

Dual-Aspect Monism, Mind-Matter Complementarity, Self-Continuity and Evolutionary Panentheism

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Abstract: Physicalism as a worldview and framework for a mechanistic and materialist science seems not to have integrated the tectonic shift created by the rise of quantum physics with its notion of the personal equation of the observer. Psyche had been deliberately removed from a post-Enlightenment science. This paper explores a post-materialist science within a dual-aspect monist conception of nature in which both the mental and the physical exist in a relationship of complementarity so that they mutually exclude one another and yet are together necessary to explain Reality while being irreducible to one another. Both mind and matter emerge from an underlying holistic domain known as the *unus mundus* in the Jung-Pauli formulation or as the analogous *implicate order* in the framing of physicist David Bohm and his colleagues. Kuhnian anomalies such as the role of reflective consciousness in evolution, and phenomena including so-called “near death experiences” (NDEs), are considered from the perspective of dual-aspect monism in conjunction with an emerging evolutionary panentheism.

Keywords: archetypes, complementarity, consciousness, dual-aspect monism, evolutionary panentheism, numinous experiences, quantum physics.

INTRODUCTION

A Copernican revolution in science and religion could reconcile both perspectives which have been apparently irreconcilable opposites since the Enlightenment, each operating within two hermetically isolated *magisteria* (i.e., sources of doctrine and authority whether in science or in theology); one empirical, the other theological. However, the published work of psychiatrist C. G. Jung, physicists Wolfgang Pauli, David Bohm, Basil Hiley and Paavo Pyykkänen, the Jesuit palaeontologist Pierre Teilhard de Chardin, and other modern thinkers, outline a process whereby matter

evolves in increasing complexity from sub-atomic particles to the human brain, and the emergence of a reflective consciousness leading towards a *noosphere*, or divine focus of mind. Consciousness is the mirror which the universe has evolved to reflect upon itself and in which its very existence is revealed. In evolutionary *panentheism*, mind and matter exist in a relationship of complementarity where neither is reducible to the other, while God is immanent in nature although also transcending of it. Thus the universe and the divine are not ontologically equivalent.

While providing a critique of dogmatic physicalism in the light of several empirically supported Kuhnian anomalies, this paper presents a case for a dual-aspect monist understanding of ontology in which mind is as much a fundamental feature of Reality as is matter itself. In his book *The Structure of Scientific Revolutions* (1996), Thomas Kuhn describes anomalies as phenomena which consistently resist explanation within particular scientific theories. Panentheism is explored as an account of a metaphysical vision concerning the ultimate nature of that Reality which is encoded in the world's great mystical traditions.

THE DEMISE OF DOGMATIC PHYSICALISM

The doctrine of physicalism, which is still the dominant paradigm in materialist science, has eliminated psyche and consciousness from the traditional scientific understanding of cosmology and evolution, including that of humankind. Hence, concepts of extended mind, or non-local consciousness are ruled out of existence in a classical, mechanistic, scientific worldview, as are any theological or metaphysical notions of reality. As Edward Kelly notes, in the book *Beyond Physicalism*, which he co-edited with Adam Crabtree and Paul Marshall (Kelly, Crabtree, & Marshall, 2015), the “physicalist consensus ... rests upon an outdated conception of nature, deriving from Galileo, Descartes, Newton, and Laplace, that began its career by deliberately banishing conscious human minds from its purview!” (Kelly, 2015, p. 32). Furthermore, that classical, mechanistic, model of nature was “undermined by a tectonic shift in the foundations of physics itself—specifically, the shift driven by the rise of quantum mechanics early in the twentieth century” (p. 32). Not only did this paradigm shift in physics result in the rejection of the rigid causal determinism which was characteristic of the classical, mechanistic worldview, physicists including Wolfgang Pauli and Henry Stapp, have argued that the conscious human mind, by playing a “critical role” in completing quantum mechanics and directing cultural evolution, created the conditions for the collapse of the classical doctrine of the “causal closure or completeness of the physical” which entails the denial of free-will (2015, p.

