And yet, if this thread is pulled, it could potentially unravel not only the field of physics’ ideas about the world, but physicists’ ideas about themselves as well.

The lineage holders of corporate/academic physics are like “gatekeepers” who quarantine the radical philosophical implications of quantum theory from the rest of us. To quote Einstein,

“Restricting the body of knowledge to a small group deadens the philosophical spirit of a people and leads to spiritual poverty.”⁹ It is not something solely within the individual psyches of physicists that is resisting the liberating perspectives of quantum theory; it is important to view the physics community within the wider context of the institutional structures in which it operates. From the point of view of the prevailing power structure which funds the overwhelming majority of physics research in the United States—in both corporations and universities—the insights emerging from quantum physics represent a tremendously disruptive knowledge that could easily threaten the status quo. Quantum physics is pointing at the primacy of consciousness for how our moment-by-moment experience manifests, thereby illuminating the immensity of our inherent power to create our world more consciously. If recognized and understood by the general population, the revelations of quantum physics would be naturally used for the liberating purposes for which this knowledge is tailor-made. It is as if the “creator” of quantum physics—the universe itself—designed it in order to free humanity from the shackles of the spiritless, soulless, deadening paradigm of fragmentation (i.e., the Newtonian, classical worldview) that has promulgated limiting and outright false doctrines about the nature of who we are.

The revolution of quantum physics is occurring primarily within the mind, and once its revelations are communicated in readily understood language, metaphors, and symbols so as to be transmitted to an ever-widening circle of people, all bets are off. The liberating ideas of the newly emerging quantum gnosis are not just catchy, but “catching,” in that they are contagious. Once sufficiently ignited and set aflame in the psyche of humanity, the revelations of quantum physics can and most certainly will spread like wildfire, virally and nonlocally propagating themselves through the collective unconscious of our species. A true “Reformation” of the world can be the result.

The overwhelming majority of the field of physics, however, has been co-opted by the corporate powers-that-be to become an instrument for their agenda.¹⁰ For the corporate body politic, the bottom line of generating profits is what’s important, after all. Corporatized physics equates truth with utility, as it is interested in manipulating and gaining control over the seemingly outer world, its focus having to do with issues related to the acquisition of raw power. Like a compass always pointing north, however, pure physics is solely interested in truth and nothing but the truth, no matter where the quest for truth leads, and is thus deeply grounded in natural philosophy and metaphysics. The real (he)art and soul of physics, however, have become marginalized and devalued by the existing power structure and turned into an alternative and fringe part of physics. This is analogous to what commonly takes place in organized religion, when the radical liberating gnosis of salvation that lies at the esoteric heart of its spiritual doctrines becomes banished as heretical. The original revelations typically become replaced by a distorted version of the original wisdom and then become monopolized by the powers-that-be to support the self-preserving interests of the hierarchical institution of the prevailing church.

There is intense pressure in the mainstream, academic—and corporately funded—physics community to not talk about consciousness. Physicists who come out of the closet and “out” themselves as being interested in consciousness seriously endanger their credibility, reputation, funding for their research, and employment options. To quote author Upton Sinclair, “It is difficult to get a man to understand something, when his salary depends on his not understanding it.” Physicists who talk about the mystery of consciousness are condescendingly disparaged, derided as overly-mystical or superstitious, labeled “unprofessional,” seen as having psychological hang-ups and will be snubbed and treated as pariahs by their own community. It is

as if in breaking the unspoken vow of silence, speaking about what is not supposed to be spoken about, genuine adepts of the alchemical art of physics attract the unconscious shadow projections of their colleagues. Ironically, in their dogmatic slumber, the corporatized physicists are actually blocking much-needed developments in their field. In their unwillingness to look at what is presenting itself in their own theory, they are avoiding their moral responsibility to follow the path towards truth, wherever that may lead.

There is a mutually reinforcing dynamic between the corporate physicists' personal psychological ego issues regarding confronting within themselves the liberating effects of the newly emerging quantum gnosis and the corporate power structure that they are a part of. These two factors—the internal unconscious dynamics operating within the psyche of physicists and the corporate power structure operating in the outside world—collude with and feed into and off of each other in ways both covert and insidious. There is an unconscious incentive-driven blindness intrinsic to being part of the global, corporate institutional power structure. This is to say that individual scientists who are embedded in and part of this structure—be it in corporations or academia—have been unconsciously trained, conditioned and programmed to avoid inquiring in directions that could threaten the power structure they depend upon for their salaries, reputations and funding for their research. This is a universal phenomenon at work within the human psyche through which power and control are exercised, reinforced and maintained at the expense of truth, operating across many different domains throughout the world.

The ultimate goal of science is to come up with an all-embracing “Theory of Everything,” i.e., a single theory which explains the whole universe. It should be pointed out that an unconscious metaphysical assumption about the way the universe exists is implicit in the idea that there can be one theory that covers the whole universe. In excluding consciousness from their Theory of Everything, it is as if corporatized physicists are saying that consciousness is not a phenomenon that is part of the whole universe. Physics thinks of itself as a discipline that is trying to understand the nature of the universe, and yet its practitioners' unconscious reactions to the implications of their own discoveries are seen as part of the universe that is not worthy of their attention.

In their reaction, physicists are looking away from and turning a blind eye to something within themselves,¹¹ as if they are avoiding relationship with a part of themselves. In their “schizophrenic”¹² (which literally means “split mind”) reaction, they have fallen into a state of cognitive dissonance within their own minds. In this state of inner dis-association from a part of themselves, they are keeping contradictory viewpoints apart from each other, separated by a watertight partition, a mental firewall. This cognitive dissonance can't help but propagate itself through the field of physics. Interestingly, from one point of view the behavior of the quantum realm itself seems schizophrenic.¹³ From all appearances, many physicists—some of the most educated, brilliant and influential members of our species—are suffering from a psychological malady. If this is the case among some of the brightest among us, what does this tell us about what is happening deep within the collective psyche of humanity?

In their very “looking away” physicists are, ironically, revealing how a psychological factor has entered into the realm of physics. Physics and psychology—“physis and psyche”—are meeting through the backdoor of physicists' unconscious reactions to their discoveries, which is actually part of their discovery. To quote the great psychologist C. G. Jung, “the no-man's land between Physics and the Psychology of the Unconscious [is] the most fascinating yet the darkest hunting grounds of our times.” It is as if the psyche and quantum physics are revealing themselves through each other, drawing closer together as both of them, independently of one

another and from opposite directions, push forward into transcendental realms. Wolfgang Pauli, another of the founders of quantum physics, writes, “the only acceptable point of view appears to be one that recognizes *both* sides of reality—the quantitative and the qualitative, the physical and the psychical—as compatible with each other, and can embrace them simultaneously.”¹⁴ The unification of psyche and physis demands us to explore the outer world while simultaneously looking within ourselves, as if one eye is turned outwards and the other inwards. Pauli expresses the opinion that “It would be most satisfactory of all if physis and psyche could be seen as complementary aspects of the same reality.”¹⁵

Anything that can't be experimentally measured is of no concern to most physicists. But then, how can consciousness, which is “groundless” while simultaneously being the ground of all measurement, directly measure itself? Consciousness is the only tool we have to examine consciousness. Seemingly caught in an endless dilemma with no exit strategy, it is as if a sentient, self-reflective mirror is reflecting itself as it reflects UPON itself. Quantum physics is like a cosmic mirror pushing the scientific world right to its edge and reflecting back its blind spot. Etymologically, one of the original meanings of the word “mirror” is “holder of the shadow.” Similar to an individual's personal process, in which the very thing we turn away from is typically where the alchemical “gold” is to be found, in the very thing that physics is turning away from it might have stumbled upon the most significant clue about the ultimate nature of reality. In any case, there is definitely something quite curious and worthy of further contemplation going on within the hallowed halls of physics, particularly within the minds of physicists.

The discoveries of quantum physics throw physicists back upon themselves. To quote physicist Freeman Dyson, “My message is that science is a human activity, and the best way to understand it is to understand the individual human beings who practice it.” Quantum physics' realizations about the nature of elementary particles are a magic mirror reflecting something back to us not just about nature, but about *our* nature. It is in this sense that quantum physics becomes indistinguishable from a form of metaphysics. To quote Erwin Schrödinger, one of the founding fathers of quantum physics, “I consider science an integrating part of our endeavor to answer the one great philosophical question which embraces all others, the one that Plotinus expressed by his brief: *who are we?* And more than that: I consider this not only one of the tasks, but the task, of science, the only one that really counts.”¹⁶ It is difficult to discern where physics ends and metaphysics begins. In our journey into quantum physics, we simply cannot escape metaphysics. In our inquiry into metaphysics, however, we should be careful to neither overindulge, nor to have too little. Pauli writes, “In my own view it is only a *narrow* passage of truth (no matter whether scientific or other truth) that passes between the Scylla of a blue fog of mysticism and the Charybdis of a sterile rationalism. This will always be full of pitfalls and one can fall down on both sides.”

