

Explaining Consciousness: A (Very) Different Approach to the “Hard Problem”

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This article addresses what Chalmers called the “hard problem” of explaining consciousness — the problem of experience — in the context of a mediation brain theory in which consciousness is a fundamental feature of physical matter. It presents a novel explanation of how mind-to-brain transmission operates in a way that accounts for the existence of conscious experience. The article explains what is meant by a protoconsciousness inherent in things, its properties and genesis, and how this consciousness accumulates. How consciousness inherent in matter relates to a range of personal identity issues is also discussed. Bold scientific hypotheses and even bolder metaphysical theories are needed to advance the present state of discussion of the problem of how and why brain activity is accompanied by conscious experience.

Keywords: consciousness, mind–brain problem, panpsychism

David Chalmers (1997) stated that explaining why brain processes are accompanied by conscious experience is one of the hard problems facing those seeking a nonreductive understanding of consciousness. Proponents of any mediation brain theory of consciousness face the same problem: How would mind-to-brain transmission operate in a way that accounts for the existence of conscious experience (Cunningham, 2011)? Such an explanation, if it is to advance scientific and philosophic discussion of modern mind–behavior issues, would require “the addition of *something* fundamental to our ontology” that provides a firm groundwork for explaining the existence of consciousness in a nonreductive way (Chalmers, 1997, p. 19). The explanation presented here is admittedly speculative, but it may be “the kind of speculation that is required if we are ever to have a satisfying theory of consciousness” (Chalmers, 1997, p. 22).

The Electric System of Basic Reality

The first fundamental “something” added to our ontology is the proposition that basic reality is profoundly *multidimensional* (Barrow, Davies, and Harper, 2004; Bohm, 1980; Friedman, 1997; Greene, 2011; Lewis, 1986). There is not one reality — the material one — but a theoretically infinite number of simultaneous, interweaving systems of reality or fields of actuality, one not more real or less real than the others, exerting pressures and influences one upon the other. On the present theory, these alternate systems or fields are open, not closed, and interact with one another. Forces or energies entering these fields, by the very act of entry, become transformed or transduced into the sort of information that can be accepted by the given field so that data passing into it will necessarily be in a different form from the form it had before entry. Because all systems are intimately connected and delicately balanced, an alteration in one field sets up an alteration in each of the others. Although no fields or systems are truly closed and all are interrelated, they appear closed enough in their outer appearance to retain their identity and separateness and to possess their own defining features. These systems or fields, while both individual and unique, are at the same time portions of one unified basic reality. The unity and the separate existence of these different systems of reality may be mathematically deduced (Hilbert and Cohen–Vossen, 1938/1952; Rucker, 1984). They cannot be perceived by the physical senses alone for the simple reason that the physical senses have evolved to not perceive directly any other system of reality but the physical one.

One field of actuality that has particular importance for understanding how mind-to-brain transmission operates is the *electric system of reality*. The electric system is hypothesized to be a distinctively real field of actuality within multi-dimensional reality that has independent existence outside the physical system with a portion of itself projected into four-dimensional space–time. Everything within the physical field whether or not it exists as matter is electrically composed. This means that the material body with its brain, cells, and organs and the non-material mind with its thoughts, emotions, and dreams have connections with the electric system and exist as forms of electrical action.

The characteristics of the electric system can be perceived most directly and with least distortion in the dream state. In a dream, the dreamer may travel down a road. This involves distance in essence, although within the physical system the particular road does not exist and spatially no distance is traveled. Weeks may be experienced in the dream, while the dream itself may take only a split second of clock time. All action within the electric system involves this same sort of distance without space and duration without time. Distance is in terms of electrical action and duration is in terms of varying electrical intensities. Dreams have this kind of distance and duration. Once created, electrical

action and its electrically coded intensity data cannot be withdrawn, removed or negate itself, and once set in motion cannot be stopped, although there may be counteraction. A dream likewise continues to exist as an ever-moving sphere of more or less separate electrical action within the electric system independent of the dreamer with a life of its own long after the dreamer's awareness of the dream has vanished and the dream has left its point of origin in the self.

All subjectively felt experiences that take up no physical space, including thoughts and emotions, have this kind of independent, objective reality as a distinct, patterned series of electrically coded impulses of particular, unduplicated intensity within the electric system. Their durability within the physical field as an electrical action is determined by their initial electrical charge which is a function of the original intensity of individual intent and desire. Emotions, in particular, can affect other electrical actions and set up influence patterns consisting of strong electrical fields of attraction within each personality initiating what can be referred to as the individual's characteristic *emotional climate*.

The physical system and the electric system, being open, are dependent one upon the other and interrelate continually. The nerve impulses of the material brain connect the two systems. The interrelationships between the two systems are dealt with by the psychological subconscious through its ability to act as a channel between systems of basic reality. Thoughts, emotions, and dreams directly affect the material structure of the body through their connection with the electric system. As independent electrical actions of the mind, thoughts, dreams, and emotions are not bound by or held within the material body, and are not subject to the physical laws that bind the material body. While the material body does not have a primary existence within electric reality, it does exist as a form of electrical action within the electric system.

The electric bodymind. Electrical characteristics of the physical body and brain have long been acknowledged by natural science. Ever since Richard Caton's (1875, 1877) discovery that the brain is associated with its own recordable electrical signals and Hans Berger's report in 1929 that electrical activity could be recorded from the scalp (Brazier, 1970), a constantly fluctuating electromagnetic field in and around the brain has been detected using the electroencephalogram (EEG). EEG signals are spontaneous, affected by mental activity such as attention, generated in the absence of identifiable external stimuli, and vary over time (Shepherd, 1994, pp. 549–554). Direct electrical stimulation of the brain produces subtle and complex patterns of electrical activity and the response recorded depends on the type of neuron stimulated and its metabolic state (Brazier, 1970; Penfield, 1958).

Neurobiologists have discovered that one way neurons transmit information is by transient and rapid alteration of voltage triggered by differences in membrane potential through decreases and increases in electrical charge at synapses with other neurons, triggering the release of excitatory and inhibitory neurotransmitters

into the synaptic gap. Neurons communicate through changes in voltage and the sum total of all the voltage changes produce constantly changing electromagnetic fields in and around the brain. Complex direct current electromagnetic (EM) fields can be detected by measuring differences in electrical potential between electrodes placed on the surface of the skin (Becker, 1990). "These EM fields vary over time, and are highly correlated in regular patterns with growth, development, physiological processes (e.g., ovulation), disease (e.g., malignancies), wound healing and emotional conditions" (Benor, 2004, p. 419). Manipulation of the brain's electromagnetic field can temporarily excite or inhibit local brain activity (Hallet, 2000), momentarily disrupt vision (Blanke, Landis, Spinelli, and Seeck, 2004), cause permanent functional changes in the brain (Liebetanz, Nitsche, Tergau, and Paulus, 2002), or produce a lasting therapeutic effect in the treatment of psychological disorders such as depression (Mayberg et al., 2005). Applying direct electrical energy to under- or over-active neural structures deep within the brain, called deep brain stimulation (DBS), has been reported to play a role in the experience of consciousness, as in the case of the comatose individual who recovered awareness following deep brain stimulation of the thalamus (Schiff et al., 2007).

