

Consciousness Field Theory: A Critical Review

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ABSTRACT

This work offers a critical review of the ontological question regarding the origins and nature of consciousness. In the attempt to resolve the structure/agency problematic of the social sciences, Paul C. Mocombe offers his consciousness field theory and phenomenological structuralism in response to structuration theory. This work critically assesses Mocombe's consciousness field theory within the larger body of contemporary ontological debates regarding the nature, origin, and constitution of consciousness, especially human consciousness.

Keywords: Structuration Theory; Phenomenological Structuralism; Structure/Agency; Mythopraxis; Quantum Mechanics; Social Class Language Game; Haitian Epistemology; Haitian/Vilokan Idealism

Abbreviations: fMRI: Functional Magnetic Resonance Imaging; rTMS: Repetitive Transcranial Magnetic Stimulation; EEG: Electroencephalography; GNWT: Global Neuronal Workspace Theory; IIT: Integrated Information Theory; CEMI: Conscious Electromagnetic Field Theory; CFT: Consciousness Field Theory

Introduction

Consciousness has been characterized as the phenomenal subjective awareness of internal and external worlds (Levine, et al. [1-5] Block, 1995. Over the past decade, research from the cognitive neurosciences has been growing and challenging the origins and nature of this first-person, phenomenal, and subjective understanding of consciousness in favor of the third person objective analysis of the phenomenon using neuroscience machines and techniques (Pockett, et al. [3,6,7]). Several scientific theories and methods have been developed and published on this ontological issue concerning the origins of consciousness, what (Block (1995)) calls "phenomenal consciousness" versus "accessible consciousness," with some degree of validity and reliability for both approaches (van Lommel, et al. [8,9]). However, to date, there has been no review systematically describing, contrasting, and evaluating the different theoretical and methodological approaches toward understanding the ontological question of how consciousness emerges in the world/universe/multiverse. To address this gap, this work conducted a review to describe existing theories and methods that attempt to explain the origins and nature of consciousness, and discuss research avenues to advance assessment of it, including recommendations for suitability of a theory and meth-

od, Mocombeian consciousness field theory, given research contexts, which explains the ontological origins of the phenomenon (Mocombe, et al. [4,5,10,11]).

(Mocombe [10]) in an effort to resolve the structure/agency problematic of the social sciences developed the structurationist theory of phenomenological structuralism, which views human agency in the tradition of structurationist sociology as "practical consciousness," the internalization of social structural rules by social actors that they recursively organize and reproduce in their material practices Giddens 1980, (Habermas, et al. [5,10-15]). This (duality) reading of the individual suggests that they are automatons who blindly internalize the social structural rules of their society, which they reproduce as their practical consciousness. Mocombe's formulation, phenomenological structuralism, on structuration theory, attempts to discount and augment this latter position as it dismisses human self-awareness (agential initiative) and three other factors regarding the origins and basis of human practical consciousness (Mocombe [11]). Hence, to formulate the conception of the individual as agents who consciously and/or unconsciously internalize the rules of their social structure, Mocombe had to account for the "consciousness," the internal phenomenal experiences, of the individual that allows them to be aware of and internalize, or not, the predicative social structural rules

and norms that they recursively organize and reproduce as praxis. To do so, Mocombe, ontologically, develops a quantum materialist conception of the origins and nature of consciousness through what he calls “consciousness field theory” (Mocombe [4]).

In this theory, consciousness is an emergent fifth force of nature, a field of consciousness (the consciousness field—CF) composed of a quantum material substance/energy, psychion, the phenomenal property, qualia or informational content, of which is recycled/replicated/entangled/superimposed throughout the multiverse and becomes embodied, as psychon, via the microtubules of neurons of brains and aggregate matter of multiple worlds to constitute mind. Mind (composed of the personal and collective unconscious, and the sense-experience of the emerging ego held together by the brain’s electromagnetic field generated by the periodic discharge of neurons), in turn, is manifested in simultaneous, entangled, superimposed, and interconnecting material resource frameworks, multiple worlds (each with their own entangled and superimposed consciousness field), as praxis or practical consciousness of organic life, the content of which in-turn becomes the phenomenal properties, qualia, of material (subatomic particle energy, psychion) consciousness that is recycled/replicated/entangled/superimposed via the absolute vacuum and consciousness fields upon matter disaggregation. In other words, existence precedes essence; but essence is emergent and eternal, emergent essences, and comes to constitute a fifth force of nature, a field of consciousness for Being production (the consciousness field), through the phenomenal properties, qualia (personal and collective unconscious), of neuronal subatomic particles, psychion, which are recycled/replicated/superimposed/entangled throughout the multiverse and give human actors their initial (essential) practical consciousness that they organize and reproduce in replicated, entangled, and superimposed material resource frameworks (p. 2).

Hence, Mocombe, against traditional (Cartesian) material readings of consciousness constitution, grounds consciousness in the material world through an emergent panpsychism and cosmopsychism, which posits that consciousness relationally emerges, like gravity, from the constitution and emergence of aggregate material reality and comes to constitute a fifth force of nature over time that continuously produces beings with consciousness through its field (consciousness field) produced by its elementary particle, i.e., psychion, interacting with electromagnetism (Mocombe, et al. [4,5,10,11]). Mocombe’s quantum materialist reading of the origins and nature of consciousness diametrically opposes contemporary (ontological) approaches, materialism, post-materialism, dualism, to the phenomenon. Contemporary materialism highlights the neural correlates of consciousness in the brain for the origins and nature of consciousness (Crick, et al. [2,3,7-9,16-21]); postmaterialist approaches suggest that consciousness is fundamental to the world/universe/multiverse and becomes embodied, received by the brain, which facilitates consciousness (van Lommel, et al. [8,9,17-20]); and the less scientific interactionist/dualist position, posits that consciousness is both fundamental and material, a substance that is embodied and takes shape through the

neural correlates of the material brain, which acts on consciousness (Chalmers, et al. [2,4,8,10,15,18,19,21]).

All three positions, upon which contemporary psychological theories such as humanism, behaviorism, and cognitivism are based, are problematic, however, given their inability to deal with four theoretical, methodological, and evidentiary issues:

1. The explanatory gap, how do the neural correlates of consciousness produce the phenomenal subjective experience of consciousness;
2. Contrast analysis problematic, the contents, dimensions, structures, and states of consciousness witnessed using neuroscience techniques are present with or without the mechanical brain;
3. The hard and binding problems of consciousness, what accounts for how the brain functions to produce the (phenomenal) subjective experience of consciousness; and
4. The evidentiary issue, in many instances, consciousness seems to persist outside of the brain or when it ceases to function (Levine, et al. [1,2,5,8,10,11,17-21]).

Given these three opposing positions and the four aforementioned problematics associated with them, which, contemporarily, dominate the scientific discourse regarding the origins and nature of consciousness, this work reviews how consciousness emerges in the literature vis-à-vis Mocombe’s consciousness field theory to offer (hypothesize) a new theory, antihumanism, of psychology and psychological development and consciousness constitution based on this process and review.

Background of the Problem

Studies on how consciousness emerges has been a focus of research since René Descartes’s mind/body dualism understanding of consciousness development of the seventeenth century, and has been recognized as a key component of the epistemological basis of the human sciences Russell 1945, (Levine, et al. [1-3]) (Block 1995, Searles 1997). By studying what has been scientifically thought and written about how consciousness emerges, given the development of contemporary neuroscientific techniques to measure the phenomenon, since Descartes, we may be able to form a different, more inclusive picture of the origins of consciousness and its emergence and implications for psychological theories. René Descartes’s mind/body dualist understanding of consciousness development constitutes the ontological basis upon which contemporary scientific understanding of the phenomenon is understood Russell 1945, (Levine, et al. [1,2,3,7,8,17,21]) (Block 1995, Searle 1997). According to the seventeenth century philosopher, consciousness or mind is a distinct substance from matter or the body/brain. The latter, the body/brain, belongs to the physical/material (corporeal) world, and the former, mind or consciousness, the nonphysical/immaterial (noncorporeal) (Taylor [3]). For Descartes, the two interact and effect each other via the pineal gland of

the brain to give rise to consciousness as an immaterial, thinking, substance, distinct from matter, which, the latter, is characterized by its extension in time and space Russell 1945, (Taylor [3]).