3. LIFTING THE VEIL

The discoverers of quantum physics were deeply spiritual people. They were sincerely interested in truth, wherever it may lead. True trailblazers, they were grappling with the deepest philosophical and metaphysical questions that human beings can ever encounter. The majority of modern-day practitioners of quantum mechanics, however, are no more spiritually inclined than the typical garage mechanic; this is not to disparage garage mechanics, but to make the point that

the typical physicist is no more interested in metaphysics than the ordinary person. Speaking about his colleagues, Wheeler says, “They’re content to take the theory for granted, rather than to find out where it comes from.”¹⁷ Unlike many of today’s corporately trained physicists, however, the founding fathers of quantum physics were passionately interested in, and deeply disturbed by, the philosophical implications of their discoveries. Schrödinger, for example, referring to the new physics that he himself was helping to create, famously said, “I don’t like it, and I’m sorry I ever had anything to do with it.” Not being able to find the words to describe the majesty of what they had discovered, the founding fathers of quantum theory “fell into stammering” when asked to discuss the implications of their own theories. There is not a veiled quantum reality that they were uncovering; they were beginning to realize that the very notion of an objectively existing independent reality no longer applied. The whole meaning of reality came into question. These pioneers in physics were beginning to realize that they had stumbled upon an epochal discovery that is unquestionably destined to change the course of history. Finding the quantum realm is like discovering the Holy Grail; its magic can change everything.

And like the mythical Holy Grail, the powers that quantum physics are unleashing can be used for good or for evil. Hoffman writes, “And here it was that the curtain fell, a curtain of dreary silence and suffocating secrecy hiding a deathly fear. What of the tremendous new theories.... Such things are now military secrets, to be told by spies but not by scientists. Yet a corner of the curtain has been lifted to let some fragments of knowledge escape to the light.... The days of the nightmare are upon us, and science is in mortal peril of becoming an occult, unfertile priesthood, passing its mysteries on to chosen novitiates who meet stern tests and take the solemn vow of eternal silence. We can but hope the danger soon will pass, and someday, when the skies are brighter, science will again be free to stride forth boldly, in goodly fellowship, along its enchanted path into the unknown.”¹⁸ Our task is to help each other to lift the curtain, thereby overcoming the secrecy and compartmentalization by which the knowledge of quantum physics is held as “guild secrets” among its “chosen novitiates.” Lifting the veil of secrecy allows the liberating quantum gnosis to “escape to the light,” so as to allow these “tremendous new theories” to resume their unfoldment along their “enchanted path,” thereby helping all of us.

The discoverers of the quantum world were aware that momentous changes were afoot, but had as little foreknowledge of the deeper meaning of their discoveries as a caterpillar has of its destiny to become a butterfly. It was years before the survivors began to realize that the maelstrom that had so overwhelmed their science had been the convulsive birth pangs of a new era filled with astonishing possibilities. Speaking of the continually emerging quantum theories, Hoffmann continues, “Though they be destined to be forsaken by generations to come, they remain a wonderful adventure of the human mind, a wonderful exploration of the works of God.... they yet contain within themselves something of the eternal, and to our mortal gaze they stand a dazzling edifice of towering majesty, whose brilliance gladdens the soul and sends forth brave, struggling rays to pierce the murk and gloom that press around. Here in such theories and discoveries is a revelation, all too scant, of the mighty wonder that is the universe.”¹⁹ Quantum physics is one of the greatest all-time discoveries of the human mind. It is a living revelation of that which is most important for us to know. Our task is to help the brilliant rays of quantum physics “pierce the murk and gloom” that have seemingly enveloped our world and show us the way to our intrinsic freedom.

4. HYPOTHESIS OF THE REAL WORLD

One of the main discoveries of quantum physics is, simply put, that the universe doesn't exist "out there," separate from us. Quantum physics has empirically proven, again and again, that there is no objective, independent universe which we can passively and objectively observe. Rather, it has proven beyond even the slightest shadow of a doubt that our act of observing the universe evokes the very universe that we are observing. Our observing the universe changes the universe.²⁰ The play of the universe is a participatory sport. The belief in an objectively existing independent universe is a strongly ingrained unconscious assumption that still holds sway deep in the recesses of most people's unconscious minds, including those of the majority of physicists. The philosopher and mathematician Alfred North Whitehead refers to mistaking an abstraction for a concrete fact as "the fallacy of misplaced concreteness." It is helpful to inquire into how this fallacy of misplacing concreteness onto a universe that is anything but solid can potentially hold sway over our minds in a way that translates into creating real problems in the world.

His Holiness the Dalai Lama tells a story of asking his friend and one of his "scientific gurus," physicist David Bohm, what is wrong with the belief in the independent existence of things apart from that it does not accurately represent the true nature of our situation? His Holiness relates how Bohm answered as follows: "His response was telling. He said that if we examine the various ideologies that tend to divide humanity, such as racism, extreme nationalism, and the Marxist class struggle, one of the key factors of their origin is the tendency to perceive things as inherently divided and disconnected. From this misconception springs the belief that each of these divisions is essentially independent and self-existent."²¹ Bohm is pointing out that having a misconception of a situation leads to a mistaken belief that what we are seeing independently, objectively exists on its own. Thinking that our viewpoint is non-negotiablely true—be it our point of view about a particular issue or about the entire universe—is at the root of so much rigid ideology and human-created destruction. Becoming entranced by our own mind, we can become self-righteously convinced that we are in possession of the truth, which can easily inspire crusades to convert the unenlightened, as has been tragically evidenced throughout history again and again. It should get our highest attention that the same underlying psychological dynamic that causes us to misconstrue the nature of the apparent physical universe also causes us to divide and polarize among ourselves. We then turn human society into different camps with irreconcilable differences that appear to be objectively real, thus creating the preconditions for endless internecine conflict and war.

Referring to what he calls the "hypothesis of the real world," Schrödinger writes, "Without being aware of it and without being rigorously systematic about it, we exclude the Subject of Cognizance from the domain of nature that we endeavor to understand. We step with our own person back into the part of an onlooker who does not belong to the world, which by this very procedure becomes an objective world."²² In excluding from the world the "Subject of Cognizance"—which is us—we are removing life from nature, turning it into a corpse, creating a dead image from a living universe. At the same time, we are reducing a part of us to be a simulation of this same inanimate matter that has nothing to do with our essential sentient spirit. In excluding ourselves from the universe, materialist, reductionist science is first destroying the world in theory before destroying it in practice. In writing ourselves out of the script of this world, science is precluding any possibility of experiencing our true nature, not to mention giving away our power to make any real difference in the world. In excluding ourselves from our image of nature, we are, "by this very procedure," in the same moment conjuring up the appearance of an objective world, which we then take to be both self-existing and an

unquestioned given. These two processes reciprocally and synchronously co-arise and mutually reinforce and condition each other. This is actually one process, with two interrelated and mutually self-reinforcing aspects. We do two things simultaneously: construct the world of objects and exclude from it the Subject of Cognizance—ourselves. Like two sides of the same coin, the image of an objective world out there and identifying as a separate self in here, reciprocally co-arise and generate each other.

When we think the world objectively exists independent of ourselves, we are distorting our image of the world, which is a process by which we can't help but simultaneously distort our image of ourselves, because we are inescapably part of the world. We can then easily remain unaware of the creative power within us wherein lies our potential gift to the world. The illusion of external reality is so convincingly real that it produces a strongly held concurrent belief that there is an inherently real psychological center of operations, a subjectively existing reference point and center of volitional action within us—our ego, our sense of individual self—which then reciprocally feeds back into the illusion of an inherently existing outer reality in a potentially infinitely “SELF”-perpetuating feedback loop. Expressing the essence of quantum physics, Bohr comments that “an independent reality, in the ordinary physical sense, can neither be ascribed to the phenomena nor to the agencies of observation.”²³ What Bohr says is so profound that it warrants highlighting: Quantum physics is showing us that we can't ascribe an independently existing reality, not only to the outer world, but to the “agencies of observation,” which is us. In other words, we don't exist in the way we have been imagining we do, if we have been imagining we exist as an independent, objectively existing agent separate from the universe. Quantum physics thus not only challenges the nature of what we call reality, it calls into question our very sense of who we are.

It is one thing to recognize that this universe doesn't exist in the way we've been imagining it does; it is quite something else to recognize the inner correlate of this realization—we ourselves don't exist in the way we've been imagining ourselves either. To the extent that we've been identified as being a reference point bound in time—identifying with a self-constructed model for who we are instead of recognizing, and simply being who we are—we are living a lie. We are then negating the truth of our existential situation, which leads to a state of delusion. Quantum physics, when contemplated deeply enough, will completely unravel our illusory sense of self in a way that, to the ego, can feel like the most frightening thing of all, like some sort of death experience. This is the “edge” that quantum physics is forcing its practitioners to confront within themselves, an edge which is at the bottom of the unconscious reactive creation of the aforementioned “don't-go-there zone” in physics.