33). Both an unchallenged causal determinism, and the dogma that mind and consciousness are mere epiphenomenal by-products of neural processes, characterised the classical, mechanistic physical worldview. The hegemonial pretence of dogmatic physicalism is that naturalising the mind means explaining mental states, including consciousness, exclusively in terms of brain states (Atmanspacher, 2014, p. 246).

Pauli, having collaborated with Jung, thus enriching archetypal psychology with insights from quantum physics, argued for a relationship of complementarity between mind and matter, as well as a worldview which embraced both rational understanding and the mystical experience of unity or holism. The collective unconscious of Jung corresponded to quantum non-locality in physics, as I shall explain in considering dual-aspect monism and a meaningful reconciliation of science and religion that is both spiritually satisfying and compatible with an expanded empirical science which permits mind and consciousness to become accessible to research rather than being banished from the magisterium of science by *a priori* definition.

Jungian scholar and academic, Professor Roderick Main (2017), in his paper *Panentheism and the Undoing of Disenchantment*, presents an elaborate argument for what he perceives as Jung's pantheistic later thought, which I shall outline in considering the concept of a numinous reality immanent in cosmology and evolution and yet transcendent in nature. I believe that Main's contribution is vital to the urgent project of reconciling science and religion while converging with the insights of Teilhard de Chardin (1959, 1964) with his notions of a global noosphere and the evolution of reflective consciousness towards an 'Omega point', or divine focus of mind. The doctrine of physicalism (metaphysical materialism) could be construed as potentially a menace to the re-sacralisation and conservation of the earth.

With regard to Kuhnian anomalies which challenge dogmatic physicalism, Kelly (2015, pp. 32-33) lists nine principal mental and psychophysical phenomena which he regards as firmly established or empirically probable, and yet beyond the explanatory reach of conventional physicalism. In what follows, I shall consider primarily evidence for near-death experiences, post-mortem survival which I consider to be a related phenomenon, mystical states and the role of reflective consciousness in cultural evolution as examples of anomalies for dogmatic physicalism. I agree with Kelly's view that an empirical understanding of post-mortem survival would facilitate a more solid scientific grasp of the other anomalies (e.g., psi) as well. If dogmatic physicalism is true, then none of the anomalies listed by Kelly (2015), and Main (2017), would be possible, while consciousness itself would continue to be viewed as a mere epiphenomenal or illusory by-product of neural processes in the brain. The

role of reflective consciousness in directing the future of cosmic evolution is incompatible with physicalist dogma. Such a framework necessarily rules out any possibility of post-mortem survival or self-continuity beyond death as the defenders of metaphysical materialism insist. The existence of consciousness independent of brain processes and directing cosmic evolution entail the continuity of the self and consciousness beyond death.

THE HOMUNCULUS CONCEIT

Physicalist philosophers including Daniel Dennett (1978) deride attempts to provide a scientific framework for the Kuhnian anomalies which challenge the primacy of the materialist doctrine concerning what nature must be (rather than providing an explanation of nature). As Kelly has noted, “cognitive models cannot function without a homunculus ... precisely because they lack what we have—*conscious minds*” (2015, p. 30). The conflation of the self with an homunculus leads to an infinite regress in physicalism because any residue of dualism is supposed to rely upon the metaphor of the “Cartesian Theater”, a space where mental contents are displayed and human beings (selves) allegedly drop in separately to view them, like characters on stage or in a movie.

However, no homunculus problem is created by the structure of conscious experience itself. According to Kelly and his colleagues, consciousness is not a merely passive epiphenomenon; it plays an essential role not only in completing quantum physics (as suggested by physicists Wolfgang Pauli, Henry Stapp and others), but also in cultural evolution. As physicist Stapp (2015) wrote in chapter five of *Beyond Physicalism*:

The profound change in the dynamical role of us observers was repeatedly emphasised by Bohr and the other founders [of quantum mechanics], in statements such as: “in the drama of existence we are ourselves both actors and spectators”.... [and citing William James, 1890/1950, p. 236] “It is to my mind quite inconceivable that consciousness should have *nothing to do* with a business which it so faithfully attends”. (p. 169)

As Kelly (2015) has pithily expressed it, “reductive physicalism, far from being equipped to solve the so-called ‘easy’ problems of consciousness, has in fact nothing useful to say about *any* aspect of consciousness” (p. 31).