This view, known as substance or Cartesian dualism, fails to explain how physical and mental entities can interact, and as such has been argued over by philosophers who fall into three camps, materialism, idealism, and dualism. Materialists argue that the brain is the origins of consciousness; idealists, argue for the primacy of the mind; and dualists continue Descartes's initial substance dualist approach without resolving his contradictions Russell 1945, (Chalmers, et al. [2,3,7,17,22] Block 1995, Searle 1997. Contemporarily, given the development of neuroscience techniques, the ontological question regarding the origins of consciousness, which would give rise to Cartesian dualism is understood within the scientific schools of materialism and post-materialism, which parallels the philosophical schools of materialism and idealism (Schwartz, et al. [8,18]). Dualism is a less scientific approach, which is dealt with philosophically but not scientifically; in the sciences, dualists tend to lean towards one side of the materialist/post-materialist divide, with the former, materialists, dismissing the (fourteen paranormal and parapsychological) evidence of the latter, post-materialists, as scientifically untestable and unverifiable, and the latter using quantum theory to ground their paranormal and parapsychological data (Pockett [23]). Hence, the contemporary scientific understanding of the ontological question regarding the origins of consciousness does not deal with the mind in the Cartesian sense; instead, the emphasis is on the neural correlates of the material brain, which give rise to consciousness and the mind (Solms [21]).

In other words, whereas the concept of the mind in philosophy and science deals with the mental processes that constitute the human mind; consciousness, conversely, deals with the awareness of the contents of the mind. In other words, consciousness, which is an aspect of the mind, refers to subjective awareness of phenomenal experiences, qualia, (ideology, language, self, feelings, choice, control of voluntary behavior, thoughts, etc.) of internal and external worlds (Chalmers, et al. [2-4,5,7,8,10,11,24,25]). Metaphysically and ontolog-

ically, the (scientific) academic literature, contemporarily, "describes three possibilities regarding the origin and place of consciousness in the universe:

- a) As an emergent property of complex brain neuronal computation,
- b) As spiritual quality of the universe, distinct from purely physical actions, and
- c) As composed of discrete 'proto-conscious' events acting in accordance with physical laws not yet fully understood" (Hameroff, et al. [19]).

Known as materialism (A), post-materialism (B), and interactionism/dualism (C) in the scientific literature, all three approaches are ontologically problematic in that they ignore the evidence of each perspective to formulate the origins of consciousness in the universe from two divergent approaches, materialism and post-materialism, which appear to be incompatible (Schwartz, et al. [8,18]). The third, (C), in a scientific effort that parallels Cartesian substance dualism, attempts to synthesize the conclusions of the materialist (A) and post-materialist (B), via quantum theorizing, to resolve their problematics. To no avail, however, as interactionists/dualists simply end up on either side of the two positions without successfully synthesizing them to offer a complete account of how consciousness emerges in the world/universe/multiverse (Chalmers, et al. [2,3,7,8,18,23]). (Meijer, et al. [26]) classify these three positions (grouped under materialism and post-materialism here with the interactionist/dualist approach representing a process dualism attempting to either give a complete material account of consciousness from the quantum realm to the material or looking to ground the fourteen paranormal and parapsychological data of the post-materialists via quantum mechanics) into two categories, neuro-correlate models and quantum/spacetime models (Table 1), both highlighted by twenty-three (in some cases, intersecting) theories, respectively. The former, neuro-correlate model, representing materialism; and the latter, quantum/spacetime models, the post-materialist/interactionist/dualist perspective highlighted in (Table 2).

Table 1: Current Models of Human Consciousness Adopted from (Meijer [26]).

Current Models of Human Consciousness	
Neuro-correlate models	Quantum/Spacetime models
Global Workspace model- Baars/Dehaene	Wholeness/Implecate order model-bohm
Multiple Drafts theory- Dennett	Quantum field model-jibu/yasue
Dynamic Core/Neural Darwin. Model- Edelman	Quantum brain dynamics-umezawa
Information Integration theory- Tononi/Koch	Dissipative brain model-vitiello
Thalamic Cortical Rhythms model- Llinas	Holonomic mind model-pribram
Coalitions of Neurons model- Crick/Koch	attention quantum Zeno effect model-stapp
Field models- Kinsbourn/McFadden/Pockett	psychon brain dynamic model -beck/Eccles
Subcortical models- Penfield/Merker/Ward	Ion-channel coherence model-Bemroider
Internal and world Simulation model- Revonsuo	Orch. Obj. Quant. Reduct-Hameroff/penrose
Retinoid model- Trehub/Metzinger	spin-mediated consc. Model-Hu/Wu
Self-model theory- Metzinger/Hesslow/Grush	EM-field models-McFadden/Pockett
Sensiomoter Theory model- O'Regan/Noe	Holographic Resonance model- Mitschell
Supramodular Interaction theory- Morsella	Hierarchic model consciousness- Kaivarainen
Multilevel Feedback model- Haikonen	Dual-time Supercausality model-King
Intermediate Level theory- Jackendorf	Topological Geometro Dyn.model-pitkanen
Radical Plasticity thesis- Cleeremans	poised state Quantum model-kauffman
Collorary Discharge Attention model- Taylor	Photon Med.consc-Bokkon/Dotta/persinger
Attention to memories theory- Izhikevich	Noetic Field theory-Amoroso/DiBiase
Bicameral Mind model- Jaynes	Zero point Energy Model-kepler/cagliuiri
Operational Architectonics model- Fingelkurts	Neutral field theory-Robinson
Self Comes to Mind model- Damasio	Infinite Spiral Staircase model-Hardy
Free-energy Unified Brain theory- Friston	Nuclear spin Neural Qbit model- Fisher
Triple aspect monism model- Pereira	Oscillating Agent Quantum model-Plikynas

Table 2: Materialist versus Postmaterialist Understanding of Consciousness.

	Materialist	Post-Materialist
Origins of Consciousness	Matter, which is fundamental, and its aggregation	Consciousness is fundamental, i.e., spiritual quality of the multiverse that becomes embodied
Place of consciousness	Local in space/time	Nonlocal always around or in matter irrespective of spacetime
How does consciousness emerge	Emerges from activities in the structures of the mechanical brain; neural correlates of consciousness	Nonemergent, stems from the multiverse and the brain receives it
Duration of consciousness	Finite, ends at death of the brain	infinite
What produces consciousness	The brain	God or spiritual quality of the multiverse
Evidence for consciousness	Neural correlates of consciousness in structures of the brain	Parapsychological phenomenon, i.e., near-death experiences, telekinesis, teleportation, etc.

Theoretical or Conceptual Background of the Problem

The scientific materialist, (A), understanding of consciousness constitution emanates out of three forms of philosophical materialism: reductive physicalism (materialism), functionalism or non-reductive physicalism/materialism, and eliminative materialism. Physicalism is a form of philosophical monism that posits that consciousness is an epiphenomenon of material processes (physical or nonphysical, i.e., energy, neurons, subatomic particles, etc.) of the brain, and does not exist without these processes. Functionalism views consciousness as a function of the brain that can be performed by other nonbrain mechanical structures such as cyber optics, circuit boards, etc. Lastly, eliminative materialism suggests that consciousness is a result of physical states of the brain, and the phenomenal subjective experiences of consciousness are unacceptable talk that has no scientific foundation (Chalmers [2]). Building on the monism and physicalism of these three philosophical approaches, the scientific materialist understanding of the origins and nature of consciousness, approaches the subject matter from a materialist perspective and highlights the neural correlates of consciousness (Chalmers, et al. [2,3,7]). Neural correlates of consciousness (NCC) “are the minimal neuronal mechanisms jointly sufficient for a specific content, dimension, or structure of consciousness (or the presence of consciousness itself)” (Niikawa [27]). The neural correlates of consciousness (NCC) are operationalized and ascertained through brain-process recording and scanning machines such as functional magnetic resonance imaging (fMRI) and brain stimulation techniques such as repetitive transcranial magnetic stimulation (rTMS) that compare brain recordings of subjects that are conscious against those that are not conscious.