The mediation brain theory presented here extends these findings by proposing that the body has a corresponding electrical counterpart with which it is intertwined, formed from birth onward that is built up from experiences in physical life. This proto-physical electric body exists within the electric system as a distinct, patterned series of electrical impulses of particular, unduplicated intensity that are retained in electrically coded data within the cells. The idea that the body has an electrically formed counterpart that is not material, has mass but no weight, and possesses varying intensities and concentrations of electrical force may sound quite esoteric. It is, however, a highly practical concept basic to almost all Eastern physiology associated with Yoga and acupuncture (Evans, 1986, pp. 32–52; Gerber, 2001; Swanson, 2011, pp. 137–171).

On the present theory, the electric bodymind refers to an intangible but actual framework composed of electrically coded psychical energy about whose reference points the physical body is constructed. It is a hypothetical construct that has been used to explain certain unsolved problems in biology, such as how morphological forms of the organism are determined, why amputated limbs of certain species are able to regenerate, and where memory is stored (Becker and Selden, 1985; Sheldrake, 1981, 1990). The concept implies that the observed electrical characteristics of the body and mind are a function of their connection to other fields of actuality that do not physically appear. It denotes that the dynamics of health and illness cannot be adequately understood when considered from only a biological standpoint or as a product of the physical field alone (Benor, 2001, 2004; Swanson, 2011, pp. 21–88).

How Mind-to-Brain Transmission Operates

Each thought, emotion, or dream is originally composed of a completely unique pattern of electrical impulses within a particular range of intensity in which every slight variation in intensity is meaningful and distinct. Collectively, these individual intensities form a characteristic electrical field specifically coded to the individual personality. Once created by the self, this pattern of electrically coded data is gathered together and transmitted to the nonmaterial mind which is the connective between the self and the material brain.

The various intensities are decoded by the mind within electric reality and broken down into refinements of intensities, each refinement making possible a fine-tuning of meaning. In the breaking-down process, the intensities of an electrical impulse that compose a particular thought, emotion, or dream action are separated into infinite gradations of varying intensities representing any one of many meanings as its electrical intensity ever so minutely changes. It is for this reason that a rich diversity in psychological symbols is possible, and that one thought, emotion, or dream symbol can have various meanings to many different levels of the personality. The mind attracts within separate fields those electrical impulses in the same general intensity range, and forms from them a pattern of meaningful psychoelectric symbols composed of electrical charges now more meaningful to the entire personality.

After the various electrical intensities have been decoded and collected by the mind, the resultant psychoelectric pattern is telepathically transmitted from the nonmaterial mind in the electric system to the material brain within the physical system. Through a process of transduction, the brain initiates body-wide "reactions" that translate the mind's original psychoelectric pattern into both a more or less pure psychological symbol code meaningful to different subconscious levels of the personality and into various groupings of electrical intensities whose effects are experienced in the furthest reaches of the minutest cells of the body. Within the mind, the subjectively felt experience has an electrical reality. Within the brain, it has a psychological reality and a much weaker electrical reality. To the conscious personality (or ego-self), it has only a psychological reality.

Only a small portion of the brain's reactions are detected by current electronic imaging devices because most existing instruments (e.g., EEG, PET, fMRI) are built to detect just the physical energies or forces currently recognized by conventional physical science (i.e., gravitation, magnetism, strong and weak nuclear cohesion). The comparatively weak electrical activity that is detectable in the brain and body is but a faint echo emanation or shadow image of the infinite varieties of much stronger and powerful electrical pulsations within the electric system that are currently beyond the range of conventional instrumentation to detect (Becker, 1990; Benor, 2004; Presman, 1970). As more powerful and more

sophisticated computerized electronic imaging systems are developed that combine or go beyond present resonance technologies (e.g., SPECT, SQUID, Kirlian photography), scientists will be able to glimpse more of the electric system (see Gerber, 2001, pp. 106–116, 203–237; Swanson, 2011). Since the electric system's manifestations will not be able to be explained within known physical systems of references, many curious and distorted explanations will be given of the so-called “anomalous” phenomena that are observed.

Elemental telepathy. The mind-to-brain transmission theory presented here is consistent with Tart's (1989, 1993) interactive dualism theory that proposes telepathy to be one of the mechanisms by which a nonmaterial mind interacts with a material body. On the present theory, mind-to-brain transmission occurs by means of “elemental” telepathy to distinguish it from the more advanced, complex form of telepathy studied in parapsychology laboratories where thoughts are transmitted from sender A to receiver B (Irwin, 1989, pp. 57–107; Radin, 1997, pp. 61–89; Rao, 2001; Tart, 2009, pp. 99–113). In its more rudimentary form, telepathic communication occurs whereby intent and desire is conveyed from the self to basically intangible representations of itself (i.e., telepathic structures) that are subsequently materialized into tangible biological structures (e.g., neurons) in the material body. This telepathic mechanism permits the brain to handle basically nonverbal information that is beyond its capacity to translate into neurological terms. These telepathic structures provide the initial inner-ordered framework and invisible pathways around which neurological structures form themselves and that inform their subsequent functioning. Once this telepathic bridge is set forth and the telepathic tracks are laid down, so to speak, the unformed neurological structures have a path to follow on which to materially build.

It is within these elemental telepathic structures of the cell rather than in its physical material that the condensed electrically-coded data of experience are retained. Whole comprehensions thus exist within neurological structures while taking up no space in the physical field. Experiences long forgotten are retained as condensed electrically coded information and continue to exist during the lifetime of the organism and for some time afterwards when the biological material has broken down at the physical death of the body.

Personal identity issues. If thoughts, emotions, and dreams do not originate from within the brain, then who or what is the transmitter and where is it “located”? On the present theory, all experience originates from a self through its subjective action. The “self” as the term is ordinarily conceived in conventional psychology is in actuality a concept of the ego. The ego considers itself the whole self making up the entire identity and “consciousness” confined to those patterns of perception of which it is aware at any particular time. In terms of this discussion, the “self” refers to the aspect of human personality that Roberto Assagioli (1965/1993) called the higher self, F.W.H. Myers (1889–1895/1976) called the

subliminal self, and transpersonal psychologists call the Self that is beyond (trans) ego — the inner self-conscious source self behind the outer self-conscious ego-self — which represents the core identity of the individual.