To re-capitulate, reductionist materialism is itself a metaphysical doctrine about what nature must be rather than being an explanation of it. This is ideology masquerading as science. As Atmanspacher (2014) has pointed out

... many of the great hopes and promises that the enunciators of the so-called “decade of the brain” ... generated are still unfulfilled today.... The naive idea of one-to-one neural correlates of conscious states has proven pure fantasy.... the lack of success of physicalist approaches toward one of the deepest questions in the history of humankind, the nature of mind-matter correlations, entails the search for alternative approaches. (p. 246)

In other words our brains produce neither consciousness nor the human phenomenological experience of personal self-identity. As Stapp (2015) wrote

Some physicists have tried to remove consciousness from the quantum-mechanical description and thereby return to the seventeenth-century classical idea of man as an essentially mindless machine. But that move defeats the whole purpose of science, which is to provide an empirical-evidence-based, hence conscious-experience-based, understanding of the world in which we find ourselves in order to bring to pass what we consciously value. (p. 174)

An epiphenomenon can have none of the causal efficacy which this statement of Stapp attributes to consciousness in his remark about human beings as actors rather than spectators in the cosmic drama. In the evolutionary and pantheistic theology of Teilhard de Chardin reflectively conscious human beings have become business managers for cosmic evolution; an absurd notion if physicalism is true.

In a somewhat different argument, Hiley and Pylkkänen (2005) propose what they regard as a coherent way to understanding how mental processes (understood as involving non-classical physical processes) can act upon traditional, classically described neural processes without violating the conservation of energy law. The alleged violation of this law has been invoked by physicalist philosophers to discredit any and all attempts to impute causal significance to mind and consciousness. In particular they propose that the notion that mind affects neural processes

does not merely require the postulation of quantum effects triggering neural processes in the brain, but the additional idea that something else, active information, contained in the “mind-field” [a term coined by neuroscientist John Eccles] can in turn affect the quantum potential. This goes beyond the predictions of standard quantum theory and implies that we do not propose that mind can be reduced to the quantum level. Instead, the idea is that the mind can be seen as a relatively autonomous, higher level of active information, which has both a physical and mental aspect. (Hiley & Pylkkänen, 2005, p. 24)

Perhaps the most compelling alternative to physicalism which permits scientific research into mental and numinous aspects of Reality is dual-aspect monism with its roots in the process philosophies of Baruch de Spinoza and Alfred North Whitehead.

DUAL-ASPECT MONISM

In his 2012 paper titled, *Dual-Aspect Monism à la Pauli and Jung*, Atmanspacher begins by contrasting developments in the philosophy of mind notably dual-aspect monism and neutral monism. These positions in turn have their roots in reactions to the ontologically conceived dualism of the mental and the material in the philosophy of Rene Descartes. On page one of his paper, Atmanspacher refers to Baruch de Spinoza as “an early protagonist” of the notion that a monistic domain underlies the mind-matter distinction. An ontological monism is combined with an epistemological dualism. Contemporary reactions to Spinozism have come to be designated as dual-aspect monism and neutral monism. Atmanspacher writes

1. For neutral monists, both mind and matter reduce to an underlying, neutral domain, while for dual-aspect monists mind and matter are two basic and irreducible aspects of that underlying domain.
2. For neutral monists, ... the mind-matter distinction is assumed to be preformed in the neutral domain: particular configurations of neutral elements underlie the mental while other, distinct configurations of neutral elements underlie the material.... Their empirical, hence anti-metaphysical, inclination explains why their notions of the neutral domain bear the risk of confusing the neutral with some mental capacity.... By contrast, dual-aspect monists do not hesitate to embrace ontology and metaphysics. (2012, pp. 1-2)