“The difference between these two conditions was operationalized as the NCC, the minimal necessary neural correlates expressed by specific signatures of brain processes differentiating these two conditions as $NCC = C - U$ ” (Bachmann, et al. [28]). The neural correlates of consciousness are further measured by Φ , which is the quantitative measure of consciousness on a continuum vis-à-vis its states of less consciousness (physiological (slow-wave sleep), pharmacological (anesthesia), and pathological (vegetative and coma) states of unconsciousness) to more consciousness (waking-first- and third-persons phenomenal experiences) (Kim, et al. [29]). Four underlying ontological assumptions characterizes NCC,

- 1) Consciousness or subjective awareness is material,
- 2) It is caused by neural processes of the material brain,
- 3) It does not in turn cause psychological processes,
- 4) And it can be measured in degrees, using Φ , from consciousness to no consciousness with alternate states in between.

In this NCC scientific materialist reading regarding the ontological origins and nature of consciousness, the understanding is that matter is fundamental to the constitution of the world/universe/multiverse,

and consciousness is a local, emerging in spacetime, phenomenon that emerges from three structures (the ascending reticular activating system—ARAS—in the brain stem; the frontal, temporal, and parietal lobes of the cerebral cortex; and the thalamus and hippocampus, which connects the cortex and the brain stem) of the evolving material brain (van Lommel [17]). Studies and experiments, using neuroscience recordings and techniques, electroencephalography (EEG), functional magnetic resonance imaging (fMRI), etc., show distinct activities in all three centers during consciousness and impairment of them leads to unconsciousness and coma Baars 1997 (van Lommel, et al. [7,9,17,27-31] Tononi 2004. According to (Bachmann, et al. [28]), “[t]here are two main traditions of research using this [[contrastive analysis]] methodological approach:

1. Studying the general states of consciousness versus unconsciousness for revealing NCC (Tradition-1) and
2. Studying the correlates of the contents [, dimensions, and structures] of consciousness in a conscious subject who in some of the experimental trials (or subconditions of trials) has subjective experience of the target stimulus and in some other conditions does not (Tradition-2)” (p. 1).

An empirically based research example of the latter tradition, (Tradition-2), which highlights the contents and state of consciousness as a product of the mechanical brain, which can be measured using neuroscience machines and techniques, is exemplified by a recently published paper titled, “Neural correlates of the shamanic state of consciousness.” In the study, the researchers investigated “the neural correlates of shamanic trance using high-density electroencephalography (EEG) in 24 shamanic practitioners and 24 healthy controls during rest, shamanic drumming, and classical music listening, followed by an assessment of altered states of consciousness” (Huels, et al. [31]). The former tradition is explored by comparing and contrasting brain functions of brains that are impaired versus the brains which are experiencing waking consciousness. Two theories, with variations within them, contemporarily, dominate the first tradition, (Tradition-1): global neuronal workspace theory (GNWT) and integrated information theory (IIT). The former, (GNWT), posits that consciousness is a physicalist process generated from the frontal and parietal areas of the brain (cerebral cortex) that is dependent on the entire (global networks of the) brain, however, for its emergence and sustainability.

First introduced by (Bernard Baars (1997)), the theory, as it relates to the first tradition, suggests, as (Owen, et al. [30]), who use GNWT to argue that NCC are sufficient for consciousness, highlight, that, within the human brain there is a global workspace that houses information and makes it available to the specialized processing systems throughout the brain.... Since the workspace’s capacity is limited, various information signals compete for the privileged position of being the globally available representation in the workspace. That which comes to occupy the workspace is conscious; the signals that do not make it into the workspace are not conscious. Contemporary proponents of GNW have applied the theory to the neurophysiology

of the neocortex.... Per GNW, an indicator of consciousness is a global broadcast of information involving the activity of a prefrontal-parietal network of long-range cortical neurons corresponding with activity in high-level sensory cortices that receive the broadcast. This makes the information globally available for various functional processes (e.g., speech, memory, action) and thus conscious content, according to GNW (p. 10). Integrated Information theory (IIT), developed by (Giulio Tononi (2004)), is making the same NCC argument regarding the origins and nature of consciousness as GNW but suggests that the process of consciousness emergence is information integrated by, and in, the cerebral cortex, i.e., structure, of the brain. According to IIT, in other words, consciousness involves information that is integrated, and the physical substrate of consciousness is also integrated in that it exemplifies a structure in the central nervous system that exhibits a maximal intrinsic cause-effect power called Phi and symbolized by Φ .

This power manifested by the physical substrate consisting of a causal structure in the central nervous system is consciousness. Thus, given a causal structure that manifests an intrinsic causal power in the central nervous system, consciousness is present because it is the causal power being manifested, according to IIT. Some leading proponents of IIT aim to develop a consciousness meter capable of measuring a patient's level of consciousness by measuring the intrinsic causation manifested in the cortex.... The greater the Φ measurement, the higher the level of consciousness. Likewise, a lower Φ measurement indicates a lower level consciousness, and a negative measurement indicates unconsciousness. Yet as long as there is a positive Φ measurement, which indicates intrinsic causation manifested in the cortex, consciousness is present (Owen, et al. [30]). Both methodological traditions highlighted in the two theories (tradition-1) and the shamanic example (tradition-2) use contrast analysis to suggest, as (Aru, et al. [32]) points out in their assessment of the relationship between contents of consciousness and state of consciousness, "that the state of consciousness can never be dissociated from the contents of consciousness", even though in many instances they are studied and measured separately, which is operationalized as the NCC of the mechanical brain, which produces both (p. 1). Albeit in Eastern traditions, studies exploring forms of meditation and silence, have hypothesized that consciousness without content is possible (Srinivasan, et al. [3,6,33]).

This NCC approach to understanding the origins and nature of consciousness overlooks four problematics, according to scholars of the post-materialist position (B). First, the contrast analysis approach used by researchers to determine NCC over states the correlation between NCC and the physical substrates in, and of, the brain. Consciousness is not only present when the physical substrates of the brain are absent as in the case with subjects who have hydrocephalus, but stimulus in correlational studies are present in the brain before the stimulus are presented to subjects (van Lommel, et al. [17,20,21]). That is to say, in measuring for NCC, using brain recordings, "the neural correlate of consciousness of a stimulus was present earlier than the stimulus itself was presented" to the subjects of studies (Bachmann, et al. [20]). Many NCC researchers do not have an answer for

the former, hydrocephalus, but operationalize the unconscious to account for the latter phenomenon, which the post-materialist camp, in both instances, attributes to the external origins and nature of consciousness (Schwartz, et al. [8,18,20]). Second, NCC has an explanatory gap problem; it cannot explain how the physical properties associated with NCC work to give rise to the phenomenal first-person subjective experience of consciousness (Levine, et al. [1]) Block 1995. Hence, the third problem of NCC: NCC can seemingly account for the "easy problem of consciousness," the relationship between the physical substrates of the brain and contents and states of consciousness; it cannot, however, account for the third problematic, "the hard and binding problems of consciousness" (Chalmers [2]).

The latter problems, "the hard and binding problems of consciousness," are related to the second, in that, as a result of the explanatory gap, NCC cannot account for how the neural correlates combine in the brain (the binding or combination problem) to produce the first-person subjective experience of consciousness and its contents, qualia, also known as "the hard problem of consciousness" (Chalmers [2]). Lastly, NCC research dismisses or cannot completely account for the external and nonlocal (paranormal and parapsychological) evidence for the origins of consciousness argued for by theorists in the (B), post-materialist, camp (Schwartz, et al. [8,18]). According to the latter camp, brain functions fail to explain paranormal and parapsychological phenomenon such as near-death experiences, out of body experiences, telepathy, etc., that occur either outside the spatial confines of the brain or when it ceases to function or dies (van Lommel, et al. [8,9,17,18]). Albeit, recent NCC analysis of near-death experiences, conscious experiences reported by individuals when brain activities cease and are reactivated following cardiac arrests, and its attributes, have proposed, in response to the paranormal and parapsychological takes on the subject matter outlined by post-materialists, that all aspects of the near-death experience have a neurophysiological or psychological basis: the vivid pleasure frequently experienced in near-death experiences may be the result of fear-elicited opioid release, while the life review and REM components of the near-death experience could be attributed to the action of the locus coeruleus-noradrenaline system.