To realize that we do not exist in the way we have been conditioned to believe we do is to have a radical phase-shift in our sense of reality and identity, crossing an event-horizon in our own mind in which figure and ground reverse themselves. This is not only a realization which takes place in the psyche; it necessarily involves finding ourselves within and enveloped by psyche (please see my article “[The World is Psyche](#)”), as if we have found ourselves to be existing within a dream. To quote writer Jorge Luis Borges, “We (that indivisible divinity that operates in us) have dreamed the world.”²⁴ This physical world is, as astrophysicist Sir Arthur Stanley Eddington calls it, “mind-stuff,” which is to say that, just as within a dream, the “stuff” of this world is inseparable from the mind of the dreamer, which is us. In other words, to see that the world doesn't exist as an object out there, combined with seeing that we don't exist as an objective subject in here, is the doorway to the realization of the dreamlike nature of reality, which is the very realization that quantum physics is ultimately revealing to us.

Quantum physics points out that the world appears in one way and exists in another. To quote noted physicist Stephen Hawking, from his book about quantum physics called *The Dreams that Stuff is Made of* (an interesting choice of title, I might add), “We are reminded of Bertrand Russell’s words, ‘We all start from ‘naïve realism,’ i.e., the doctrine that things are what they seem. We think that grass is green, that stones are hard, and that snow is cold. But physics assures us that the greenness of grass, the hardness of stones, and the coldness of snow are not the greenness, hardness, and coldness that we know in our experience, but something very different....’It is these dreams that stuff is made of.”²⁵ The greenness, hardness and coldness of the world are subjectively experienced “qualia” (the Latin word from which we get the word “quality”) created in and by our consciousness, using our brain, nervous system and sense organs as processing facilities. Scientific materialism leaves consciousness out of its picture of the world and thus falsifies the most important fact about reality: We only experience it. All experience is made of qualia; the theory of qualia gets at reality through directly lived experience. Rooted in consciousness, the only reality that we can ever know is qualia. There is simply no way to know that reality exists outside qualia, which are the building blocks of creation. Our sensory qualia are often mistaken as being perceptions of a real, objective, independently existing world “out there.” Upon closer inspection, in actual fact all we have is the mysterious immediacy of our firsthand phenomenological experience; the idea of a real physical external world is an unwarranted presumption that we are overlaying onto our direct experience of qualia. According to quantum theory, the greenness of grass, the hardness of stones, the coldness of snow—in fact the entire “outside world”—does not exist “out there,” independently of and separate from ourselves, but rather, exists nowhere except within our own minds.

Schrödinger writes, “We cannot make any factual statement about a given natural object (or physical system) without ‘getting in touch’ with it. This ‘touch’ is a real physical interaction. Even if it consists only in ‘looking at the object.’”²⁶ We get “in touch” with the object when, similar to an artist, we experience the object within ourselves. Schrödinger comments, “matter is an image in our mind.”²⁷ Quantum physics is linking the subjective and objective domains into a higher, more coherent synthesis. In Schrödinger’s words, “In perception and observation subject and object” are “inextricably interwoven,” their influence being unavoidably “mutual,” their relationship a true “*inter-action*.” It is as if the subjective and objective domains reciprocally co-create each other. As we go down the quantum physics rabbit hole, the mysterious boundary between the subjective and objective becomes fuzzier, out of focus, uncertain. When we slowly take off our eye-glasses, for example, how far must we move them before they are an object rather than part of the observer? Where does the observer begin and end? Schrödinger comments, “The world is given to me only once, not one existing and one perceived. Subject and object are only one. The barrier between them cannot be said to have broken down as a result of recent experience in the physical sciences, for this barrier does not exist.”²⁸ We are simply asked to see through and recognize the nature of our situation in which the observer is the observed. We are invited to recognize ourselves in what is being observed.

There is not one universe that exists and another one that is perceived; the way our universe exists is inextricably linked and inseparable from how it is perceived (please see my article “[As Viewed, So Appears](#)”). Our knowledge of the world begins not with matter but with perceptions. Everything we know and can ever know about the universe is conveyed to us via our perceptions. Nothing is perceived except the perceptions themselves. Our perception of the universe is a creative part of the universe happening through us that actually influences how the universe—which includes ourselves—manifests. To quote physicist Andrei Linde, “What if our

perceptions are as real as (or maybe, in a certain sense, are even more real than) material objects?”²⁹ Our perceptions have a fundamental ontological reality of their own. They are something in and of themselves, reflecting a reality that *is* itself, and are not merely secondary reflections of the really existing material world. Jung simply refers to the ontological reality of our thoughts, perceptions, beliefs and projections as the “reality of the psyche.”³⁰

Instead of falling prey to Whitehead’s fallacy of misplaced concreteness and superimposing an imaginary solidity onto a fluid universe that is continuously in flux—which will conjure up the universe to simply reflect back to us this seeming concreteness—we can allow the universe to reveal and glorify its dreamlike, synchronistic nature. The more we see the dreamlike nature of the universe, the more dreamlike the universe will reveal itself to be. This is a creative and creativity-generating feedback loop which is a higher technology of mind. The more I deepen my research into quantum physics, the more indistinguishable it becomes from a spiritual path.

Every spiritual wisdom tradition from time immemorial has pointed out in its own creative way that grasping onto the idea of intrinsic, independent existence—both in the seemingly objective outer world and within the subjective domain of our own selves—is the fundamental mental affliction, the root cause of our self-created delusion with all of its concomitant suffering. Clinging onto the idea that we exist in a way that we simply do not is a deeply entrenched unconscious disposition, a habitual pattern that at a certain point gains enough momentum to develop a seeming autonomy such that it re-generates itself, as we invest our life force into an illusory identity and unconsciously recreate it moment by moment. These same spiritual wisdom traditions point out that the realization of what in Buddhism is called “emptiness”—the lack of intrinsic, independent objective existence of both the outer world as well as ourselves—is the fundamental cure for our psychic dis-ease³¹. Once the delusion of an objectively existing world is seen through and overcome, we are much more capable of generating great compassion for all beings, as there is a deeper sense of the interconnectedness of all of life. In discovering that there is no objective world out there and no objective subject in here, quantum physics is discovering the medicine—the fundamental cure—for the psycho-spiritual illness that ails our species.³² In so doing, quantum physics is promoting itself to the ranks of a spiritual wisdom tradition.

5. COMPLEMENTARITY

Quantum entities are simultaneously waves and particles. This is completely impossible from the conventional point of view, as waves and particles are polar opposites that mutually exclude each other. Waves spread out and oscillate, whereas a particle is a localized, concentrated, bullet-like object with a certain mass. They are phenomena of totally different kinds, and it would be hard to conceive of two more contradictory possibilities. This distressing conundrum deeply troubled the soul of all true physicists. It was intolerable for science to harbor such an unresolved, contradictory dualism gnawing at its vital parts. It was as if on Mondays, Wednesdays, and Fridays woebegone physicists looked upon light as a wave; on Tuesdays, Thursdays, and Saturdays as a particle. And on Sundays they prayed....

How can the impossible be happening? And what does it mean that it is? This dilemma is, to quote Nobel prize-winning physicist Richard Feynman, “impossible, *absolutely* impossible, to explain in any classical way, and which has in it the heart of quantum mechanics. In reality it

contains the *only* mystery. We cannot make the mystery go away by ‘explaining’ how it works.”³³ Clearly, when we label what is actually happening as “impossible,” something is being reflected back to us about the limited way we are viewing the world. This mystery is calling for a novel, radical, and (r)evolutionary way of thinking about things, as well as new and more conscious ways of feeling, sensing, and experiencing our world—a real “re-visioning” of our moment-by-moment experience.

In confronting the deeper paradox at the heart of the wave–particle duality, Bohr came up with the idea of “complementarity.” His idea was that the incompatible and seemingly contradictory opposites of, for example, waves and particles were not just contradictory but also complementary and necessary descriptions of the same underlying reality. In other words, waves and particles are two aspects of the same thing, which makes no sense as long as we are entrenched in the dualistic viewpoint of classical reality. Seeing the complementary nature of these apparent contradictions involves a higher form of logic known as “paralogic,” what is called “four-valued logic”³⁴ in Buddhism. Neither of these two descriptions—wave or particle—is exhaustive; the very quest for a single model has to be given up.³⁵ Each description is only partially correct and has a limited range of application. Though we can consider only one of these aspects at a time, they are alternative and complementary images of the same thing. Speaking about waves and particles, Hoffmann writes that the new physics had discovered that “They were not enemies. Their whole battle had been a sham. Their persistent warfare had been one long fraud, a superb example of classical propaganda.... If we try to regard the wave and particle as two distinct entities, we must think of them not as implacable feudists but as professional wrestlers putting on a show. But they are really not distinct. They are alternative, partial images of the selfsame thing.”³⁶ Eddington proposed the name “wavicle” for this higher-dimensional paradoxical entity. Hoffmann continues, “Like the little girl with the curl, the electron sometimes shows one side of its nature, and sometimes the other.... It would not be an electron did it not display a well-rounded personality.”³⁷ The complementary aspect of particle and wave is a central feature of the new physics, and a reflection of the well-rounded fabric of both our world and ourselves.