As a source of action existing within many fields of actuality simultaneously, the source self projects portions of itself within the physical field and sparks into being various identities or ego-selves, each of electrical composition that allows it manipulation within the natural world. The source self's own identity and individuality represents an electrical field of great intensity that is capable of efficiently acting as a unit of consciousness simultaneously within multi-dimensional reality and within the physical field through various egos which direct the overall identity of the conscious personality that is physically oriented. The ego-self (or I-self) of the conscious personality does not perceive this larger scope of activity with which its whole self is constantly involved. Nor does it ordinarily perceive within the subconscious of its own identity the existence of other identities with many such ego-selves.

Psychiatric literature documents the existence of multiple ego-selves within the subconscious psyche of the human personality that may not be aware of each other, even though operating simultaneously (Behrs, 1982; Braude, 1995; Kelly, Kelly, Crabtree, Gauld, Grosso, and Greyson, 2007, pp. 301–365). The personal subconscious of the dominant ego straddles the psychic actuality of other ego-selves made up of various needs and latent abilities that evolve at other levels of the subconscious and that serve as a resource of potential personalities into which any particular I-self in present time can grow. The source self operates as a relay station and reference point for the seemingly disconnected selves it creates.

Ego-selves do not originally exist within the electrical field, but are products of the physical field, formed from physical birth on and from that point are independent, individual, and unique. Ego-selves do not simply spring into existence, but are the result of psychological experience gained in present and past lives, collectively representing the overall potentials that belong to the whole identity with respect to existence in physical reality. While the bulk of the ego develops through physical heredity and environment, a portion is nevertheless composed of aspects of the source self that gave it birth and thus participates in electrical reality through this connection. Any particular ego gradually builds up an electrical counterpart within electric reality of all the unique experiences, understandings, and knowledge gained by the individual personality over the course of a lifetime. These are also retained in electrical form as condensed coded data within the telepathic structures of the cells of the body. At any given point, the ego-self is as ontologically complete within electric reality as it is psychologically complete within physical reality.

Because the human personality exists in its complete individual form within electric reality, at physical death it escapes the sort of ending that it would ordinarily suffer if it were merely a by-product of brain functioning or more an

integral part of the physical system. Being the product of a source self within whose range of electrical intensities its various ego-selves have their identities assured, the individual personality does not die but upon the biological death of the body its existence is changed from physical reality to electric reality. It can then join or partake of the multidimensional source self of which it is part, and its experiences are added to the total experience of the many personalities that have composed the whole self. The ego-self is still individual, and no individuality is lost in the process. The codified form of the physical senses still exists, and the codified memory of any sensory data that has been experienced may be experienced again. At biological death, the material matter of the organism is discarded as a physical form, as far as the individual personality is concerned, to be used in other combinations of matter.

How Mind-to-Brain Transmission is Accompanied by Conscious Experience

If the preceding account of mind-to-brain transmission is conceptually coherent, still it does not tell why this process should be accompanied by conscious experience. Given the process described, it could just as well be instantiated in the absence of awareness. The intrinsic nature of the entities that compose the nonmaterial mind and the material body need to be further characterized and their causal relevance in giving rise to conscious experience needs to be explained. Chalmers (1997) suggests that an adequate theory of consciousness requires “some entirely new nonphysical feature, from which experience can be derived” (p. 20). To account for conscious experience, the “new nonphysical feature” added to our ontology is the *unit of consciousness* (ψ -bit). The ψ -bit is to be treated as a theoretical entity postulated for the sake of the theory and validated by its explanatory value and contribution to progress in addressing the “hard” problem of explaining how and why mind-to-brain transmission is accompanied by conscious experience.

Unit of consciousness (ψ -bit). The ψ -bit or unit of consciousness represents a fundamental proto-experiential form of inner vitality, action, and identity that constitutes the intrinsic building block of basic reality. The ψ -bit is a basic entity or “unity–identity–whole” that is irreducible (i.e., cannot be broken down further) and resembles what the atom was once thought to be — but is miniscule — and an electron would look huge in comparison. The ψ -bit moves faster than light resembling what the neutrino is now thought to be and its existence may be mathematically deduced. Conceptually, ψ resemble what William James (1909/1947) referred to as “primordial units of mind-stuff or mind dust” (p. 185). Containing within itself all latent identities while retaining its own individuality and identity, a ψ -bit is the fundamental form of consciousness that is the source of all other forms of consciousness, investing everything that it composes

with the qualifications of being. Through the action of these units, consciousness makes its mark on all that is.

A ψ -bit is a form of action that is *awareized* — action that is aware of itself. As awareized action, each ψ -bit contains within itself its own capacity for awareness, intrinsic properties of creative unpredictability and infinite transmutation, and an inherent propensity to move toward organizations and value fulfillments of a cooperative and selective nature. Being endowed with a propensity to explore and fulfill all probabilities of being, the varieties of its manifestations are endless as it strives to create and experience all possible realities and all probable universes. Each ψ -bit fulfills itself by knowing itself through the realities and universes it has created. That knowledge changes it into a greater configuration that then tries to fulfill and know itself further.

ψ -bits can operate either as particles (entities) or as waves (forces). As particles, ψ -bits take on the characteristics of particularity, build up continuity in time, possess specific boundaries taking certain forms, and express their action from the center of these forms. At other levels, ψ -bits operate as waves and inherently possess within themselves all of the information available to the whole resembling what a hologram is thought to be (Pribram, 1989). Their specific nature as particles rests upon this great “body” of inner knowledge. Operating as waves, ψ -bits can appear in several places at once without traversing through space and thus possess the property of nonlocality. They spontaneously exist at all places at once and all of basic reality is interconnected to this extent. The ψ -bit is not a windowless Leibnizean monad closed within itself and is not to be found in isolation. Instead each ψ -bit is intimately related to every other ψ -bit, with each a part of the other, and capable of intermixing and forming in infinite patterns and combinations with other such basic units.

Out of a literally infinite bank of unpredictable events and undifferentiated possibilities, ψ -bits “select” certain ones as significant and of value for fulfillment. The particular kind of significance settled upon results from the individuality of each unit and acts both as a directive for experience and as a method of erecting effective boundaries within which the selected kinds of behavior occur. Within a literally infinite field of activity, meaningful order arises with certain ψ -bits settling upon various kinds of organization, finding these significant, then building upon them and attracting other ψ -bits of the same nature. Certain intensities are built up of unit organization even before the smallest physical particle exists. From their inner organization all physical forms and identities emerge. The body’s survival is largely determined by ψ -bits’ propensity for selectivity and significance, and the great communication system within the body is dependent upon the constant inner flux and flow of these units.

Different organizations of ψ -bits are the building blocks for the physical matter of rocks, plants, stars, frogs, trees, cells, oceans, continents, and chemical elements.