In his later 2014 paper titled, *Twentieth Century Variants of Dual-Aspect Monism*, Atmanspacher has provided an incisive critique of neutral monism (see p. 252), while arguing the case for dual-aspect monism (see p. 264) with its underlying ontological Reality of the *unus mundus* as a metaphysical interpretation of Jung’s concept of the collective unconscious. This interpretation is consistent with a panentheistic understanding of Jung’s later thought on the numinous.

THE JUNG-PAULI COLLABORATION

Physicist Wolfgang Pauli and psychiatrist Carl Gustav Jung collaborated between 1932 and 1958. Pauli wanted to enrich Jung’s

archetypal psychology with insights from quantum physics in a shared search for a worldview more compatible with the evolving body of scientific knowledge than that proposed by philosophers. Their joint target was the psychophysical problem: “How is the interface between the mental and the physical to be understood, on which idea of reality can it be grounded[?]” (Atmanspacher, 2014, p. 251). A dual-aspect monist concept of Reality in which mind and matter exist in a relationship of complementarity would provide an ontology compatible with pantheism.

I now turn to an account of the Jung-Pauli notion of the complementarity between mind and matter. To that end, the materialist philosophy of mind, proposed by Bertrand Russell (a neutral monist), his pupil Ludwig Wittgenstein, and other positivist thinkers, including the once elite Vienna Circle of philosophers, needed to be replaced by a dual-aspect position in which mind was as much a fundamental dimension of reality as matter: Thus restoring a lost wholeness to human understanding of the evolving cosmos. The restoration of psyche would have profound implications for such pantheistic theologies as that of Teilhard de Chardin whose work was influenced by the philosophies of Baruch de Spinoza and Russell North Whitehead. Teilhard himself was well aware of the potential menace of metaphysical materialism. In his magnum opus *The Phenomenon of Man*, Teilhard (1959) wrote:

The radical defect in all forms of belief in progress, as they are expressed in positivist credos, is that they do not definitely eliminate death. What is the use of detecting a focus of any sort in the van of evolution if that focus can and must one day disintegrate? To satisfy the ultimate requirements of our action, Omega must be independent of the collapse of the forces with which evolution is woven ... (p. 270)

Teilhard (1964) expresses the same view in *The Future of Man*. He rejects the Marxist notion of a culmination in an eventual state of collective reflection and participation in which the individual becomes one with (subsumed into) the whole social system. He wrote: “A world culminating in the Impersonal can bring us neither the warmth of attraction nor the hope of irreversibility (immortality) without which individual egotism will always have the last word” (p. 287).

Today, Teilhard (like Jung and Pauli) would probably be regarded as a dual-aspect monist in his pantheistic theology and rejection (like Jung and Pauli) of materialism. Teilhard was particularly aware of the de-spiritualising dangers implicit in metaphysical materialism and in such totalitarian systems of thought as Marxism.

Next, I shall first outline the variant of dual-aspect monism which emerged from the extensive collaboration between Nobel laureate physicist

Wolfgang Pauli and psychiatrist Carl Gustav Jung whose panentheistic thought has been outlined recently by Main (2017) to whose work I shall be referring.

THE JUNG-PAULI VARIANT OF DUAL-ASPECT MONISM

Physicist Wolfgang Pauli was one of the architects of early quantum theory having won the Nobel Prize in 1946 for his formulation of the Exclusion Principle, which helped to explain the ordering of elements on the periodic table. Psychiatrist Carl Gustav Jung was a pioneer in the emergence of archetypal, depth psychology with its concept of a collective unconscious. Jung re-habilitated psyche after its banishment from the mechanistic, classical physics of Newton. Just as psyche was being expelled from a radical behaviouristic psychology, it was being re-discovered as the personal equation of the observer in quantum mechanics.