6. NO SAMENESS

Schrödinger asks, “What is matter? How are we to picture matter in our mind?”³⁸ Quantum entities are processes rather than things, just as the ring of light created by rapidly moving a flashlight in a circle is not really an object but an appearance in the mind, an artifact of our perceptual system. Quantum physics is pointing at, and is an expression of, an underlying seamless and undivided wholeness in which all the parts of the universe are interconnected. When we observe a quantum event, however, quantum theory points out that each quantum event is a discrete happening, utterly unique, distinct and separate from all other quantum events. The continuous, persistent endurance of things in nature is only apparent, the impression of continuity being due to the similarity of different entities succeeding one another with incredible rapidity in and over time. We perceive matter as solid simply because the oscillations occur so rapidly. There is no single unchanging “entity” that stays identical from one moment to the next. We have the impression of identity persisting over time simply because ever-new, nearly identical entities keep appearing so as to create similar patterns. Quantum entities, however, have no thread of identity connecting one another between one moment and the next; though

appearing similar, they are not the same entity. Speaking of, for example, a young boy returning to his childhood home after many years, Schrödinger points out, “Indeed, the body he wore as a child has in the most literal sense ‘gone with the wind.’”³⁹ The actual material that seems to make up the entity has disappeared many times, and the pattern has been completely filled with new matter.

The material world is composed of myriad elementary quantum events incessantly flashing in and out of existence, pulsating in and out of the underlying field of infinite potentiality every nanosecond. Physicist Nick Herbert describes the quantum, microscopic structure of an ordinary coffee cup as “an assembly of *events* rather than of *things*. These events (called *quanta*) last only for an instant, then fade away. Imagine a trillion trillion fireflies flashing in the space of your coffee cup. The cup is a never-still scintillating network of quantum events.... it is full of *dots*, and the dots are constantly changing. The old fashioned notion of the cup as made up of atoms is just one frozen frame of the microscopic light show.”⁴⁰ It is not the same coffee cup from moment to moment; appearances to the contrary, the coffee cup, as well as the whole universe is continuously reborn anew in each instant. These quantum entities are what you and I are made of, not to mention the rocks, the trees and the stars.

To again quote Schrödinger, “We have ... been compelled to dismiss the idea that such a particle is an individual entity which in principle retains its ‘sameness’ forever. On the contrary, we are now obliged to assert that the ultimate constituents of matter have no ‘sameness’ at all. When you observe a particle of a certain type, say an electron, now and here, this is to be regarded in principle as an *isolated event*. Even if you do observe a similar particle a very short time later at a spot very near to the first, and even if you have every reason to assume a *causal connection* between the first and second observation, there is no true unambiguous meaning in the assertion that it is the same particle you have observed in the two cases. The circumstances may be such that they render it highly desirable and convenient to express oneself so, but it is only an abbreviation of speech.... It is beyond doubt that the question of ‘sameness’ of identity, really and truly has no meaning.”⁴¹ Quantum processes are not causally connected from one moment to the next; their connection is acausal, atemporal, nonlinear, and synchronistic. In other words, what appears to be the same quantum entity travelling through space and time is actually a new and unique entity at each and every moment. Imagine a strip of lights timed to turn on and then off, one after another in just the right way so as to create the illusion of a continuous movement along the strip. In a magical display, the seemingly existing particle appears to move across space–time as it creates the illusion of continuity.

This brings to mind Bohm’s idea of the implicate order, which is the higher-dimensional matrix out of which our physical world emerges moment by moment. Enfolded in and unfolding out of the implicate order is the materialized universe, which moment by moment unfolds back into the underlying implicate order, only to be replaced by a newer version. To quote Bohm, “The implicate order can be thought of as a ground beyond time, a totality out of which each moment is projected into the explicate order. For every moment that is projected out into the explicate there would be another movement in which that moment would be injected or ‘introjected’ back into the implicate order.”⁴² The universe is recurrently creating itself and being created anew out of this implicate, unmanifest, yet all pervading multidimensional plenum of infinite potential. “The plenum,” Bohm writes, “is the ground for the existence of everything, including ourselves. The things that appear to our senses are derivative forms and their true meaning can be seen only when we consider the plenum, in which they are generated and sustained, and into which they must ultimately vanish.”⁴³

Because it is so counterintuitive, Schrödinger reiterates, “It is better not to view a particle as a permanent entity but as an instantaneous event. Sometimes these events link together to create the illusion of permanent entities.”⁴⁴ Physics tells us that matter is composed of more than 99.99999999% empty space; how do we wrap our mind around this? The new physics has discovered that matter is a pulsation of energy temporarily emerging out of a deeper substratum of boundless unmanifest potential that creates the illusion of solid objects in three-dimensional space. This illusion is fabricated within our brain and nervous system in such a way that a physical world appears to be really there outside of us, when in fact its real basis is a neurologically generated holographic pattern that is witnessed by consciousness in such a way as to trick us into seeing it as a solid external material world of physical objects. In modern-day physics, the notion of matter has been refined into immaterial fields and forces; matter can be thought of as a defunct idea, a non-concept. As philosopher of science Karl Popper once put it, in the new quantum universe, “matter has transcended itself.” The world that quantum physics is pointing at is a magic mirror, in that this lack of sameness, this lack of a continual thread of identity from one moment to the next, is true not just of elementary quantum entities, but of ourselves as well. This is to say that physics’ reflections can help us to get over—and “transcend”—ourselves.

This is such a mind-blowing point that it bears repeating: the lack of any thread of identity of quantum entities from one moment to the next is reflecting back to us this same quality in ourselves. The discoveries of quantum physics are revelatory of the inner world, as if nature is reflecting back to us our own quantum nature. Quantum physics has revealed that all seemingly solid, objectively existing forms that appear to have continuity over time, including our sense of self, are bereft of solid, substantial intrinsic existence and are merely our imaginary projection. The question naturally arises—who is the entity doing the projecting? This, indeed, is THE question. As Schrödinger reminds us, discovering who we are is not just one of the tasks of science, but “the only one that really counts.”

In any case, we are new, novel, completely refreshed each and every moment, recreated and recreating ourselves anew every nanosecond. We are being asked to simply re-cognize that this is the actual nature of our situation. This very recognition effects a liberating transformation simultaneously in our sense of reality and our sense of self. Quantum physics has gone beyond our ideas of physics, and is holding up a mirror to us reflecting back our open-ended nature. We are thus invited to de-solidify ourselves, recognize ourselves anew and discover our intrinsic freedom in the open-ended emptiness of what is being revealed.

It should be noted that this discovery of quantum physics—this lack of “sameness” from one moment to the next—is not new but has been expressed in various spiritually informed wisdom traditions over many centuries. In these traditions, the universe is seen as being created and passing away at each and every moment; at the instant of passing away, something like what has passed away immediately takes its place. To quote the great Islamic scholar and mystic Henry Corbin, “at every moment the world puts on a ‘new creation,’ which veils our consciousness because we do not perceive the incessant renewal.”⁴⁵ Corbin continues, “In the realm of the manifest, there is only a succession of likes from instant to instant.”⁴⁶ The cosmos is a recurrent and recurring creation, refreshing itself at each and every moment. As Schrödinger reminds us, “For eternally and always there is only *now*, one and the same now; the present is the only thing that has no end.”⁴⁷

According to Buddhism, the world is seen to be an indefinite “series of flickering events,” comparable to the flame of a butter lamp. These flashes of energy are constituted of a

rapid succession of instantaneous events. From the Buddhist point of view, we are ever-changing conglomerates of processes that take form in self-organizing patterns. The “problem” comes in when we reify our idea of ourselves as truly existing in concrete form; we are then creating a seemingly problematic situation for (and as) ourselves from one that is not ultimately problematic. The idea of an underlying material substratum that exists from one moment to the next is a figment of our imagination; nothing corresponds to it in reality. The very notion of the existence of a continuous identity is just a thought in our minds. Identity is in the mind of the beholder.