Out-of-body experiences and feelings of disconnection with the physical body could arise because of a breakdown in multisensory processes, and the bright lights and tunneling could be the result of a peripheral to fovea breakdown of the visual system through oxygen deprivation. A priori expectations, where the individual makes sense of the situation by believing they will experience the archetypal near-death experience package, may also play a crucial role (Mobbs, et al. [34]). According to post-materialists, these NCC proposed research topics pertaining to their paranormal and parapsychological evidence, in this case the attributes of near-death experiences, have yet to be operationalized or empirically verified (van Lommel, et al. [8,9,17,18]). Hence, to resolve "the hard and binding problems of consciousness", related to the explanatory gap, and the other two problematics, the evidentiary and contrast analysis problems, which a scientific materialist approach to the ontological origins of conscious-

ness based on NCC neglects are unable to completely explain within the logic of neural correlates, the latter, post-materialist, camp, (B), assumes and proposes a post-materialist approach, which does not deny the scientism of materialism, but suggests that they (materialists) give credence to paranormal and parapsychological evidence, which indicate that consciousness is external to the NCC of the physical brain (van Lommel, et al. [8,9,17,18]).

Using the panspiritist concepts of ancient Hindu, Buddhist, and Vodou metaphysics of consciousness, the mathematics and theories of quantum mechanics, psychic phenomenon, near-death experiences, telekinesis, teleportation, psychokinesis, perimortem experiences, postmortem experiences, and other paranormal and parapsychological phenomenon, post-materialists argue that consciousness, i.e., spirit or mind, and not matter, is fundamental to the creation of matter and life endowed with consciousness and its contents, qualia (van Lommel, et al. [3,8,9,17,18] Mocombe 2020. Post-materialism builds on the philosophical monism of Cartesian idealism/immaterialism, which views consciousness as an ontological distinct substance from materialism, matter, that is fundamental to the world/universe/multiverse and gives rise to consciousness from outside of the brain. Three dominant understanding of idealism dominates the Western philosophical tradition, subjective, objective, and transcendental idealism, upon which post-materialists would construct their scientific approach to understanding the origins and nature of consciousness (Chalmers [2]). Subjective idealism posits that material reality, and its objects, are a product of a perceiving subject, and do not exist outside of their perception. Objective idealism, conversely, argues that an independent, objective consciousness in the world/universe/multiverse, brings about existence and its objects, which exist independently of human consciousness, which shares in this universal consciousness.

Finally, transcendental idealism holds that material reality, and its objects, are real, and exist independently of our minds; however, we do not have access to them as they are in themselves because the mind structures what we see in and as material reality. Hence, all we have access to are the phenomenon of material reality and its objects as they appear to us and are structured by our minds/brains (Russell 1945). The scientific approach of post-materialism, which distinguishes it from scientific materialism (A) and dualism (C), builds on the philosophical monism of subjective and objective idealism to argue that consciousness is a nonlocal and nonemergent spiritual quality (or thinking—immaterial—substance) of the universe that is always around us and becomes embodied. The brain is a receiver of consciousness from the world/universe/multiverse and has no role in determining consciousness; instead, the material brain receives and facilitates consciousness (van Lommel, et al. [3,8,9,17,18]). (Beauregard, et al. [8]), in their analysis and synthesis of the literature on fourteen paranormal and parapsychological empirical studies, which serves as evidence for the post-materialist approach, concluded that the materialist account, (A), regarding the emergence of consciousness from the structure of the brain, NCC, was incomplete. In their article, “Toward a postmaterialist psychology: Theory, research, and

applications,” they reviewed, two categories of empirical evidence that support a shift toward a postmaterialist psychology.

The first category of evidence includes mental events [(out-of-body and near-death experiences, near-death experiences in people born blind, psi phenomena, telepathy, remote viewing, presentiment experiments, effects of intention on non-biological systems, effects of intention on biological systems, and remote staring)] that seem to occur outside the spatial confines of the brain, whereas the second category includes mental events [(near-death experiences during cardiac arrest and clinical death, reincarnation research, mediumship research, and deathbed communications)] that seem to occur when the brain has ceased to function. Taken together, the two bodies of empirical evidence examined... indicate[d] that the idea that the brain creates mind and consciousness is both incomplete and flawed (p. 21). For Beauregard et al., this incomplete and flawed understanding that the brain, its neural correlates, creates mind and consciousness requires an alternative approach to materialism, i.e., post-materialism, to account for the fourteen paranormal and parapsychological empirical data that the former does not take into account, or dismiss outrightly, to explain how consciousness emerges in the world/universe/multiverse outside of the neural correlates of the physical brain. Moreover, by arguing that consciousness is a fundamental substance of the universe that is either outside of material reality (cosmopsychism) or permeates everything, i.e., panpsychism, becomes embodied, and emerge, the post-materialist camp resolves the explanatory gap, contrast analysis, and hard problem of consciousness raised by materialist accounts by suggesting that subjective consciousness is an external substance that is either

1. Embodied, or
2. Emerges (emergentism) as subjects evolve from simple to complex organizations.

However, these two takes are unable to explain the binding or combination problem of the hard problem of consciousness. This embodiment and emergent arguments proposed by post-materialists, in other words, leads to another variation of the binding or combination problem of the hard problem of consciousness, i.e., if consciousness is fundamental and superservient to the neural correlates of the material brain, how does it emerge, and or combine, from simple to complex entities with consciousness (Chalmers, et al. [2,3,21,35]). Cosmopsychism, in keeping with the logical tradition of panspiritism as expressed in Hinduism, Buddhism and Vodouism, which views spirit or God as fundamental out of which individuated consciousness was created, attempts to resolve this problem by arguing, contrary to traditional panpsychism, which views the psychism as micro and emerging in all matter, that scholars must view the psychism of the world/universe/multiverse that is fundamental as devolving from the macro, cosmic (spiritual) level, to the micropsychic level (Shani, et al. [3,35-47]). However, this position is also problematic as it introduces the binding or combination problem in reverse, i.e., how does macro-consciousness decomposes from the cosmos, spirit, or God to give rise to individual subjective phenomenal experiences of consciousness.

Hence, for these two perspectives, materialism and post-materialism, (A) and (B), the origins and nature of consciousness are diametrically opposed given the evidence of the phenomenon.

For the materialist camp, matter is fundamental, gives rise to consciousness, which is local (in spacetime), emergent, a product of the structure of the mechanical brain, and finite (ends at death); evidence of and for the phenomenon is grounded in the physical structure of the brain, i.e., the neural correlates of consciousness, NCC, which can be assessed and accessed via neuroscience techniques and recordings. Moreover, the fourteen parapsychological data proposed by the post-materialist camp to account for consciousness are said, from the materialist camp, to either be illusions, phenomenon generated by the neural and chemical correlates of the brain, or scientifically untestable and unverifiable (Dennett, et al. [20,23, 34,36,37,48-60]). The post-materialist camp disagrees with this materialist account and posits that the neural correlates of the brain and neuroscience techniques cannot both discount the external occurrence of consciousness, as revealed by their contrast analysis problem, and account for the subjective nature of consciousness, i.e., the hard and binding problems of consciousness, which, for post-materialists, emanates from outside of the brain (van Lommel, et al. [8,9,17,18]). Thus, for theorists of this position, consciousness is fundamental, infinite, nonlocal (beyond spacetime), nonemergent, and a spiritual quality of the world/universe/multiverse that is embodied or received by the brain; evidence of, and for, the phenomenon, from this perspective, is grounded in fourteen paranormal and parapsychological experiences that occur either outside the spatial confines of the brain or when it ceases to function or dies (Table 2).

Hence, for the post-materialist camp, a materialist account of consciousness is incomplete or dismissive of its paranormal and parapsychological empirical data (Schwartz, et al. [8,18,61-68]). This post-materialist position is not without its problems, however, which is highlighted by the binding or combination issue of the hard problem of consciousness, which plagues materialists. That is, post-materialists cannot account for how consciousness emerges from either outside or inside the brain to bind or combine consciousness in simple and complex entities to give them the unity of conscious experience manifested in material reality (Pockett, et al. [3,22,23,35]). The third (less) scientific position, (C), which builds on philosophical dualism and attempts to synthesize the conclusions of materialism and post-materialism in order to resolve their problematics, especially the binding or combination problem of consciousness, via quantum mechanics, is a pseudo-dualist position that simply ends up either reflecting a materialist or post-materialist approach, but never both. In other words, the scientific dualist approach attempts to use the physics of quantum mechanics and subatomic particle energy to either account for the fourteen paranormal and parapsychological evidence of post-materialists, or the external (material) origins of consciousness and how it emerges in and is bound by the brain, which either becomes information and memories embodied and impacted by the physical substrate of the material brain as in the case of orchestrated objective reduction theory, ORCH-OR theory, or emerges in the elec-

tromagnetic field produced by the firing of neurons in the brain as posited in conscious electromagnetic field, CEMI theory, (Hameroff, et al. [8,19,38,68-75]).