Pauli and Jung were especially concerned with the so-called “psychophysical problem” which they believed had not been solved by a one-sided and reductionist physicalist (materialist) doctrine of nature from which the mental had been exorcised by an *a priori* definition of what constituted scientific knowledge. The framework of the Jung-Pauli variant of dual-aspect monism emerged from Pauli’s knowledge of the principles of quantum physics, especially perhaps the notion of complementarity which Pauli wanted to extend beyond physics to explain other dualities including that between mind and matter, and science and religion.

In Pauli’s words, “It would be most satisfactory if physis and psyche could be conceived as complementary aspects of the same reality” (Pauli, 1952, cited in Atmanspacher, 2014, p. 252). Atmanspacher adds: “Two or more descriptions of a phenomenon are complementary if they mutually exclude one another and yet are together necessary to describe the phenomenon exhaustively” (p. 252). This notion excludes reductionism of either an idealist or materialist nature while being necessarily incompatible with dogmatic physicalism and scientific materialism.

In conjunction with complementarity and just as important for ontology

Pauli regarded the analogy from *quantum holism*, or quantum non-locality, which matched perfectly with Jung’s conception of a basic reality which does not consist of parts but is one unfragmented whole – the *unus mundus*. Starting with this holistic, psychophysically neutral reality, aspects such as the mental and the physical are generated by *decomposition* of the whole (Atmanspacher, 2014, p. 252)

As Atmanspacher (2014) also notes: “This is a decisive difference from the neutral monism à la Russell, where the aspects are created by composing psychophysically neutral elements. While *composition* entails that the mental and the material are reducible to these elements, the decompositional approach renders reduction to the whole impossible” (p. 252). Thus in the Jung-Pauli variant of dual-aspect monism,

the mental and the material are manifestations of an underlying, psychophysically neutral, holistic reality, called *unus mundus*, whose symmetry must be broken to yield dual, complementary aspects. From the mental, the neutral reality is approached via Jung’s collective unconscious, from the material, it is approached via quantum nonlocality. (Atmanspacher, 2014, p. 253)

I shall explore later the metaphysical implications of this framing of the *unus mundus* with its archetypal, cosmic ordering and regulating principles, as well as its compatibility with pantheism in theology.

In their dual-aspect monist position, Jung and Pauli turn the compositional move upside down so that their neutral domain is holistic with the mental and the material emerging by decomposition; an idea which resonates with a basic philosophical insight of quantum theory. More specifically,

conceiving the psychophysically neutral domain holistically rather than atomistically reflects the spirit of a corresponding move in quantum theory, which started out as an attempt to finalise the atomistic worldview of the 19th century and turned it into a fundamentally holistic one. (Atmanspacher, 2014, p. 285)

Furthermore, “Dual-aspect thinking invites the option to be interpreted in the spirit of panpsychism, the doctrine that mind is a fundamental feature of the world which exists throughout the universe” (p. 258). The Jung-Pauli notion of the *unus mundus* is analogous to Bohm’s *implicate order* to be explored in the next section.

THE IMPLICATE ORDER AND THE DUAL-ASPECT MONISM OF BOHM

Physicist David Bohm formulated a dual-aspect monist account of the mind and matter relationship almost synchronously with the proposal being developed by Jung and Pauli. In Bohm’s framework, the mind-matter distinction is part of an explicate order which unfolds from a psychophysically neutral *implicate order* without that distinction. Hence, according to Bohm, mental and physical states emerge by explication or

unfoldment from an undivided, holistic, *implicate order* which is analogous to the *unus mundus* in the Jung-Pauli framework of dual-aspect monism. Because the *implicate order* is not static, but essentially dynamic in nature and in a constant process of change and evolution, Bohm uses the term ‘holomovement’ to characterise it. All things found in the unfolded explicate order emerge from the holomovement in which they are enfolded as potentialities and ultimately fall back into it. This means that “Bohm’s aspect monism is not only holistic as in the Jung-Pauli scheme, it is also fundamentally based on process rather than substance” (Atmanspacher, 2014, pp. 256-257).