For example, a whirlpool or vortex in a river has a definite location in space and time, and yet it has no independent existence separate from the river that generates and supports it. The whirlpool is constantly being recreated, refreshing itself moment by moment, taking on a self-perpetuating pattern that persists over time. It is as if the whirlpool is continually dying and being reborn every moment. The water flowing through the whirlpool is constantly new and ever-changing, but the self-reinforcing pattern of the whirlpool remains the same. The apparent entity of the whirlpool is “abstracted” from the underlying flowing movement, arising and vanishing with the total process of the flow. Bohm refers to such seemingly self-existing entities such as whirlpools that exist embedded within a larger process, “relatively autonomous self-totalities.” It is easy to look at the “relatively autonomous” and seemingly stable form of the whirlpool and think that it has an independent existence; in actuality there is no such self-existing entity as a whirlpool. It is impossible to determine where the whirlpool ends and the river begins. To say that one whirlpool is “separated” from another by the water “between” them is a metaphoric way of talking which has some usefulness, but we should be careful not to entrance ourselves into thinking that we are dealing with two separate entities. Because each seemingly separate whirlpool is indistinguishable from the same river, each whirlpool is ultimately indistinguishable and inseparable from one another. In the words of mathematician Norbert Wiener, “We are but whirlpools in a river of ever-flowing water. We are not stuff that abides, but patterns that perpetuate themselves.”⁴⁸ This is reminiscent of Fuller’s description of a human being as what he referred to as a “pattern integrity,” by which he means that a person’s self or identity is not a thing but a continually created stable pattern that appears to exist over time.

The world of the quantum doesn’t easily lend itself to ordinary language. Every language carries within it a prevailing world view, which informs not only our thinking and perception, but our imagination as well. Our language is steeped in the pre-quantum, classical world of objects and an objective world. Our language is thus a potential agent for reifying the classical world model, which is to say that through our unconscious use of language we are unwittingly putting ourselves under the “spell” of a false world-image. The linguistic rule built into the fabric of our language is that verbs have to “do” something to the nouns, as if the verbs and nouns are two separate entities that are being combined and engaging in a certain way. In the quantum world, there are only verbs; there is only process. There is no distinction between the actor and the action. This is why Fuller wrote a book called *I Seem to be a Verb*. Most physicists still speak and think, with an utter conviction of truth, in terms that regard the universe as being constituted of aggregates of separately existing building blocks. It is helpful to remember to exercise our awareness of the quantum nature of the world, so as to overcome the trance-inducing influence our language has over us. Language and thought are bound together, and both can exert an undertow towards the classical world via forces that are as strong as they are unconscious.

According to quantum theory, a trans-empirical domain of reality exists, which does not consist of material things but of trans-material ideal forms. To quote Schrödinger, “It is clearly the peculiar form or shape (German: Gestalt) that raises the identity beyond doubt, not the material content.... The new *idea* is that what is permanent in these ultimate particles or small aggregates is their shape and organization. The habit of everyday language deceives us and seems to require, whenever we hear the word ‘shape’ or form pronounced, that it must be the shape or form of *something*, that a material substratum is required to take on a shape.... But when you come to the ultimate particles constituting matter, there seems to be no point in thinking of them again as consisting of some material. They are, as it were, *pure shape*, nothing but shape; what turns out again and again in successive observations is this shape, not an individual speck of material.”⁴⁹ This “pure shape” is reminiscent of the Platonic idea of transcendental “Forms” beyond physics (hence “metaphysics”). This sounds similar to the idea of the primordial archetypal image which informs all of the various specific manifestations of the underlying archetype. Werner Heisenberg, another of quantum physics founding fathers, writes, “the smallest units of matter are, in fact, not physical objects in the ordinary sense of the word, they are forms, structures, or—in Plato’s sense—Ideas.”⁵⁰ It is as if the universe is one big idea, like a collective thought-form becoming materialized into living form. Sounds like something that can happen only in a dream.

Hearing the word “shape” and immediately assuming it must be the shape of “something” is an expression of our classically conditioned mind, which thinks in terms of objects having definite form in an objective world. Not comprised of objects, however, the quantum world is thing-less, which is to say that it is an endlessly unfolding, ever-changing dynamic process that is in continuous movement. Similarly, it is easy to assume that if there is movement, there is something that is “doing the movement.” In the quantum realm, however, we are never able to find any such entity or substance; it is only encountered as an idea within our minds. When the universe manifests in its wave-like aspect, there is no separate entity that is doing the waving. At the quantum level, the dancer and the dance are inseparably one. The idea that objects exist apart from processes is at the root of our seemingly inescapable sense of separateness from the universe.

For the sake of completeness, and to show the utterly paradoxical character of the quantum realm, I should mention that there is also an alternative theoretical perspective in physics which is diametrically opposed to the “no sameness” point of view. This is a coherent explanation for the universe as we perceive it that has its own self-consistent internal logic, claiming that the entire universe is the seamless manifestation of a singular indivisible field. From this point of view—seeing the universe as a singularity—the universe is never divided, for all division is only apparent division and everything is simply an expression of a radical sameness. From this perspective, all quantum entities are expressions of this universal sameness. We could call this perspective “Only Sameness” and it provides a complementary perspective to that of “No Sameness.” From the “Only Sameness” point of view, for example, we could see that the reason that all electrons are indistinguishable is that they are all really the same electron. This implies that the appearance of innumerable separate electrons is an illusion caused by the structure of space–time. This perspective would say that each new emergence of a quantum entity is actually a recurrence of the same quantum entity in a different guise.

The question naturally arises: which perspective is “true”—“No Sameness” or “Only Sameness?” They both provide a satisfactory, coherent, and self-consistent description of the observable universe within their particular framework. They are complementary perspectives

that, when taken together, add depth and give us a fuller appreciation of the deeper undivided wholeness of the universe. Instead of thinking that the paradoxical nature of our situation is illogical, this point of view embraces the apparent contradiction and synthesizes the opposites into a higher unity rather than simply affirming one or the other, in a way that is perfectly parallel to the “complementarity” of the wave–particle duality. This could be called the No Sameness–Only Sameness duality. To be able to hold and embrace this paradoxical and seemingly contradictory point of view involves a higher form of logic that, instead of using an “either/or” mode of thinking, demands a “both/and” mode of thinking—the aforementioned “four-valued logic.” This form of thinking is a reflection of the deeper wholeness that quantum physics is revealing, a wholeness that is fundamental to the universe and intrinsically existing within and as ourselves.

7. THOUGHT EXPERIMENT

One of the most important modes of exploration in quantum physics is what are called “thought experiments.” These are laboratory experiments of the mind, in which physicists explore the imagination so as to tease information out of nature. Thought experiments are experiments we think about rather than perform, although sometimes they can be actually performed. In a thought experiment we take an accepted idea and extrapolate it to the ultimate extreme so as to see what happens: does it break down, where and why does it break down, what is it revealing to us, etc? We all entertain thought experiments throughout our lives: “Should I do this or do that? What will happen if I do this?” Physicists use this mode of inquiry to deepen their understanding of the universe. The very fact that physics, which is generally seen to be all about the functioning and operations of the “material world” (seen as separate from the mind), conducts a large part of its experiments purely in the mind and considers the results of these experiments to be credible contributions to the field of physics, is a clue to the mind-like nature of the physical world. Thought experiments are expressions of the profundity and power of our imagination to help us find our place in the universe and indicate that the nature of the universe is more thought-like than is generally acknowledged.

What is reflected in the magic mirror of physics can precipitate a Copernican shift in how we conceive of ourselves in relation to the universe. For example, imagine bathing in the sun’s rays on a hot summer day. It is a scientifically accepted “fact” that the sun is “out there,” 93 million miles away from earth. And yet, the rays of the sun are the unmediated expression of the sun, which is to say that the rays of the sun are indivisible and not separate from the sun by one iota. This realization instantaneously helps us to change our perspective and understand that the sun isn’t outside of us, but rather, as we are enveloped in its rays and awash in its life-giving warmth, we are “inside” of the sun. Not only do we find ourselves within the sun, we further realize that we are not separate from the sun. This is to simultaneously realize that it makes just as much sense to think that the sun is inside of us, which is an expression of our identity expanding to ever-larger degrees. It’s not that the sun and ourselves are two different entities momentarily sharing the same space, but rather, that we *are* the sun—we are the light! In an instant we go from thinking we are far away from the sun to feeling our oneness with it. Notice what has happened: Once we have this shift in perspective, we can no longer think of the sun as an object outside of ourselves. Not just our image of the sun and our relationship to its image have changed, but in addition, our image—and experience—of ourselves relative to the universe

have changed as well. In the physical world, nothing has actually changed except our mind's perspective. We have simply recognized something we didn't recognize before.

After our shift in perspective, the age-old idea that we are composed of (crystallized) light—that we are stardust—makes more sense. Our essential being isn't simply made of light; it IS light. The calcium in our bones and iron in our blood are literally forged in the stars. To quote Nobel laureate Ilya Prigogine, "Matter is just a minor pollutant in a Universe made of light." Interestingly, seeing and being in and of the light is a perennial gnostic theme. The Nag Hammadi *Gospel of Thomas*, to use one of many examples, refers to a Gnostic—one who "knows"—as one who both sees and is "in the light." The Gnostic Christ is described as "the light which is in the light." A true gnostic is considered to be a light to this world, one who sheds light on the darkness so as to dispel it.