The natural world is built up from the inside out at each point at which these fundamental units of consciousness assert themselves to form physical reality. The world is not its own source. ψ -bits are also the building blocks for the manufacture of space and the creation of psychological structures and the conceptually complex and difficult to express terms “soul” and “spirit.” Units of consciousness or ψ -bits, being the vitalizing force behind all physical processes and psychological actions, are not to be “personified” nor thought to possess human characteristics, even though human characteristics emerge out of what ψ -bits are.

ψ -bits are basically independent of space and time and can move backward and forward and outside of time altogether in a Now that contains past, present, and future. Because ψ -bits have their source in multidimensional reality and outside of physical space and linear time, they are able to form a cellular structure which is able to effectively deal in the most basic manner with the nature of probabilities. The body’s apparent stability is dependent upon ψ -bits’ clairvoyant knowledge of “future” probabilities and past ones. The ψ -bits that compose atomic structure are poised between probabilities and are aware of their own probable existences, choosing from unpredictable fields of actuality that suit their own particular nature. Every physical form and identity constituted by ψ -bits is a probable one, the result of one line of development out of many that could have been actualized. All other possible lines of development also occur, however, in the creative field of probabilities of a basic reality that is fundamentally multidimensional. The precious privacy of human subjective experience and its probable reality emerges from the infinitely creative field of probabilities that ψ -bits themselves have initiated as they transform themselves into the structured reality that they then become.

Electromagnetic energy unit (E-bit). At some indescribable point, the faster-than-light ψ -bit slows down and “explodes” in a process of transformation into *electromagnetic energy units* (E-bits), the proximate roots of physical matter. E-bits are ψ -bits that have begun the special selectivity and screening process necessary to bring about a particular physical form. E-bits can operate as either waves or particles as ψ -bits do, but are closer to physical orientation, combining in their own fashion to specialize in the various elements which form the most microscopic physical particles that will allow for the production of atoms and molecules perfectly suited to the natural world. There are endless varieties of “matter” between the matter ordinarily recognized and the anti-matter of physicists’ theories and the various stages of E-bit proto-matter that gradually coalesce and become physically viable.

By virtue of the underlying E-bits that compose them, every atom and molecule contains within itself a condensed codified comprehension of basic reality as a whole and a memory of all the forms of which it has ever physically been a part, plus a limited but definite self-awareness — *a generalized molecular consciousness* (de Quincey, 2002; Sheldrake, 1981). It is because every atom and molecule

contains within itself this condensed codified comprehension and memory that they are capable of such varied combinations and variations in the creation of matter. Neurobiologists recognize that the cells or atoms of an arm could just as well form an ear or the cells of another portion of the body, for example. The self-awareness and the condensed codified comprehension in each atom and molecule determines what sort of cell or combination of cells that the particular atom or molecule will form. There are gradations of generalized consciousness and self-awareness which are reflected in the multiplicity of structures and diversity of function that appear within physical matter.

The various physical manifestations of consciousness are functions of the configuration of awareized energy that underlies them. Every atom is a conscious atom, every molecule is a conscious molecule, and every cell is a conscious cell, in degree according to its abilities. This means that a rock, a raindrop, a star, a tree, and even manufactured products, such as Chalmers' (1997, p. 27) famous thermostat, are instances of a manifested and an unmanifested consciousness, relatively speaking. Every portion of physically oriented consciousness perceives basic reality and experiences itself from its own privileged viewpoint about which it seems all else revolves. The consciousness of objects is not manifest to humans because the species' range of activities requires boundaries to frame its perception of basic reality in apparent physical terms. Human beings simply do not tune into their range of consciousness.

Atoms and molecules have the opportunity for value fulfillment along many lines that is reflected in their innate capacity for infinite mobility and transmutation and in the endless combinations and arrangements that their cooperation may take in forming stars and frogs, flowers and chairs, cells and organs, bodies and brains. At the death of the organism, the physical matter that composes it is broken down to the state in which it was before the cooperation that formed a particular physical body, freeing the components to once again go back into the physical storehouse to be reused and take form in the creation of other physical matter. This is a function of the latent ability of E-bits to form an almost infinite variety of structures, each one giving forth a truly infinite variety of results and opportunities for further value fulfillment. The universe is not neutral, in these terms.

Combination problem. In the formation of atoms and molecules into individual cells, there is an actual pooling of individual consciousness of atoms and molecules to form the individual cellular consciousness of the physical cells of the body. The literally numberless individual cells similarly combining in the form of individual organs result in the formation of a larger organic consciousness. The organs combine into other patterns forming finally into the physical organism. The whole physical structure of the body itself is the result of this cooperation of organs and cells which are themselves the result of the cooperation of atoms and molecules. This combination of consciousness continues, and its results can

be seen in the consciousness of the physical brain. This process goes on ad infinitum all the way up to the creation of the self-aware conscious personality and beyond ego. The self-awareness of the conscious personality is thus partially composed of the combination of self-aware individual atoms and molecules that compose it, with even the “lowest” particle retaining its own individuality and uniqueness, and not losing any of its original abilities or characteristics, but instead its ability is multiplied.

The combination of individual molecular consciousness results in the creation of a new, enlarged, and more perceptive cellular consciousness that is greater than the consciousness of any individual atom or molecule of which it is composed — different in scope and ability, and capable of much more experience and fulfillment than would be possible for the isolated atom or molecule. The atoms and molecules themselves actually gain immeasurably and share in higher perceptions because of this cooperative combination of consciousness. The resulting pattern of the physical body makes it possible for the organs, cells, atoms, and molecules to express themselves, to share to some degree in the perspective reached through the abilities of a physically large body structure, and to fulfill abilities that would be impossible for them in another context alone. Everything that maintains its own individuality and uniqueness, identity, and separation, even while it is part of a large and complicated cooperative arrangement, with ensuing benefits. This cooperation extends outward into the natural world and is reflected in the interrelationship and interdependence of the various species in their combined maintenance of the physical universe. Each form of life is created along with each other form — environment and organisms in those terms creating each other (Noë, 2009).

Personal identity issues. It might seem that the conscious personality is merely the result of this combination and recombination. The person is, nevertheless, more than that result, more than the combined consciousness of its atoms. The individual personality is brought together in an overall arrangement of consciousness guided and directed by the overarching purposes and intent of a source self that causes the whole to be more than the sum of its parts. Being the creation of a multidimensional source self, the conscious personality is formed purposely, and not in a random fashion, to function within a definite, particular set of circumstances in physical reality.

The source self projects its vital energy into the physical system with the bulk of its multidimensional consciousness not able to fully materialize in the physical field. Through a process of diffusion, the source self breaks its energy down into simple components and forms the separate atoms and molecules that will compose the individual and disperses itself into many parts. The source self puts its own knowledge into condensed form, telepathically communicates its intent and purpose through inner telepathic patterns, and the atoms and molecules

combine and recombine to form cells, organs, and the whole structure of the physical body, according to the material properties inherent in the physical system.