In either case these so-called scientific dualist positions are far removed from philosophical dualism; instead, they are materialist positions, which attempt to either account for the conclusions of materialism and post-materialism while eschewing the evidentiary rubrics of the latter, or utilizes quantum theory to ground the paranormal and parapsychological data. In either case, both positions fail to resolve the binding or combination problem of consciousness (Pockett, et al. [22,23,76-84]). Philosophical dualism, the basis of scientific dualism, is dominated by five approaches, naturalistic, substance, property and predicate dualism, and neutral monism. Naturalistic dualism, as outlined by (Chalmers [2]), views mental and physical states as properties of the natural world; however, the former, mental states, are not only ontologically distinct from and not reducible to physical systems, such as the brain, but supervene on the latter (neuroplasticity and the placebo effect are evidence of this position). Substance dualism posits that consciousness is a product of a thinking (immaterial) substance that is distinct from material (physical) reality; the individual is constituted by these two substances, material and immaterial, which exist separately from one another, but come together to give rise to the individual person with consciousness. Property dualism, similar to Chalmers's naturalistic dualism, suggests that the immaterial and material substances of the substance dualists are two different properties of one, physical, substance; the mental properties associated with consciousness exist in or supervenes upon the physical substance that is the brain.

Predicate dualism simply highlights the fact that mental terms and processes, predicates, are needed to understand the world/universe/multiverse but are not reducible to the physical predicates that explain the phenomenon of consciousness or the mind. Finally, neutral monism accepts the existence of both physical and mental properties but concludes that they are the by-product of a neutral underlying reality that is neither mental nor physical. For the most part, scientific dualism, builds on the ontology of substance and property dualism. Normally referred to as the interactionist or dualist approach in the scientific academic literature, it attempts to either use the empirical data (multiverse, superposition, quantum entanglement, and wavefunction realism) of quantum mechanics to ground the fourteen paranormal and parapsychological phenomenon of the post-materialists, which suggests that the brain facilitates consciousness, or synthesize the conclusions (not their evidence) of the two, materialist (A) and post-materialist (B), positions through both the concepts neural correlates of consciousness and cosmopsychism and panpsychism, which argues that consciousness is either outside of material reality and everywhere around us or in everything, respectively, to resolve the problematics (the explanatory gap, the contrast analysis problematic, and the hard problem of consciousness and its binding or combination problem) associated with both camps. The first position puts dualists in the post-materialist camp, and the second in the materialist.

In the former position, post-materialist/dualist, theorists use the conceptual evidence of quantum mechanics to account for the fourteen aforementioned paranormal and parapsychological data to highlight the external origins of consciousness in the form of either panspiritism/cosmopsychism or panpsychism. The latter, materialist/dualist, position synthesizes the conclusions of materialism and post-materialism using NCC to ground the panspiritism of ancient Hindu, Buddhist, and Vodou metaphysics and the panpsychism and cosmopsychism they deduce from the mathematics and theoretical concepts of quantum mechanics, which opposes the materialism of general relativity upon which the (A) camp emerges. This latter position is highlighted by two, out of over twenty-three, dominant contemporary positions (Table 1):

1. Consciousness is either received by the brain (panspiritism/cosmopsychism) or emerges (panpsychism) in it via its neural correlate activities; and
2. The material brain produces an electromagnetic field through the firing of neurons, where consciousness emerges and resides.

These two premises of material dualists is exemplified by the research undergirding two dominant contemporary theories, i.e., orchestrated objective reduction theory (ORCH-OR), which represents the first position; and conscious electromagnetic field theory (CEMI), which represents the second (Hameroff, et al. [19,38,85-100]). The ORCH-OR (“orchestrated objective reduction”) theory of Stuart (Hameroff, et al. [19]), which includes aspects of (A) and (B), posits, in their article, “Consciousness in the universe: A review of the ‘orch or’ theory,” that “consciousness consists of discrete moments, each an ‘orchestrated’ quantum-computational process terminated by... an action [,objective reduction or OR,] rooted in quantum aspects of the fine structure of space—time geometry, this being coupled to brain neuronal processes via microtubules” (p. 70). In this view, which is an allusion to panspiritism via a panpsychism that builds on the mathematics and theories of quantum mechanics, the understanding is that a proto-conscious experience existed in the universe, panpsychism, and as a result of emergent structures of the brain it (proto-conscious experience, psychion) became embodied and evolved as a result of quantum neuronal computations of simple and complex “brains”. That is to say, in the protein structures, microtubules, of the neurons of the brain, which serves or acts like a quantum supercomputer, information and memories, i.e., phenomenal experiences, qualia, are stored and processed to orchestrate human conscious awareness.

This latter position is neither pushing forth a spiritual understanding of consciousness as highlighted by physicists and other scientists, post-materialist dualists, who, using paranormal and parapsychological evidence, view consciousness as emerging out of and seated in the mind of a God whose spiritual essence, substance, our consciousness partakes; nor is it a complete dualist (interactionist) interpretation as alluded to in the conscious electromagnetic field (CEMI) theory of Johnjoe (McFadden [38]) who, in his article, “Integrating information in the brain’s em field: The cemi field theory of consciousness”, wants

to hold on to the brain’s neurons (material substance) and its electromagnetic field (energy/spiritual substance) as the generator and seat of consciousness, respectively. Like McFadden’s field theory, which posits that the structure of the brain through the firing of neurons produces its electromagnetic field where consciousness emerges, lies, and impacts the brain (neuroplasticity), ORCH-OR theory is a materialist account of consciousness constitution in the world/universe/multiverse that is able to account for the explanatory gap and the evidentiary and contrast analysis problematic by arguing for a panpsychic or panspiritist understanding of consciousness that is embodied and emerges; it is, however, unable to resolve the binding or combination problem of consciousness constitution.

That is, ORCH-OR theory can explain how consciousness becomes embodied, panpsychism, qualia, as memories and information, is already in material things, it cannot explain, as in the case with the materialism of NCC, how it (qualia) binds in the microtubules to produce the unity of conscious experience. McFadden’s CEMI theory attributes the solution to the binding problem to the electromagnetic field of the brain, produced by its neural correlates, which stores and binds the memories and experiences of consciousness. This solution is also problematic due to the fact that memories and experiences in the electromagnetic field of the brain, produced by its NCC, are not conscious awareness, i.e., the hard problem of consciousness; nor does it explain the binding problem associated with the latter, i.e., how do memories and information bind to produce the phenomenal subjective experience of consciousness (Pockett, et al. [3,23,101-115]). McFadden’s computationalist field theory is one of nine contemporary field theories, dualist field theory, reductionist field theory, realist field theory, globalist field theory, localist field theory, interactionist field theory, epiphenomenalist field theory, and consciousness field theory, which attempts to resolve the binding or combination problem of consciousness. They all suggest that consciousness is identical to or derived from the electromagnetic fields generated by neural currents of the mechanical brain. According to (Mostyn W Jones [39]), who outlines the different field theories,

- a) Dualist field theory: Minds are non-physical products or correlates of global electromagnetic fields in brains.
- b) Reductionist Field Theory: Minds are reduced to certain spatio-temporal patterns in global electromagnetic fields and neuroelectrical activity.
- c) Realist Field Theory: Minds are the underlying physical nature of localized (vs. global) neuroelectrical activity. Minds are hidden in this activity behind what instruments and reflected light show.
- d) Globalist Field Theory: The mind’s unity comes from global fields pervading large brain areas. The fields’ structures aren’t pictorial like images are.
- e) Localist Field Theory: Mental unity comes from highly localized fields reaching continuously along circuitry membranes. Images reside there in pictorial form behind appearances (this relies on realist field theory).

f) Interactionist Field Theory: Neurons generate conscious fields that act back on voltage-gated channels in neurons, thus creating free will.

g) Epiphenomenalist Field Theory: Neurons generate conscious fields that don't significantly affect neurons and lack free will (p. 4-5).