Quantum physics reveals that it is a mistake in our thinking to imagine that two separate entities, such as, in our example, the sun and ourselves, are interacting; the emphasis in the quantum world is on undivided wholeness. The two seemingly separate entities are in actuality inseparable parts of a more inclusive entity that includes and unites them both. This is similar to when we see a pattern in a carpet; it has no meaning to say that different parts of such a pattern (e.g. various flowers and trees that make up the pattern) are separate objects in interaction. The seemingly separate parts of the pattern are merely abstracted from the deeper wholeness of the underlying carpet that connects them.

Our self-image—who we think we are—is a primary driving force in human affairs, as who we imagine we are and how we fit into the greater scope of the universe powers the major currents of world history. In pre-quantum, classical physics, human beings were conceived of as isolated, impotent material beings in a mindless, clockwork universe. The revelations in quantum physics are pointing out that—through our consciousness—we are all integral participants in nature's ongoing process of creation. Instead of being cogs in a giant machine, we are mental hubs in a burgeoning network of ideas. Classical physics' shallow conception of humanity is one of the main causes of today's growing economic, ecological, and moral problems, which block the full flowering of our creative potential. Oftentimes a shift in a single idea can precipitate a transition into a new epoch. Could it be that the most important impending development in science will be ideological—in the realm of ideas—rather than technological, involving a profound re-visioning of science's conception of who we are and our place in the universe? What quantum physics has unleashed in the realm of technology is the palest reflection of what it can potentially unleash within the human psyche.

8. PHYSICS OR THEOLOGY?

The founding fathers of quantum physics were beginning to realize that Nature herself and the structure of our own minds are not merely interrelated reflections/reflex-ions of each other, but are an inseparable unity. Nature isn't outside and separate from the mind, but rather is an expression of it. The mind IS pure nature. Instead of thinking that the outer world was different from the inner world, they realized that if something was happening within themselves, it was simultaneously happening within the universe as well. Coinciding with the collapse of the boundary between the subject and object, just as within a dream, the demarcation between the inner and the outer was becoming harder to find as well. In the holistic world that the new physics describes in which separation between the parts doesn't exist, the innermost processes of

the psyche can spill out and become as much a part of the seemingly external world as the rocks, trees, and stars, as if reality itself is a mass shared dream.

When these brilliant scientists began to metabolize and assimilate within themselves what they had discovered, it was as if they had “come to their senses,” waking up from a centuries-long slumber. We can tell from their writings that their discoveries truly changed the way they envisioned life itself. As if remembering something they knew long ago, they became inwardly transformed. This realization of the dreamlike nature of reality is itself the very expansion of consciousness which galvanized them to realize that consciousness plays the primary role in both physics and the creation of the universe.

Trying to put his inner realization into words, Schrödinger says, “Mind has erected the objective outside world ... out of its own stuff.”⁵¹ Just as our deeper, dreaming mind is the source of our dreams at night, we have a deeper part of ourselves—our divine, creative imagination—that is dreaming up this universe into fully materialized existence. One of the originators of quantum theory, Max Planck, says, “I regard consciousness as fundamental. I regard matter as derivative from consciousness.”⁵² Instead of consciousness arising from the brain, the brain—and all of matter—arises out of, because of, within, and as a dynamic modification of consciousness. Planck continues, “We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness.”⁵³

Like a lamp that illumines itself, the self-luminous nature of consciousness, changeless in its essence, is completely altering and radically reconfiguring the field of physics in previously undreamed-of ways. Hans-Peter Durr, a long-time coworker of Heisenberg, gets right to the point regarding one of the main implications of quantum physics when he says, “Matter is not made up of matter; basically there is only spirit.”⁵⁴ Are these the words of a physicist or a theologian? To quote theologian Sallie McFague, “The picture of reality coming to us from contemporary science is so attractive to theology that we would be fools not to use it.”⁵⁵ In this materialistic age of ours, true scientists are becoming indistinguishable from deeply religious⁵⁶ people. To quote Einstein, “religious teachers.... Will surely recognize with joy that true religion has been ennobled and made more profound by scientific knowledge.”⁵⁷

As the spirit of the quantum materializes in form in the third dimension, which is to say that matter is recognized to be an unmediated revelation of spirit, matter becomes “divinized.” Once the universe is recognized as an oracle of and for itself that is speaking in “dream-speak,” which is to say “symbolically,” quantum physics reveals its heretofore hidden “hermetic” side. Notice the similarity to Jung’s idea of synchronicity, in which mind and matter reciprocally inform and reflect each other, as if inseparably interconnected at their core. This world we live in is idea-like, as if it’s a thought giving itself form, like a dream that seems unmistakably real while we are in it.

Quantum physics is a flag-bearer of an epochal paradigm shift currently taking place within human consciousness—deep within the collective unconscious—concerning the nature of reality itself. The question naturally arises: what is the “reality” which quantum theory has been invented to describe? Are we discovering this “reality?” Or creating it? The discoveries of quantum physics are directly pointing to the hitherto-unsuspected powers of the mind to cast reality in its image rather than the other way round. In any case, though seemingly subtle in nature at the present moment, this shift in paradigms that quantum physics is initiating is an earth-shaking affair, with ramifications beyond our present imagination.

The revelations of quantum physics can be used to destroy life, or to enhance it beyond measure. The words of Hoffmann’s book *The Strange Story of the Quantum*, published in 1947,

are even more true today: “Now is the terrible crisis of our civilization. Now is the fateful hour of high decision. For better or worse, We, the People of the Earth, must choose our Future.” Quantum physics tells us that the future is not written in stone, but rather, is indeterminate, filled with infinite potential. How the world of the quantum—our world—manifests depends upon how we dream it. As it says in the Bible (Deuteronomy 30:19), “I have set before you life and death, blessing and curse: therefore choose life, that both thou and thy seed may live.” The choice is truly ours.

9. GENIUSES WITH AMNESIA

Einstein famously said, “It is the theory which decides what we can observe.” Nature simply responds in accordance with the theory by which it is approached. The choice we make about what we observe makes a difference in what we find. Reflecting back their tacit unconscious assumptions, when physicists set up their measuring apparatus to observe the wave-like aspect of light, for example, light will manifest as wave-like; when they set up their experiment to view the particle-like aspect of light, light will manifest as particle-like. If in their theory the universe is composed of seemingly separate parts, they will act, ask questions, set up their experiments, perceive, and interpret their results in a way that produces the very fragmentation that they are seeing. Now having apparent “objective” proof of their presumed fragmentary world-view, they don’t notice that they themselves, acting according to their unreflected-upon axiomatic sets, have brought about the seemingly real fragmentation that they are citing as evidence for the rightness of their viewpoint. It is as if the power to create their experience has boomeranged against them in a way that is not only not serving them, but is limiting their creative brilliance. As if under a form of trauma—the aforementioned QPIT—they have seemingly put themselves under a self-created, self-impooverishing and self-perpetuating hypnotic “spell.” Like the perfect mirror of our minds that it is, quantum physics—not to mention the universe as a whole—is simply reflecting back this process.

Because of the quantum, mirror-like—and dreamlike—nature of reality, once we view the universe “as if” it independently objectively exists, it will manifest in a way which confirms our viewpoint, appearing in an utterly convincing way to be independent and objective. One way to better understand this is to remember the dreamlike nature that quantum physics is continually reflecting. When we hold a viewpoint within a dream, the dreamscape, which is nothing other than a reflection of our mind, has no choice but to instantaneously—in no time whatsoever, faster than we can think or blink—shape-shift in such a way so as to supply perceptual evidence that justifies our viewpoint as being correct. Now having seemingly objective “proof” of the correctness of our viewpoint, we become even more firmly entrenched and fixed in our point of view, which in a seemingly endless feedback loop then dreams up the universe to supply more evidence of the truth of what we are seeing, ad infinitum. This is a self-generated feedback loop originating in our own mind that happens over, in, through, and outside of time. As if “bewitched,” we entrance ourselves by our own innate unrealized genius for co-creating reality. It is as if we are powerful wizards wielding a magic wand—the quantum—but seemingly disempowered and not realizing our own divine gift, we are using our power to create our world unconsciously, which is to say destructively. The truth of our situation, simply put, is that we are geniuses with amnesia. We have literally forgotten ourselves, and in so doing we have disconnected from our vast creative powers for consciously shaping and co-creating reality. At

any moment, to the extent we are aware of our true nature, we can help each other to remember... and to remember to remember.