The mechanism that allows for the formation of complicated patterns into physical form is part of the generalized consciousness of the individual subconscious and performs its function without awareness or comprehension of the conscious personality. The individual subconscious is not some localized region that exists somewhere behind the forehead between the two ears (Ellenberger, 1970). The subconscious is a configuration, formed and maintained by the psychological pooling of the resources and abilities of individual atoms and molecules, chemical elements, and cells that compose the physical body. Built up electrically from the atoms and molecules that make up the cells of the body, the subconscious exists within the electric system and is not basically bound by time, although it may act within time's framework. Each I-self is aware at a subconscious level of the previous affiliations of the atoms and molecules that compose its physical organism and this knowledge can be made known to the conscious personality by expanding its awareness and concepts of personhood (Grof, 1975; Masters and Houston, 1972). Any particular self able to utilize its atoms and molecules as stepping stones could theoretically expand consciousness to contain the universe and everything in it (Forman, 1998).

Vitality, Action, Identity, and the Emergence of Consciousness

The claim is that conscious experience arises as a function of ψ -bits and the combination and recombination of E-bits, but why it arises remains to be explained. As Chalmers (1997) put it, "To account for conscious experience, we need an *extra ingredient* in the explanation. . . [and tell] why should *that* account for conscious experience" (pp. 16–17). We need to add further bridging principles that will explain why experience arises from ψ -bits and the combination of E-bits in the first place. These bridging principles are inner vitality, action, and identity.

Inner vitality. Conscious experience is not derived from units of consciousness or from their pattern of combinations alone. ψ -bits and E-bits and their actions are symbols of another reality that is their source. Inner vitality is the first "extra ingredient" added to our ontology that is behind and causes the units of consciousness from which conscious experience can be derived. Inner vitality is formless in material terms but takes many forms, and is known across many cultures by many names including *chi* (Chinese), *prana* (Indian), *mana* (Polynesian), *wakonda* (Lakota Sioux), and *pneuma* (ancient Greek). It cannot be seen or touched, but its effects can be perceived through its various materializations, while having a reality independent of any and all such materializations (Swanson, 2011). Its materializations do not necessarily result in the construc-

tion of matter within the physical field. Dreams, thoughts, and emotions, for example, represent manifestations of inner vitality that are not materialized within the physical system of matter (i.e., do not take up physical space).

Inner vitality, because of its nature, strives to completely materialize itself in all of its aspects in all systems of basic reality. Inner vitality can never achieve complete materialization, however, despite repeated attempts to do so because those very attempts at outward materialization automatically result in the creation of new vitality, adding a further dimension to inner vitality that also seeks materialization, thus multiplying the possibilities of further materialization, and so the cycle continues ad infinitum and is never completed. The imbalance and tension between the tendency of inner vitality to materialize itself and its inability to completely do so results in an exquisite creative by-product — *action*.

Action. Action is the second “extra ingredient” added to the ontology that is behind and causes the units of consciousness from which conscious experience can be derived. Action is more than motion and is not an outside force, nor is there a separate “force” that causes action. Action is more like growth than force, and has within it the powers of change, development, and expansion. Action is a dimension arising out of existence that results from inner vitality’s impulse to fully materialize itself and the practical impossibility of its completely doing so. On the one hand, action represents the spontaneous nature of inner vitality toward expressive materialization that is inherent in all systems of reality, including the physical one. On the other hand, action also approximates as nearly as possible that portion of inner vitality or life force which cannot be completely materialized within any particular apparent form.

Action itself cannot be directly perceived for that reason and cannot be considered separately as a particular thing because it represents the *relationship* between unexpressed inner vitality and materialized vitality. Action, because of its nature, therefore can never be examined from an objective viewpoint. To be examined in such a manner, action would have to be stopped, and any such tampering would cause it to change. Thinking, for example, is a form of action. Thought without action would cease to be thought. If one thought were held forever without termination, then thought would cease to exist because no other thoughts would follow. No action would follow. Action can be experienced directly, however, only when no effort is made to tamper with it. It must be plunged into.

Action necessarily changes any reality which is acted upon and forms from itself a new reality and a new structure. As a form of action, for example, thought acts upon itself and in so doing forms from itself a new thought. Any thought is thus never the same thought from one moment to the next. The thought at any given moment is not the thought that it was, yet it is that which it was, since it is that which changed. For this reason, thought, or a “thought,” is not any particular thing. There are no boundaries that enclose it within safe

confines where it can be said, "Here is the thought." There are thoughts within thoughts, with each thought being interwoven with all others. Creating structure from itself, action is always a part of structure that it has acted upon. While not a product of neural structure, thought can never be considered apart from the neural material which it seemingly acts upon, for it becomes a part of that neural structure by its action upon it.

Identity and the emergence of consciousness. Identity is the third element of the ontology and represents the moment point at which conscious experience actually materializes, in the terms of this discussion. Identity is formed from and is the result of action's own workings upon itself. As an aspect of inner vitality, action strives to materialize and fulfill itself completely, although it cannot fully do so. The result of action's effort is the formation of identities that are a part of action and formed from action's action upon itself. As a form of action, each identity continues in this creation of other identities or selves, and while they may change into other selves through action upon itself, they are still themselves, for each new self or identity is also the previous self which changed.

Action, because of its nature, must continually seek change. Identity, because of its nature, must continually seek stability. Yet identity could not exist without action for it is the result of action and so ultimately stability is impossible. Identity must eventually change and can never be constant, just as thought is not the same from one moment to another. The creative tension and dynamic imbalance between identity's constant attempts to maintain stability and action's inherent drive for change results in the original by-product that is *consciousness*. From action's workings upon identity, consciousness is formed. The seemingly miraculous state of consciousness therefore is not a thing in itself. It is a dimension of action. Action turns into consciousness.

Consciousness may be defined as a particular form of action — action that perceives itself. Different forms of consciousness are the result of action's formation of different perception patterns with which it can come to perceive and know certain aspects of itself. Each kind of consciousness represents a different focus of action's perception of itself and is characterized both by the particular ways in which it perceives available action and by the particular form of action that it is more likely to perceive. The type, nature, extent and scope of characteristic perception patterns of any given consciousness determine its physical structure, and not the other way around. This follows from the nature of action being the creator of structure from itself and as being always part of the structure that it has created.

Because it is the nature of action to continually seek change, action constantly forms new and original perception patterns by which it can view and know itself. The new perception patterns are formed one within the other. Within the range of effective perception for any individual consciousness, there will be perception patterns within perception patterns. A particular consciousness

may thus be characterized by its individual configuration of these perception patterns. Consciousness, in these terms, would be defined as a configuration of patterns of perception by which action comes to know itself.