Seven of these field theories are similar to McFadden's computationalist position in that the binding or combination problem is resolved through the electromagnetic field of the brain, which binds the memories and experiences of consciousness, which in and of themselves are not consciousness. (McFadden's, et al. [4,5,38,116-126]) positions are the latest iteration of field theory. Like McFadden's and the other seven aforementioned theories, Mocombe's emergent consciousness field theory attributes consciousness early on in its constitution, at the beginning of spacetime and aggregate matter, to the neural currents of conduits, i.e., the ARAS and the central nervous system. This is where the similarities end, however. Mocombe goes on to argue that the neural currents of the brain, and central nervous system, in connection with the Schumann wave of the earth emerge to constitute a distinct material substance, psychion/psychon, that evolves as a fifth force of nature, which creates global and local fields (the latter, local fields, in the constitution of entangled material realities and the former, global fields, when incorporated in the absolute vacuum). Hence for Mocombe, whereas McFadden's theory, and the aforementioned seven field theories, are materialist theories that fail to take into account the hard problem of consciousness and the evidentiary positions of post-materialism to explain the origins and nature of phenomenal consciousness.

His consciousness field theory (CFT), conversely, does so by combining emergentism and field theory with ORCH-OR theory in the language of materialism, which takes into account the data of post-materialism to give a complete (materialist) account of how consciousness emerges in the world/universe/multiverse while avoiding the other three problematics (explanatory gap, contrast analysis, and the hard and binding problems).

Mocombe argues that consciousness, early on (at the very beginning of the evolution of aggregate matter), emerges from the initial neuronal activities of the brainstem and central nervous system experiencing local material reality, which produces its first phenomenal essence, i.e., qualia, which is the affect of pleasure and unpleasure (Solms, et al. [4,5,21]). This initial essence, which produces other emerging essences (emergent essence), phenomenal experiences, qualia, via the brain, body, and the central nervous system, held together by the brain's electromagnetic field, once constituted from experience of material realities with Schumann waves, is absorbed and recycled throughout a global consciousness field (cosmopsychism) created by the absolute vacuum, zero-point field where all the elementary particles of the multiverse are, following matter disaggregation, of the multiverse to continuously produce beings with (local) consciousness, psychion/psychon, that have phenomenal properties or qualia, which become embodied in the physical substrates of the

brain to facilitate consciousness, which can be impaired if the mechanical brain is damaged or under the influences of drugs, alcohol, etc.

Hence neural correlates of the brain come to facilitate and act on consciousness, which following matter aggregation is a fifth force, psychion, of nature with phenomenal properties, mass, charge, and spin, resonating as an individuated channel or station of the material brain from the absolute vacuum or zero-point field in entangled and superimposed Schumann waves of material realities. Future research must

1. Continue to search for evidence of multiverses and other forms of existence tied to our present world, which will be similarly constituted as our own universe, and
2. Seek proofs for the existence of the field of consciousness or consciousness field and its elementary particle, psychion, based on paranormal and parapsychological research, in order to falsify or verify Mocombe's consciousness field theory, and overall theory of phenomenological structuralism.

References

1. Levine J (1983) Materialism and qualia: The explanatory gap. *Pac. Philos. Quarterly* 64: 354-361.
2. Chalmers DJ (1996) *The conscious mind: In search of a fundamental theory*. Oxford University Press.
3. Taylor S (2020) An introduction to panspiritism: An alternative to materialism and panpsychism. *Zygon* 55(4): 898-923.
4. Mocombe PC (2021a) Consciousness field theory. *Archives in Neurology & Neuroscience* 9(4): 1-6.
5. Mocombe PC (2021b) The consciousness field. *Advances in Bioengineering & Biomedical Science Research* 5(1): 11-16.
6. Paoletti P, Ben Soussan TD (2020) Reflections on Inner and Outer Silence and Consciousness Without Contents According to the Sphere Model of Consciousness. *Frontiers in Psychology* 11: 1807.
7. Halligan PW, Oakley DA (2021) Giving Up on Consciousness as the Ghost in the Machine. *Frontiers in Psychology* 12: 571460.
8. Beauregard M, Trent NL, Schwartz GE (2018) Toward a postmaterialist psychology: Theory, research, and applications. *New Ideas in Psychology* 50: 21-33.
9. Van Lommel P, R van Wees, V Meyers, I Elfferich (2001) Near-death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *Lancet* 358(9298): 2039-2045.
10. Mocombe PC (2019) *The Theory of phenomenological structuralism*. Cambridge Scholars Publishing.
11. Mocombe PC (2019) Haitian Epistemology, Phenomenological Structuralism, and Resolving the Binding and Hard Problems of Consciousness. *Archives in Biomedical Engineering & Biotechnology* 2(4): 1-10.
12. Habermas Jürgen (1987) *The Theory of Communicative Action Volume 2: Lifeworld and System: A Critique of Functionalist Reason*. Boston: Beacon Press.
13. Habermas Jürgen (1984) *The Theory of Communicative Action: Reason and the Rationalization of Society (Volume 1)*. Boston Beacon Press.