To the extent we are not awake to the dreamlike nature of our situation, we have fallen under what in Eastern traditions is called the power of “maya,” the source of both our deepest illusions and our most exalted creativity. Maya refers to how the reality-creating power of our own mind can be unwittingly turned against ourselves so as to entrance us. In his book *Science and Humanism*, Schrödinger, in talking about the problems confronting modern physics refers to “an evil godmother, if you please, like the thirteenth fairy in the tale of the Sleeping Beauty;”⁵⁸ likewise, he uses words such as “evil spell,” “counter-spell,” and “exorcise.” The fact that one of the twentieth century’s greatest scientists, in speaking about the discoveries of quantum physics, talks in such mythic, fairy-tale-like symbolic terms should give us pause, as well as help us to gain insight into the archetypal energies of the psyche that modern physics has tapped into. We think of atomic physics, one of the discoveries based on quantum physics, as unleashing the incredible power latent in the atom, and yet we have hardly begun to realize that quantum physics has likewise tapped into the vast world-transforming power of the psyche.

Another more contemporary mythic framework that can be used to give meaningful insight into the significance of the discoveries of quantum physics is what is known by many as “the Matrix,” the vast global corporate technocratic control and monitoring system. We live under greater surveillance than any civilization in all of history; think of the NSA and the Snowden revelations. The Matrix is based upon keeping people trapped within a paradigm of false and superficial knowledge of themselves and the universe known as materialism. It is fundamentally about centralizing power and control, as it enslaves people under deceptive lies of limitation and lack of options, keeping them disconnected from their own immense creative power. The Matrix operates through the process of “compartmentalization,” which prevents any one person from knowing too much. This is a reflection of a process of fragmentation going on within the human psyche that is being acted out in the outside world. Through a carefully orchestrated “need to know” basis, the Matrix keeps different groups of people who are serving its power structure partially informed and purposely disconnected from each other, so that no one, except those at the top of the pyramid of power, knows the overall big picture and hidden agenda in which they are unwittingly playing supportive roles. This isn’t a paranoid conspiracy theory; the evidence is all around us for those who have eyes to see.

The Matrix control system has seized the powerful liberating knowledge of quantum physics to use for its own power-based agenda. Seen symbolically, by barring inquiry into quantum physics’ metaphysical implications, it is as if the existing power structure has cast a materialist, nihilistic and, in Schrödinger’s words, “evil spell” upon quantum physics itself. Like the “evil godmother,” the Matrix keeps the liberating quantum gnosis asleep and under its control, just like Sleeping Beauty. With the true power of the quantum spell-bound, its liberating powers temporarily anesthetized, the Matrix is free to use the denatured knowledge of quantum physics to serve its own agenda of centralizing worldly power and control over the material world. It is therefore up to us to cast a “counter-spell” and help to wake up the Sleeping Beauty of quantum physics by liberating it from the confines of an impoverished paradigm, freeing it from the ideological straitjacket of a power-hungry utilitarian reductionism. The best way to do this is to partake in the most radical, subversive and powerful form of activism that there is—recognizing our own quantum nature.

Just like the allegory of Plato’s cave, wherein people looking at shadows reflected on the wall of the cave believed the shadows to be reality itself, physics is dealing with lower-

dimensional shadow projections of reality,⁵⁹ not reality itself. “The greatest achievement of twentieth-century physics,” to quote physicist, mathematician, and astronomer James Jeans, “is the general recognition that we are not yet in contact with ultimate reality. We are still imprisoned in our cave, with our backs to the light, and can only watch the shadows on the wall.”⁶⁰ The laws of physics are stencil-like descriptions of a lower-level cross-section of a higher-dimensional, immaterial reality. When physicists “look at” quantum reality, they are not seeing the unmediated “thing-in-itself,” but rather, abstract mathematical symbols that represent reality. No one has ever directly seen the quantum world. Physicists “track” its ghostly footprints, inferring the world of the quantum through the results of their experiments. In doing physics, as Bohr points out, “It must be recognized that we are here dealing with a *purely symbolic procedure*.”⁶¹ If physicists regard their theories as direct descriptions of reality as it is, there is a high possibility of falling into the error of confusing the map with the territory. One of the greatest advances of the new physics is the realization that it isn’t dealing with reality per se, but with the projections of a deeper reality cast into the third dimension as it interfaces with our consciousness through the instruments of our brain and nervous system. To quote Eddington, “The frank realization that physical science is concerned with a world of shadows is one of the most significant of recent advances.”⁶² Before the advent of quantum physics, physicists were under the delusion that they were dealing with reality itself, not realizing they were engaging with its mere projections. If we are in the cave of shadows and don’t know it, the shadows appear to be the real world, as we have no point of comparison. And yet, the shadows have no intrinsic, independent existence on their own, as they are merely derivative from, projections of, and inseparable from the light. As if mesmerized, enchanted and spellbound by the display of the shadows, we have no suspicion of the light that is their source. Once we step out of the cave, however, we realize that there is and always has been only light.

The cutting edge of twenty-first-century physics is beginning to wonder: what is this higher-dimensional form of light that is casting the shadows? Could this be the mysterious factor of consciousness itself? The greatest pioneers of modern physics are beginning to look beyond the cave, beyond physics, beyond the physical world altogether, into the realm of metaphysics. Discovering—or are they creating?—a novel spiritual path, physicists are beginning to find the greatest treasure of all—the light that is none other than ourselves.

10. KEY POINTS

1. As if coming full circle, quantum physics is returning physics to its roots in metaphysics, which is to say that quantum physics is becoming a spiritual path.
2. The discoveries of quantum physics are so radical that the physics community is suffering from and in the process of assimilating a form of trauma—Quantum Physics-Induced Trauma (QPIT).
3. This trauma, which manifests in myriad forms of unconscious reactions, resistance and denial of quantum physics’ earth-shaking revelations, is one of the ways that psyche is entering the field of physics. “Physis and Psyche” are coming together and revealing themselves as complementary aspects of the same reality.
4. In a single process with two aspects, we exclude ourselves from the world by stepping into the role of separate witnesses, which simultaneously creates both the

- illusion of our independent self and the illusion of an objective world. We en-trance ourselves by our mind's own projections in the process.
5. Quantum entities are a co-incidence and union of opposites. The nature of the quantum realm is described by the term "complementarity." The very quest for a single descriptive model of reality has to be given up.
 6. Quantum entities have no continuous thread of identity from one moment to the next. They are continually being recreated anew. In an example of complementarity, the opposite is equally true: the universe is never divided, for all division is only apparent division and everything is simply an expression of an indivisible wholeness. Both of these points of view are reflections of our nature.
 7. The only reality we can ever know is our directly lived experience.
 8. The apparently solid, self-existing forms of the world are in actuality self-perpetuating patterns within an endless flux that seemingly endure as stable entities over time.
 9. In the quantum world, there is no separation; there is simply undivided wholeness. The dancer and the dance are one.
 10. We can only recognize and experience the undivided wholeness of the seemingly outer world when we are in touch with the wholeness within ourselves. The undivided wholeness of the quantum world is our own reflection.
 11. Instead of being passive, impotent cogs in a machine, quantum physics reveals to us that we are active participants and co-creators with the universe.
 12. Quantum physics is revealing that the boundary is collapsing not just between the subject and object, but, just as in a dream, between the inner and the outer as well.
 13. The revelations of quantum physics, once integrated, can't help but catalyze a Copernican revolution within our minds. Its insights radically changes how we conceive of ourselves relative to the universe.
 14. Consciousness is inescapably playing a key role in physics. Similar to how Copernicus placed the sun at the center of our solar system, quantum physics places the light of consciousness at the center of the creation of the universe.
 15. Quantum physics is pointing to, and a revelation of, the dreamlike nature of the universe.
 16. Encountering the quantum realm is like discovering the Holy Grail. Its revelations can be used for good or evil.
 17. Quantum physics is reflecting back to us that, as if under a spell, our ability to create reality is for the most part being wielded unconsciously and turned against ourselves in a way that is not only not serving us, but harming and disabling us.
 18. The liberating revelations of quantum physics have been usurped and monopolized by the existing power structure to serve its underlying agenda of centralizing and compartmentalizing power and control. Because of this, it is as if the liberating revelations of quantum physics, like the mythic Sleeping Beauty, has had an evil spell cast upon it.
 19. It is our task to liberate and engage the world-transforming power of quantum physics for the benefit of everyone.

A pioneer in the field of spiritual emergence, **Paul Levy** is a wounded healer in private practice, assisting others who are also awakening to the dreamlike nature of reality. He is the author of [*Dispelling Wetiko: Breaking the Curse of Evil*](#) (North Atlantic Books, 2013) and [*The Madness of George W. Bush: A Reflection of Our Collective Psychosis*](#). An artist, he is deeply steeped in the work of C. G. Jung, and has been a Tibetan Buddhist practitioner for over thirty years. Please visit Paul's website www.awakeninthedream.com. You can contact Paul at paul@awakeninthedream.com; he looks forward to your reflections. Though he reads every email, he regrets that he is not able to personally respond to all of them. © Copyright 2014.