While the definition stands, it can only apply to any given consciousness for an instant, since the patterns of perception, being action, have already changed and the particular consciousness which has been identified and described at any one moment in time has now disappeared. Consciousness, therefore, cannot be considered separately as a particular thing. Being a part of action, consciousness has within it action's characteristic powers of change, development, and expansion. Patterns of perception change and may grow as the particular consciousness reaches out and increases itself by experiencing other patterns of perception. The consciousness has changed, and is no longer the same consciousness, since it has extended itself. Yet in all cases, it is the same consciousness, since it is that which has extended itself and is still present in what it will by now have become. In this manner, stability of identity is maintained through the change of action.

Consciousness of self. Consciousness fulfills itself by knowing itself. One way that consciousness knows itself is through its comprehension of itself as a part of action. This form of "action that perceives itself" results in the particular materialization termed *consciousness of self*. A "self" may be defined as a constantly changing, never static configuration of action within (and having composed itself into) a particular range of unique action-perception patterns by which it knows itself as an identity. An atom is an identity in these terms. It is a self materialized in physical form that is conscious of itself as belonging to action and not as apart from action. It is conscious of the arrangements of which it is part in the present, of those configurations of which it has been a part in the past, and of its own probable existences in the future. It is materialized action, an identity that is part of other identities when it joins with other atoms to form cells, and cells to form organs, and organs to form an entire physical organism. The fact that it may be part of a larger pattern of other units of consciousness in no way diminishes its own identity or individuality, which may be of a completely different nature than that with which we are acquainted in usual human terms.

Consciousness of ego. A second way that consciousness knows or is aware of itself is through a derivative and limited but more focused perception of itself as apart from action. This form of action results in the particular materialization termed *consciousness of ego*. Consciousness of ego is not the same as consciousness of self. Consciousness of self is still consciousness directly connected with action, and involves an awareness of identity within and as a part of action. Ego consciousness involves consciousness of self outside of and apart from action. Identities may or may not have egos, in these terms.

Ego consciousness (or I-consciousness) is the state that occurs when identity or consciousness of self attempts to stand off from itself, to set itself apart from

action, and to perceive action as an object initiated by itself and as a result of its action rather than a cause of its own existence. Any such separation of action from itself adds to the totality of action, in that it increases action's ability to perceive itself from as many viewpoints as possible. The identity attempts this in order to attain stability and dominance. Identity's efforts to separate itself from action and maintain stability are ultimately fruitless, however, since identity is also action. The resultant ego-self (or I-self) cannot in any way limit the action of the whole self of which it is a part and succeeds only in limiting itself by restricting its perceptions and blocking out many perceptions of which its whole self is knowledgeable. The ego must change since it is and will always remain a part of action.

When the resultant ego-self does change, it tends to change only along certain lines, moving within certain patterns of perception which are characteristic of it. Boundaries may be set up in terms of a self, and an ego could be compared to a small dam, in this respect. Perception characteristics will dictate and limit aspects of action that any individual consciousness can perceive, although any particular form of consciousness is theoretically always free to focus on other aspects. Consciousness is not of itself limiting, in other words. The dimensions of consciousness are open dimensions. The assimilation of other perception patterns would increase, not decrease, any given consciousness. It is only the ego-self which leads the individual identity to believe that such expansion would result in a lessening of consciousness or an invasion of other selves. Yet all selves are one self in that all selves are action. The law of value fulfillment opens the many eyes of the self to its various portions, and enables the ego-self to expand and to join in an organization with other ego-selves. As the effective operational field of perception pattern changes, so do the apparent boundaries of the dominant ego of the conscious personality.

Implications for Explaining Consciousness

The thesis of this article is that consciousness has causal relevance as an intrinsic aspect of physical matter. Consciousness is a materialization of the inner vitality that sustains it and that supports it, and arises as a function of the creative tension between action's dynamic drive for change and identity's inherent attempt to form stable perceptual patterns in which action can view and know itself. The materialization of the human body is constituted by the cooperative action of individual atoms, molecules, cells, and organs that possess their own inner vitality, identity, and action-patterns of perception reflected in the innate, condensed generalized consciousness which informs their physical form. The units of protoconsciousness (ψ -bits and E-bits) that constitute the building blocks of these and other more complicated structures (e.g., human personality) are capable of forming into an infinite variety of arrangements in

which the resulting pattern or organization makes it possible for individual elements to express themselves and fulfill abilities that would be impossible for them in another context isolated and alone.

Brought together into a strong, cohesive identity under the direction and guidance of a source self, the physical organism of the human personality can exist as a separate construction and maintain its own necessary sense of identity. The individual atoms, molecules, cells, and organs that form into such organizations benefit from this cooperative relationship by being able to achieve value fulfillments that simply would not be possible for them in their simpler isolated forms. In this way, all living beings and so-called nonliving things cooperate in maintaining and constantly renewing the material construction of the world and universe of which they are physically a part.

If the presented view is valid, then there is no such thing as “dead” matter and everything which exists is formed by and filled with its own kind of vital consciousness (de Quincey, 2002; Freeman, 2006). This is not to say that the consciousness present in the body’s cells or in atoms and molecules is the same as waking human consciousness. It is not. Various action–perception patterns of consciousness-forming units — electrons and protons forming molecules, molecules forming cells, cells forming organs, organs forming organisms, and so forth — result in different kinds of “interior” nature, different qualities of experience, and different ways of perceiving basic reality. There are as many luxuriant and diverse focuses of consciousness as there are forms of life. There are varieties of consciousness so different from our own that we can only approximately grasp the meaning inherent in some of them (“What is it like to be a bat?”) [Nagel, 1974]. Human beings are no longer separated from the rest of the natural world by virtue of possessing an inner consciousness. Such consciousness is within all forms of living beings and so-called “non-living” entities.

The proposition that “Consciousness is a function of cerebral action” is both a true statement and a false statement. On the one hand, it is true to say that brain activity gives rise to consciousness inasmuch as it is understood that every neuron and neurotransmitter which exists materially also exists as the physical materialization of *awareized* energy. On the other hand, it is false to say that brain activity gives rise to consciousness inasmuch as it is believed that neural matter and the atoms and molecules and chemical elements of which the brain is composed are inert and lifeless and suddenly through some metamorphosis attain the conscious state in the course of one steady stream of evolutionary development. When consciousness is described as being an attribute of cellular life, the description is used only for convenience, since actually cellular life is an attribute of consciousness and consciousness is an attribute of cellular life.

Consciousness always exists first. Consciousness evolves matter and forms its own materialization; matter does not self-evolve into consciousness (Pfeiffer, Mack, and Devereux, 2007; Skrbina, 2005). The inner vitality and condensed

generalized consciousness behind and within each atom and molecule gave physical construction to the atom and molecule. The individualized and extremely potent bits of energy that compose basic reality — ψ -bits and other units of consciousness — evolve the many different patterns and forms into which each unit of consciousness then manifests itself, and this involves individuality and cooperative interdependence. The intuitive basis of humanity's various God concepts originates in the species' innate knowledge of the basic ontological fact that consciousness preceded physical construction ("In the beginning was the Word"). Consciousness not only created the physical universe but continues to do so on a subconscious basis by each individual identity in it — mineral, plant, and animal.