14. Bourdieu Pierre (1984) *Distinction: A Social Critique of the Judgement of Taste* Richard Nice, Trans. Cambridge MA Harvard University Press.
15. Bourdieu Pierre (1990) *The Logic of Practice* Richard Nice, Trans. Stanford, California Stanford University Press.
16. Crick F, Koch C (1990) Toward a neurobiological theory of consciousness. *Semin Neurosci* 2: 263-275.
17. Van Lommel P (2010) *Consciousness beyond life: The science of the near-death experience*. HarperCollins Publishers.
18. Schwartz GE (2012) *Consciousness, Spirituality, and Postmaterialist Science: An Empirical and Experiential Approach*, pp. 581-594.
19. Hameroff Stuart, Roger Penrose (2014) *Consciousness in the universe: A review of the 'orch or' theory*. *Physics of Life Reviews* 11(1): 39-78.
20. Bachmann T (2015) On the brain-imaging markers of neural correlates of consciousness. *Frontiers in Psychology* 6: 868.
21. Solms M (2019) *The Hard Problem of Consciousness and the Free Energy Principle*. *Frontiers in Psychology* 9: 2714.
22. Kastrup B (2018) *The Universe in Consciousness*. *Journal of Consciousness Studies* 25(5-6): 125-55.
23. Pockett S (2014) Problems with theories that equate consciousness with information or information processing. *Frontiers in Systems Neuroscience* 8(225): 1-3.
24. Chen S, Xinhui Wu, Lubin Wang, Yituo Wang, Bing Wu, et al. (2018) Disrupted Interactions Between Arousal and Cortical Awareness Networks in MCS and VS/UWS Patients: Evidence from Resting-state Functional Imaging Connectivity. *Neuroscience* 382: 115-124.
25. Creswell JW (2009) *Research design: Qualitative, quantitative, and mixed methods approaches (3rd Edn.)*, Sage Publications.
26. Meijer KFD, Geesink JHH (2017) *Consciousness in the Universe is Scale Invariant and Implies an Event Horizon of the Human Brain*. *NeuroQuantology* 15(3): 41-79.
27. Niikawa T (2020) *A Map of Consciousness Studies: Questions and Approaches*. *Frontiers in Psychology* 11: 530152.
28. Bachmann T, Hudetz AG (2014) It is time to combine the two main traditions in the research on the neural correlates of consciousness: C= LxD. *Frontiers in Psychology* 5:940.
29. Kim H, Anthony G Hudetz, Joseph Lee, George A Mashour, UnCheeol Lee, et al. (2018) *Estimating the Integrated Information Measure Phi from High Density Electroencephalography during States of Consciousness in Humans*. *Frontiers in Human Neuroscience* 12: 42.
30. Owen M, Guta MP (2019) *Physically Sufficient Neural Mechanisms of Consciousness*. *Frontiers in Systems Neuroscience* 13: 24.
31. Huels Emma R, Kim Hyoungkyu, Lee UnCheol, Bel Bahar, Tarik Colmenero, et al. (2021) *Neural correlates of the shamanic state of consciousness*. *Frontiers in Human Neuroscience* 15: 610466.
32. Aru J, Motoaka Suzuki, Reante Rutiku, Matthew E Larkum, Tails Bachmann (2019) *Coupling the State and Contents of Consciousness*. *Frontiers in Systems Neuroscience* 13(43).
33. Srinivasan N (2020) *Consciousness Without Content: A Look at Evidence and Prospects*. *Frontiers in Psychology* 11: 1992.
34. Mobbs D, Watt C (2011) *There is nothing paranormal about near-death experiences: how neuroscience can explain seeing bright lights, meeting the dead, or being convinced you are one of them*. *Trends in Cognitive Sciences* 15(10): 447-449.
35. Shani I, Keppler J (2018) *Beyond Combination: How Cosmic Consciousness Grounds Ordinary Experience*. *Journal of the American Philosophical Association* 4(3): 390-410.
36. Dennet DC (1992) *Consciousness Explained*. London: Penguin.
37. Rock AJ, Storm L (2015) *Testing Telepathy in the Medium/Proxy-Sitter Dyad: A Protocol Focusing on the Source-of-Psi Problem*. *Journal of Scientific Exploration* 29(4): 565-584.
38. McFadden J (2020) *Integrating information in the brain's em field: The cemi field theory of consciousness*. *Neuroscience of Consciousness* 6(1): 1-13.
39. Jones MW (2013) *Electromagnetic-Field Theories of Mind*. *Journal of Consciousness Studies* 20(11-12): 1-26.
40. Askenasy J, Lehmann J (2013) *Consciousness, brain, neuroplasticity*. *Frontiers in Psychology* 4: 412.
41. Baars BJ (1988) *A Cognitive Theory of Consciousness*. Cambridge University Press.
42. Beauregard M, Gary E Schwartz, Lisa Miller, Larry Dossey (2014) *Manifesto for a Post-Materialist Science*. *EXPLORE* 10(5): 272-274.
43. Berkovich Ohana A, Dor Ziderman Y, Trautwein FM, Schweitzer Y, Nave O, et al. (2020) *The Hitchhiker's Guide to Neurophenomenology – The Case of Studying Self Boundaries with Meditators*. *Frontiers in Psychology* 11: 1680.
44. Block N (2005) *Two neural correlates of consciousness*. *Trends Cogn Sci* 9(2): 46-52.
45. Block N, MacDonald C (2008) *Phenomenal and access consciousness*. *Proc Aristotelian Soc CVIII: 289-317*.
46. Bourdieu P (1986) *The Forms of Capital*. In JE Richardson (Eds.), *Handbook of Theory and Research for the Sociology of Education*. Westport Greenwood Press: 241258.
47. Chalmers DJ (1995) *Facing up to the problem of consciousness*. *J Conscious Stud* 2: 200-219.
48. Chalmers DJ (2000) *What is a neural correlate of consciousness? in Neural Correlates of Consciousness Empirical and Conceptual Questions* ed T Metzinger Cambridge MA MIT Press, p. 17-39.
49. Chalmers DJ (2006) *Strong and weak emergence*. in *The Reemergence of Emergence* ed P Clayton and P Davies Oxford UK: Oxford University Press, pp. 244-255.
50. Chennu S, Bekinschtein TA (2012) *Arousal modulates auditory attention and awareness: Insights from sleep, sedation, and disorders of consciousness*. *Frontiers in Psychology* 3: 65.
51. Chen Y, Zhang J (2021) *How Energy Supports Our Brain to Yield Consciousness: Insights from Neuroimaging Based on the Neuroenergetics Hypothesis*. *Frontiers in Systems Neuroscience* 15: 648860.
52. Creswell JW (2013) *Qualitative Inquiry & Research Design: Choosing Among Five Approaches (3rd Edn.)*, Sage.
53. Crick F (1994) *The Astonishing Hypothesis: The Scientific Search for the Soul*. Scientific Research.
54. Crick F, Koch C (1998) *Consciousness and neuroscience*. *Cereb Cortex* 8(2): 97-107.
55. Crick F, Koch C (2003) *A framework for consciousness*. *Nat Neurosci* 6: 119-126.
56. Demertzi A, Charlene Liew, Didier Ledoux, Marie Aurélie Bruno, Michael Sharpe, et al. (2009) *Dualism Persists in the Science of Mind*. *Annals of the*

- New York Academy of Sciences 1157: 1-9.
57. Demertzi A, Caroline Schnakers, Andrea Soddu, Marie Aurélie Bruno, Olivia Gosseries, et al (2011) Neural plasticity lessons from disorders of consciousness. *Frontiers in Psychology* 1: 245.
 58. Dennet DC (2016) Illusionism as the Obvious Default Theory of Consciousness. *Journal of Consciousness Studies* 23(11-12): 65-72.
 59. Dennett DC (2018) Facing up to the hard question of consciousness. *Phil Trans R Soc B Biol Sci* 373(1755): 20170342.
 60. Erickson DL (2011) Intuition, Telepathy, and Interspecies Communication: A Multidisciplinary Perspective. *NeuroQuantology* 1: 145-152.
 61. Eriksson J, Fontan A, Pedale T (2020) Make the Unconscious Explicit to Boost the Science of Consciousness. *Frontiers in Psychology* 11: 260.
 62. Feinberg ET, Mallatt J (2016) The nature of primary consciousness. *A new synthesis. Consciousness and Cognition* 43: 113-127.
 63. Feinberg TE, Mallatt J (2020) Phenomenal Consciousness and Emergence: Eliminating the Explanatory Gap. *Frontiers in Psychology* 11: 1041.
 64. Fesce R (2020) Subjectivity as an Emergent Property of Information Processing by Neuronal Networks. *Frontiers in Neuroscience* 14: 548071.
 65. Gamez D (2014) The measurement of consciousness: a framework for the scientific study of consciousness. *Frontiers in Psychology* 5 (714).
 66. Gauthier R (2020) Big bangs created by univon particles from a conscious quantum field—towards the next scientific revolution.
 67. Giddens Anthony (1984) *The Constitution of Society: Outline of the Theory of Structuration*. Cambridge: Polity Press.
 68. Greyson B (2010) Implications of Near-Death Experiences for a Postmaterialist Psychology. *Psychology of Religion and Spirituality* 2(1): 37-45.
 69. Gutland C, Cai W, Fernandez AV (2021) Editorial: Integrating Philosophical and Scientific Approaches in Consciousness Research. *Frontiers in Psychology* 12: 683860.
 70. HarLev Y (2021) Five-dimensional universe. *Academia Letters* 1428: 1-3.
 71. Havlík M, Kozáková E, Horáček J (2017) Why and How. The Future of the Central Questions of Consciousness. *Frontiers in Psychology* 8: 1797.
 72. Hunt T (2011) Kicking the Psychophysical Laws into Gear: A New Approach to the Combination Problem. *Journal of Consciousness Studies* 18 (11-12): 96-134.
 73. Hunt T, Schooler JW (2019) The Easy Part of the Hard Problem: A Resonance Theory of Consciousness. *Frontiers in Human Neuroscience* 13: 378.
 74. Kastrup B (2017) An Ontological Solution to the Mind-Body Problem. *Philosophies* 2(10): 1-18.
 75. Kennedy M (2007) Defining a literature. *Educational Researcher* 36(3): 139-147.
 76. Keppler J (2020) The Common Basis of Memory and Consciousness: Understanding the Brain as a Write-Read Head Interacting with an Omnipresent Background Field. *Frontiers in Psychology* 10: 2968.
 77. Keppler J, Shani I (2020) Cosmopsychism and Consciousness Research: A Fresh View on the Causal Mechanisms Underlying Phenomenal States. *Frontiers in Psychology* 11: 371.
 78. Kitsonn A, Chirico A, Gaggioli A, Riecke BE (2020) A Review on Research and Evaluation Methods for Investigating Self-Transcendence. *Frontiers in Psychology* 11: 547687.
 79. Koch C (2004) *The Quest for Consciousness: A Neurobiological Approach*. Englewood CO Roberts Company.
 80. Lacalli T (2020) Evolving Consciousness: Insights from Turing, and the Shaping of Experience. *Frontiers in Behavioral Neuroscience* 14: 598561.
 81. Lou HC, Thomsen KR, Changeux J (2020) The Molecular Organization of Self-awareness: Paralimbic Dopamine-GABA Interaction. *Frontiers in Systems Neuroscience* 14: 3.
 82. Manzotti R (2019) Mind-Object Identity: A Solution to the Hard Problem. *Frontiers in Psychology* 10: 63.
 83. Maung HH (2019) Dualism and its place in a philosophical structure for psychiatry. *Medicine Health Care and Philosophy* 22(1): 59-69.
 84. McLeod SA (2007) Mind body debate.
 85. Miller SM (2014) Closing in on the constitution of consciousness. *Frontiers in Psychology* 5: 1293.
 86. Moser J, Siouar Bensaid, Eleni Kroupi, Franziska Sch legar, Fabrice Wendling, et al. (2019) Evaluating Complexity of Fetal MEG Signals: A Comparison of Different Metrics and Their Applicability Julia Moser. *Frontiers in Systems Neuroscience* 13: 23.
 87. Nannini S (2018) The mind-body problem in the philosophy of mind and cognitive neuroscience: a physicalist naturalist solution. *Neurological Sciences* 39(9): 1509-1517.
 88. Nelson KR, et al (2006) Does the arousal system contribute to near death experience? *Neurology* 66(7): 1003-1009.
 89. Newberg A, Newberg S (2010) Psychology and Neurobiology in a Post-materialist World. *Psychology of Religion and Spirituality*, 2(2): 119-121.
 90. Ouwersloot G, Derksen J, Glas G (2020) Reintroducing Consciousness in Psychopathology: Review of the Literature and Conceptual Framework. *Frontiers in Psychology* 11: 586284.
 91. Pennartz CMA, Farisco M, Evers K (2019) Indicators and Criteria of Consciousness in Animals and Intelligent Machines: An Inside-Out Approach. *Frontiers in Systems Neuroscience* 13: 25.
 92. Pepperell R (2018) Consciousness as a Physical Process Caused by the Organization of Energy in the Brain. *Frontiers in Psychology* 9: 2091.
 93. Polák M, Marvan T (2018) Neural Correlates of Consciousness Meet the Theory of Identity. *Frontiers in Psychology* 9: 1269.
 94. Polák M, Marvan T (2019) How to Mitigate the Hard Problem by Adopting the Dual Theory of Phenomenal Consciousness. *Frontiers in Psychology* 10: 2837.
 95. Porta LD, Feranda S Matis, Alferedo J Dos Santos, Ana Alonso, Pedro V Carrelli, et al. (2019) Exploring the Phase-Locking Mechanisms Yielding Delayed and Anticipated Synchronization in Neuronal Circuits. *Frontiers in Systems Neuroscience* 13: 41.
 96. Rivas T (2003) Three Cases of the Reincarnation Type in the Netherlands. *Journal of Scientific Exploration* 17(3): 527-532.
 97. Sahlins Marshall (1995a) *How "Natives" Think: About Captain Cook, For Example*. Chicago University of Chicago Press.
 98. Sahlins Marshall (1995b) *Historical Metaphors and Mythical Realities*. Ann Arbor University of Michigan Press.
 99. Sahlins Marshall (1990) The Political Economy of Grandeur in Hawaii from 1810 1830. In Emiko Ohnuki-Tierney (Edn.), *Culture through Time Anthropological Approaches*, p. 26-56.
 100. Sahlins Marshall (1989) Captain Cook at Hawaii. *The Journal of the Polynesian Society* 98(4): 371-423.