¹ "Mysticism" is another word that has a bad reputation in the physics community. Physicist David Bohm points out that it might be more appropriate to refer to our ordinary, consensus-reality mode of consciousness "mysticism," in the sense that it mystifies us from our true nature. Our ordinary, classical way of thinking elaborately obscures its mode of functioning from itself as it engages in self-deception; Bohm coined the term "obscurantism" so as to capture the self-obscuring quality of our everyday consciousness.

² The origin of the word "mystic" is the Greek word "mystikos," which means "of mysteries." To quote Einstein, "the most beautiful experience we can have is the mysterious. It is the fundamental emotion which stands at the cradle of true art and true science." Quoted in Alan Lightman, *A Sense of the Mysterious*, p. 42.

³ Bernstein, *Quantum Profiles*, p. 134.

⁴ Ibid.

⁵ From *Alternating Current*.

⁶ Hoffmann, *The Strange Story of the Quantum*, p. 170.

⁷ Quoted in Paul Davies, *About Time*, p. 163.

⁸ This brings to mind something that happened to me many years ago. I had written an article in which I quoted Jung many times. A Jungian analyst sent me a scathing email, saying how dare I quote Jung, that I had no right to quote Jung because I wasn't an officially trained and certified Jungian analyst.

⁹ Barnett, *The Universe and Dr. Einstein*, p. xviii.

¹⁰ This is reminiscent of when I refer, in my recent book [*Dispelling Wetiko: Breaking the Curse of Evil*](#), to how the wetiko virus can usurp the healthy parts of the psyche into its service; this inner process of the psyche is playing out—and revealing itself—through the medium of the outside world.

¹¹ Interestingly, what indigenous people call "wetiko," (which I write about in [*Dispelling Wetiko*](#)) is a psychic form of blindness, which in its self-deception believes itself to be sighted. It operates through our unconscious blind spots, and feeds on our unconscious looking away and avoiding relationship with parts of ourselves.

¹² Author Michael Talbot, writing about his "excessive optimism" regarding how the revelations of quantum physics will be ushering in a new paradigm, writes in *Mysticism and the New Physics*, "One of the reasons for my excessive optimism was that I did not realize how schizophrenic many physicists are when it comes to interpreting some of the new physics' most astounding findings.... Time and experience has since taught me that some physicists are oddly schizoid when it comes to extrapolating or expanding beyond their immediate findings. They are not unlike *idiot savants*, individuals who possess a profound genius in one subject, but whose intelligence and vision is merely normal when it comes to looking beyond the narrow focus of their research." p. 140.

¹³ To cite a few examples: How can quantum entities be both waves and particles, which are mutually exclusive as it gets? How do these quantum entities go from here to there in no time at all without traversing the path in-between? How do these mass-less, intangible quantum entities, which have no weight and no substance, and can't even be said to be real or even exist, give rise to the massive weight of the whole universe? And how do quantum entities at opposite ends of the universe seemingly communicate with each other faster than the speed of light. Sounds crazy, and crazy-making, to me.

¹⁴ Jung and Pauli, *The Interpretation of Nature and the Psyche*, p. 208.

¹⁵ *Ibid.*, p. 210.

¹⁶ This is Schrödinger's translation (*Science and Humanism*, p. 51). McKenna's (Plotinus, *Enneads* VI.4.14.p.600) is "what are We?"

¹⁷ Bernstein, *Quantum Profiles*, p. 138.

¹⁸ Hoffman, *The Strange Story of the Quantum*, pp. 228-229.

¹⁹ *Ibid.*, p. 229.

²⁰ A simple way to envision this is to imagine a blind person trying to understand what a snowflake is. They can touch the snowflake (which will melt from their body heat), put it in their mouth and taste it (which will dissolve it), but through whichever means they try to apprehend the snowflake they inevitably change it.

²¹ H. H. Dalai Lama, *The Universe in a Single Atom*, p. 51.

²² Epigraph: Schrödinger, *What is Life? with Mind and Matter and Autobiographical Sketches*, p. 123.

²³ *The Philosophical Writings of Niels Bohr*, vol. 1, p. 54.

²⁴ Borges, *Other Inquisitions*.

²⁵ Hawking, *The Dreams that Stuff is Made of*, p. xi.

²⁶ Schrödinger, *Science and Humanism*, p. 49.

²⁷ *Ibid.*, p. 11.

²⁸ Wilber, *Quantum Questions*, p. 81.

²⁹ Barrow, Davies and Harper, ed., *Science and Ultimate Reality: Quantum Theory, Cosmology and Complexity*, p. 451.

³⁰ To read more about Jung's idea of "the reality of the psyche," see pp. 25-28 in my book *Dispelling Wetiko*.

³¹ Synchronistically, as I was working on this article, I get the following email from someone who had quoted one of my Buddhist teachers, Khenpo Tsewang Dongyal Rinpoche: "Even if you subdivide a particle a million times, there is ultimately nothing to find. When you see this, that is supreme seeing."

³² Native American's refer to this psychological disease as "wetiko." This is what my recent book *Dispelling Wetiko* is about.

³³ Feynman, *The Feynman Lectures on Physics*, vol. 3, p. 7.

³⁴ For more about four-valued logic, please see pp. 40-44 in my book *Dispelling Wetiko*.

³⁵ Please notice the similarity to what I wrote in *Dispelling Wetiko* regarding the psycho-spiritual disease of the soul called "wetiko:" "There is no one definitive model for this disease, as each model has both its utility as well as its limits. When all of these models are combined and looked at together, it gives us a greater resolution and capacity to see what no one particular model by itself can reveal." (p. 266).

³⁶ Hoffman, *The Strange Story of the Quantum*, p. 171.

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- ³⁷ Ibid., 172.
- ³⁸ Schrödinger, *Science and Humanism*, p. 11.
- ³⁹ Ibid., p. 20.
- ⁴⁰ Herbert, “*Scientists Explore Invisible Ocean of Glue.*” p. 2.
- ⁴¹ Schrödinger, *Science and Humanism*, p. 17.
- ⁴² Weber, *Dialogues with Scientists and Sages*, p. 93.
- ⁴³ Bohm, *Wholeness and the Implicate Order*, p. 192.
- ⁴⁴ Schrödinger, *Science and Humanism*, p. 27.
- ⁴⁵ Corbin, *Alone with the Alone*, p. 201.
- ⁴⁶ Ibid., p. 202.
- ⁴⁷ Wilber, *Quantum Questions*, p. 98.
- ⁴⁸ Wiener, *The Human Use of Human Beings*, p. 96.
- ⁴⁹ Schrödinger, *Science and Humanism*, pp. 19-21.
- ⁵⁰ Wilber, *Quantum Questions*, p. 52.
- ⁵¹ Schrödinger, *What is Life?* p. 121.
- ⁵² Quoted in *The Observer* (January 25, 1931).
- ⁵³ Ibid.
- ⁵⁴ Kak, Penrose and Hameroff, ed., *Quantum Physics of Consciousness*, p. 79.
- ⁵⁵ Quoted in O’Murchu, *Quantum Theology: Spiritual Implications of the New Physics*, p. 3.
- ⁵⁶ I am using the word “religious” not in the dogmatic sense, but in the true meaning of the word; that is, carefully considering, with a sense of awe and reverence, a living and dynamic agency that is conceived of and experienced as a numinous power greater than our own ego. Etymologically, the word *religio* derives from *religare*, which means to link back and reconnect to the source. The term “religious” designates the attitude peculiar to a consciousness which has been changed by experience of “the numinous.”
- ⁵⁷ Quoted in *Science, Philosophy and Religion*, A Symposium, published by the Conference on Science, Philosophy and Religion in Their Relation to the Democratic Way of Life, Inc., New York, 1941.
- ⁵⁸ Schrödinger, *Science and Humanism*, p. 57.
- ⁵⁹ Note the similarity to what I wrote in *Dispelling Wetiko* regarding wetiko: “To awaken to the dreamlike nature of reality, the symbolic dimension of existence, is to realize that events in our world are lower-level shadows or reflections of a higher-dimensional reality ... The person momentarily afflicted with wetiko is like a shadow on a wall, cast from a globe hanging from the ceiling, relative to the globe. The shadow on the wall is a re-presentation and projection of the higher, three-dimensional entity of the globe into a lower dimension of space. Studying the shadow within its proper context relative to the globe is the way of understanding the object casting the shadow (the higher-dimensional entity of the “global” wetiko psychosis). By tracking the variety of shadows the object is casting, we are illuminating an unknown, mysterious object from as many different angles as we can imagine. From enough of these shadows it becomes possible to reconstruct the illumined object.” pp. 169-170.
- ⁶⁰ Wilber, *Quantum Questions*, p. 8.
- ⁶¹ Ibid., p. 6.
- ⁶² Ibid., p. 7.