Albert Einstein (1954, p. 292) once proclaimed that "the eternal mystery of the world is its comprehensibility." Panpsychism's response is that the world is comprehensible precisely because the world and the human intellect are made of the same "stuff." That stuff is consciousness. Panpsychism offers a new metaphysical foundation for the behavioral sciences in the twenty-first century (Harman, 1994) that is very different from its conventional philosophy of science grounded in assumptions of Greek materialism ("Only physical matter actually exists"), Newtonian–Cartesian mechanism ("Matter is composed of lifeless elements devoid of experience or consciousness"), and Occam–Morgan reductionism ("Complex phenomena are really just instances of simpler phenomenon that only appear different") [Grof, 1985; Slife and Williams, 1995, pp. 127–166]. By asserting that consciousness goes "all the way down" to the most basic elements of matter itself, panpsychism overcomes the bifurcation of reality into a world of mind and body or spirit and matter (dualism) and the limiting reduction of basic reality to a world of mind or matter alone (monism). Both matter and consciousness emerge out of what the world is. In certain terms, and despite outward appearances, each is a materialization of the other — ongoing, intertwining actions that are material and conscious at the same time. The spirit speaks with a physical voice and the material body is a creation of the spirit. Only when the two are viewed as radically different things does the gap between the world and consciousness seem unbridgeable and its crossing mysterious.

Conclusion

The basic firm groundwork for the explanation of consciousness presented here is derived from and grounded in and builds upon the channeled texts and derivative theories of Jane Roberts (1975, 1977–1979, 1986; Butts, 1997–2002). Some may consider Jane Roberts's works suspect because of its alleged channeled source. Serious scholarly studies written from a detached point of view and not marred by overt polemical or apologetical considerations have considered the phenomenon to be a fruitful, legitimate, and original source for hypotheses

about the nature of human personality (Beahrs, 1982), physical reality (Friedman, 1994), new religions (Hanegraaff, 1998), epistemological claims (Hammer, 2004), and sociological movements (Heelas, 1996). The aim of this article is to provide an opportunity to examine the so-called “hard problem” of consciousness from an altogether different perspective and to move the discussion forward by presenting a speculative theory that has its roots in ostensible subconscious sources and dimensions of psychological activity that are arguably transpersonal in nature (Hastings, 1991; Liester, 1996; Richards, 1990). Many of humanity’s most practical theories have been attributed as coming from subconscious sources (Perkins, 1981). It is reasonable to suppose, therefore, that the present theory contains empirically verifiable propositions that can be evaluated by various “truth-tests” (i.e., correspondence, coherence, pragmatic) [Cunningham, 2012].

In science, hypotheses and theories are not refuted or accepted on the basis of their author’s organic or psychological constitution, but are tested by logic and experiment. The origin of a hypothesis or theory is an insufficient basis on which to judge its validity, correctness, or truth. Theories of consciousness — whatever their source — will always retain an element of speculation and remain difficult to test through intersubjective observation. Yet the validity of any naturalistic or even speculative metaphysical account of consciousness can be evaluated by conducting a comprehensive analysis of how empirically verifiable facts predicted by the theory connect with other observations and related predictions, and how the theory can be understood within other theoretical frameworks for understanding phenomena that the theory was designed to explain. As Chalmers (1997) put it, “Even in the absence of intersubjective observation, there are numerous criteria available for the evaluation of such theories: simplicity, internal coherence, coherence with other theories in other domains, the ability to reproduce the properties of experience that are familiar from our own case, and even an overall fit with the dictates of common sense” (p. 22).

Once the fundamental links between energy, matter, and consciousness are recognized, then grand metaphysical speculations concerning the multidimensional nature of basic reality, electrical counterparts of body and mind, elemental telepathy, and units of consciousness are not as implausible as they may appear. Such speculations are intended to serve the heuristic purpose of developing a fundamental theory of consciousness. Bold scientific hypotheses and even bolder metaphysical theories are needed if what currently seems to be inexplicable, mysterious, and beyond the realm of intellectual comprehension — such as the problem of how and why brain activity is accompanied by conscious experience — is ever to be adequately understood and explained.

References

- Assagioli, R. (1993). *Psychosynthesis*. New York: Arkana. (Original work published 1965)
- Barrow, J.D., Davies, P., and Harper, C.L. (2004). *Science and ultimate reality*. New York: Cambridge University Press.
- Behrns, J.O. (1982). *Unity and multiplicity*. New York: Brunner/Mazel.
- Becker, R.O. (1990). *Cross currents*. Los Angeles: J.P. Tarcher.
- Becker, R.O., and Selden, G. (1985). *The body electric*. New York: William Morrow.
- Benor, D.J. (2001). *Healing research, Volume 1: Spiritual healing, scientific validation of a healing revolution*. Southfield, Missouri: Vision Publications.
- Benor, D.J. (2004). *Healing research, Volume 2: Consciousness, bioenergy and healing*. Medford, New Jersey: Wholistic Healing Publications.
- Blanke, O., Landis, T., Spinelli, L., and Seeck, M. (2004). Out-of-body experience and autoscapy of neurological origin. *Brain*, 127, 243–258.
- Bohm, D. (1980). *Wholeness and the implicate order*. London, England: Routledge.
- Brazier, M.A.B. (1970). *The electrical activity of the nervous system*. London, England: Pitman.
- Braude, S.E. (1995). *First person plural*. Lanham, Maryland: Rowman & Littlefield.
- Butts, R.F. (1997–2002). *The early sessions* (Volumes 1–9). Manhasset, New York: New Awareness Network.
- Caton, R. (1875). The electric currents of the brain. *British Medical Journal*, 2, 2.
- Caton, R. (1877). Interim report on investigation of the electric currents of the brain. *British Medical Journal, Supplement*, 1, 62–65.
- Chalmers, D.J. (1997). Facing up to the problem of consciousness. In J. Shear (Ed.), *Explaining consciousness — the “hard problem”* (pp. 9–30). Cambridge, Massachusetts: MIT Press.
- Cunningham, P.F. (2011). Are religious experiences really localized within the brain? *Journal of Mind and Behavior*, 32, 223–250.
- Cunningham, P.F. (2012). The content–source problem in modern mediumship research. *Journal of Parapsychology*, 76, 295–319.
- de Quincey, C. (2002). *Radical nature*. Montpelier, Vermont: Invisible Cities Press.
- Einstein, A. (1954). *Ideas and opinions* [S. Bargmann, Trans.]. New York: Wing Books.
- Ellenberger, H.F. (1970). *The discovery of the unconscious*. New York: Basic Books.
- Evans, J. (1986). *Mind, body and electromagnetism*. Dorset, England: Element.
- Forman, R.K.C. (1998). What does mysticism have to teach us about consciousness? *Journal of Consciousness Studies*, 5, 185–201.
- Freeman, A. (Ed.). (2006). *Consciousness and its place in nature*. Charlottesville, Virginia: Imprint Academic.
- Friedman, N. (1994). *Bridging science and spirit*. St. Louis: Living Lake.
- Friedman, N. (1997). *The hidden domain*. Eugene, Oregon: The Woodbridge Group.
- Gerber, R. (2001). *Vibrational medicine*. Rochester, Vermont: Bear & Company.
- Greene, B. (2011). *The hidden reality*. New York: Vintage.
- Grof, S. (1975). Varieties of transpersonal experiences: Observations from LSD psychotherapy. In S.R. Dean (Ed.), *Psychiatry and mysticism* (pp. 311–345). Chicago: Nelson–Hall.
- Grof, S. (1985). *Beyond the brain*. Albany, New York: State University of New York Press.
- Haller, M. (2000). Transcranial magnetic stimulation and the human brain. *Nature*, 406, 147–150.
- Hammer, O. (2004). *Claiming knowledge*. Boston, Massachusetts: Brill.
- Hanegraff, W.J. (1998). *New age religion and western culture*. Albany, New York: State University of New York Press.
- Harman, W. (with Clark, J.). (Ed.). (1994). *New metaphysical foundations of modern science*. Sausalito, California: Institute of Noetic Sciences.
- Hastings, A. (1991). *With tongues of men and angels*. Fort Worth, Texas: Holt.
- Heelas, P. (1996). *The new age movement*. Cambridge, Massachusetts: Blackwell.
- Hilbert, D., and Cohen–Vossen, S. (1952). *Geometry and the imagination*. New York: Chelsea. (Original work published 1938)
- Irwin, H.J. (1989). *An introduction to parapsychology*. Jefferson, North Carolina: McFarland & Company.
- James, W. (1947). *Essays in radical empiricism and a pluralistic universe*. New York: Longmans, Green, and Co. (Original work published 1909)