101. Sahlins Marshall (1985) *Islands of History*. Chicago University of Chicago Press.
102. Sahlins Marshall (1982) The Apotheosis of Captain Cook. In Michel Izard and Pierre Smith (Eds.), *Between Belief and Transgression*, p. 73-102.
103. Sahlins Marshall (1976) *Culture and Practical Reason*. Chicago, IL: University of Chicago Press.
104. Safron A (2020) An Integrated World Modeling Theory (IWMT) of Consciousness: Combining Integrated Information and Global Neuronal Workspace Theories with the Free Energy Principle and Active Inference Framework; Toward Solving the Hard Problem and Characterizing Agentic Causation. *Frontiers in Artificial Intelligence*, p. 3: 30.
105. Schwartz GE, Marjorie Woollacott, Stephan A Schwartz, Imants Baruss, Mario Beauregard, et al (2017) The Academy for the Advancement of Postmaterialist Sciences: Integrating Consciousness into Mainstream. *Explore* 14(2): 111-113.
106. Searle JR (2004) *Mind: A Brief Introduction*. Oxford University Press.
107. Sheldrake R, Smart P (2003) Experimental tests for telephone telepathy. *Journal of the Society for Psychical Research* 67: 184-199.
108. Sheldrake R, Avraamides L (2009) An Automated Test for Telepathy in Connection with Emails. *Journal of Scientific Exploration* 23(1): 29-36.
109. Sheldrake R (2014) Telepathy in Connection Text Messages with Telephone Calls, and Emails. *Journal of International Society of Life Information Science* 32(1): 7-15.
110. Sikkens T, Bosman CA, Olcese U (2019) The Role of Top-Down Modulation in Shaping Sensory Processing Across Brain States: Implications for Consciousness. *Frontiers in Systems Neuroscience* 13: 31.
111. Silberstein M, Chemero A (2015) Extending Neutral Monism to the Hard Problem. *Journal of Consciousness Studies* 22(3-4): 181-94.
112. Singer W (2019) A Naturalistic Approach to the Hard Problem of Consciousness. *Frontiers in Systems Neuroscience* 13: 58.
113. Spindler LRB, Andrea I Luppi, Ram M Adapa, Michael M Craig, Peter Coppola, et al (2021) Dopaminergic brainstem disconnection is common to pharmacological and pathological consciousness perturbation. *PNAS*, 118 (30): e2026289118.
114. Stapp HP (2005) Quantum Interactive Dualism: An Alternative to Materialism. *Journal of Consciousness Studies* 12(11): 43-58.
115. Strauss C, Quinn N (1997) *A Cognitive Theory of Cultural Meaning*. Cambridge University Press.
116. Storm LC, Rock AJ (2015) Testing telepathy in the medium/proxy-sitter dyad: A protocol focusing on the source-of-psi problem. *Journal of Scientific Exploration* 29(4): 565-584.
117. Timmermann C, Roseman L, Williams L, Erritzoe D, Martial C, et al. (2018) DMT Models the Near-Death Experience. *Frontiers in Psychology* 9: 1424.
118. Thompson E, Varela FJ (2001) Radical embodiment: neural dynamics and consciousness. *TRENDS in Cognitive Sciences* 5(10): 418-425.
119. Tononi G, Sporns O, Edelman GM (1994) A measure for brain complexity: Relating functional segregation and integration in the nervous system. *Proc Natl Acad Sci USA* 91(11): 5033-5037.
120. Tyler CW (2015) The emergent dualism view of quantum physics and consciousness. *Cosmos and History: The Journal of Natural and Social Philosophy* 11(2): 97-114.
121. Tyler CW (2020) Ten Testable Properties of Consciousness. *Frontiers in Psychology* 11: 1144.
122. Van Leeuwen TM, Singer W, Nikolic D (2015) The Merit of Synesthesia for Consciousness Research. *Frontiers in Psychology* 6: 1850.
123. Vimal RLP (2008) Proto-experiences and subjective experiences: Classical and quantum concepts. *Journal of Integrative Neuroscience* 7(1): 49-73.
124. Wendt A (2018) The mind-body problem and social science: Motivating a quantum social theory. *Journal Theory of Social Behavior* 48(2): 188-204.
125. Winter U, LeVan P, Borghardt TL, Akin B, Wittmann M, et al. (2020) Content-Free Awareness: EEG-fcMRI Correlates of Consciousness as Such in an Expert Meditator. *Frontiers in Psychology* 10: 3064.
126. Zhou J, Liu X, Song W, Yang Y, Zhao Z, et al. (2011) Specific and non-specific thalamocortical functional connectivity in normal and vegetative states. *Conscious Cogn* 20(2): 257-268.

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