- Kelly, E.F., Kelly, E.W., Crabtree, A., Gauld, A., Grosso, M., and Greyson, B. (2007). *Irreducible mind*. New York: Rowman and Littlefield.
- Lewis, D. (1986). *On the plurality of worlds*. Malden, Massachusetts: Blackwell.
- Liebetanz, D.M., Nitsche, M.A., Tergau, F., and Paulus, W. (2002). Pharmacological approach to the mechanisms of transcranial DC-stimulation-induced after-effects of human motor cortex excitability. *Brain*, 125, 2238–2247.
- Lieberman, M.B. (1996). Inner voices. *Journal of Transpersonal Psychology*, 28, 1–30.
- Masters, R., and Houston, J. (1972). *Mind games*. New York: Dorset.
- Mayberg, H.S., Lozano, A.M., Voon, V., McNeely, H.E., Seminowicz, C., Hamani, C., Schwab, J.M., and Kennedy, S.H. (2005). Deep brain stimulation for treatment-resistant depression. *Neuron*, 45, 651–660.
- Myers, F.W.H. (1976). *The subliminal consciousness*. New York: Arno Press. (Reprinted from 1889–1895 Proceedings of the Society for Psychical Research, Volumes 5, 6, 8, 9, 11)
- Nagel, T. (1974). What is it like to be a bat? *Philosophical Review*, 83, 435–451.
- Noë, A. (2009). *Out of our heads*. New York: Hill and Wang.
- Perkins, D.N. (1981). *The mind's best work*. Cambridge, Massachusetts: Harvard University Press.
- Penfield, W. (1958). *The excitable cortex in conscious man*. Liverpool, England: Liverpool University Press.
- Pfeiffer, T., Mack, J.E., and Devereux, P. (Eds.). (2007). *Mind before matter*. Washington, DC: O Books.
- Presman, A.S. (1970). *Electromagnetic fields and life* [F. L. Sinclair, Trans.]. New York: Plenum Press.
- Pribram, K. (1989). Behaviorism, phenomenology, and holism in psychology: A scientific analysis. In R.S. Valle and R. von Eckartsberg (Eds.), *Metaphors of consciousness* (pp. 141–151). New York: Plenum Press.
- Radin, D. (1997). *The conscious universe*. New York: HarperCollins.
- Rao, K.R. (Ed.). (2001). *Basic research in parapsychology* (second edition). Jefferson, North Carolina: McFarland & Co.
- Richards, D.G. (1990). Dissociation and transformation. *Journal of Humanistic Psychology*, 30, 54–83.
- Roberts, J. (1975). *Adventures in consciousness*. Englewood Cliffs, New Jersey: Prentice–Hall.
- Roberts, J. (1977–1979). *The “unknown” reality* (Volumes 1–2). Englewood Cliffs, New Jersey: Prentice–Hall.
- Roberts, J. (1986). *Dreams, “evolution,” and value fulfillment* (Volumes 1–2). New York: Prentice–Hall.
- Rucker, R. (1984). *The fourth dimension*. Boston: Houghton Mifflin.
- Schiff, N.D., Giacino, J.T., Kalmar, K., Victor, J.D., Baker, K., Gerber, M., Fritz, B., Eisenberg, B., O'Connor, J., Kobylarz, E.J., Farris, S., Machado, A., McCagg, C., Plum, F., Fins, J.J., and Renzai, A.R. (2007). Behavioral improvements with thalamic stimulation after severe traumatic brain injury. *Nature*, 448, 600–603.
- Sheldrake, R. (1981). *A new science of life*. Los Angeles, California: Jeremy P. Tarcher.
- Sheldrake, R. (1990). *The rebirth of nature*. London, England: Century.
- Shepherd, G.M. (1994). *Neurobiology* (third edition). New York: Oxford University Press.
- Skrbina, D. (2005). *Pampsychism in the West*. Cambridge, Massachusetts: MIT Press.
- Slife, B.D., and Williams, R.N. (1995). *What's behind the research?* Thorsand Oaks, California: Sage.
- Swanson, C.V. (2011). *Life force, the scientific basis*. Tucson, Arizona: Poseidia Press.
- Tart, C.T. (1989). Transpersonal realities or neurophysiological illusions? Toward an empirically testable dualism. In R.S. Valle and R. von Eckartsberg (Eds.), *Metaphors of consciousness* (pp. 199–222). New York: Plenum Press.
- Tart, C.T. (1993). Mind embodied: Computer-generated virtual reality as a new dualistic-model for transpersonal psychology. In K.R. Rao (Ed.), *Cultivating consciousness* (pp. 123–138). Westport, Connecticut: Praeger.
- Tart, C.T. (2009). *The end of materialism*. Oakland, California: New Harbinger.