Philosopher Paavo Pylkkänen has summarised the shift from the atomism of classical, mechanistic physics to the holism characteristic of the quantum revolution. Pylkkänen wrote, “with quantum physics, ... the whole scheme of philosophical atomism is challenged, and one is forced to consider some radically holistic basic principles.... In the context of [Bohm’s] “implicate order” ... mind and matter are analogous to non-locally connected [entangled] quantum systems” (2014, pp. 86-87). By contrast, the Jung-Pauli variant of dual-aspect monism seems to regard both structural and dynamical features—for instance of the archetypes—as being of equal importance.

According to Atmanspacher (2014),

By “bringing the implicate into form”, Bohm’s active information [as the link between mind and matter] can be seen very much in accordance with the archetypal ordering principles in the Jung-Pauli scheme. (p. 258)

In his paper, “Dreams and Fantasies of a Quantum Physicist”, Karl von Meyenn (2011) refers to Pauli’s notion that “consciousness is the late-born offspring of the unconscious soul” (p. 11), and to the concept of an invisible reality (the unconscious) which is manifest in archetypal symbols. To illustrate this analogy further, I shall refer to two quotations, one from Pauli, the other from Bohm. In his chapter co-authored with Wolfgang Fach in *Beyond Physicalism*, Atmanspacher cites the following statement by Pauli (in a letter to his colleague Markus Fierz) concerning the psychophysically neutral domain beyond the mental and the material:

The ordering and regulating factors must be placed beyond the distinction of “physical” and “psychic”—as Plato’s “ideas” share the notion of a concept and a force of nature (they create actions out of themselves). I am very much in favour of referring to the “ordering” and “regulating” factors in terms of “archetypes”; but then it would be inadmissible to define them as contents of the psyche. The mentioned inner images (“dominant features of the collective unconsciousness” after Jung) are rather psychic manifestations of the archetypes which, however, would also have to put forth, create, condition

anything lawlike in the behavior of the corporeal world. The laws of this world would then be the *physical manifestations of the archetypes* Each law of nature should then have an inner correspondence and vice versa, even though this is not always directly visible today. (Atmanspacher & Fach, 2015, p. 204)

Physical and mental manifestations of the *unus mundus* arise in correlation and this is due to the joint ordering archetypal factors.

For Jungians, the shadow and the anima/animus complex are the first and least deeply-seated archetypes of whose manifestations individuals become conscious in the form of symbols and images in dreams, or through the practice of active imagination. More fundamental archetypes are the numinous Self as the goal of the individuation process and the archetype of number, including unity, duality, trinity, and quaternity. In his later essays on religion Jung wrote of the Mass as the rite of the individuation process and of Christ as a symbol of the Self. The corresponding statement from Bohm (1990, p. 283f, cited in Atmanspacher, 2014) is:

A rudimentary mind-like quality is present even at the level of particle physics, and as we go to subtler levels, this mind-like quality becomes stronger and more developed. Each kind and level of mind may have a relative autonomy and stability. One may then describe the essential mode of relationship of all of these as *participation*, recalling that the word has two basic meanings, to *partake of* and to *take part in*. (p. 258)

Correlations of the mental and the physical result from the fact that both are projections of the same underlying *implicate order* just as they emerge from the *unus mundus* due to decomposition of the whole into the dual aspects for Jung and Pauli. Jung's notion of archetypes evolved into a concept of transcendental or metaphysical principles. Atmanspacher observes that in both holistic variants of dual-aspect monism, the notion of meaning plays a significant role in two respects. First, the experience of meaning characterises synchronistic correlations between mental and material events in the sense of Jung. In the corresponding Bohm account, experienced meaning is due to correlations between mental and material states which arise as a result of unfolded active information.

Second, there is also an implicit (not yet explicated) sense of meaning. For Bohm this is conceived as active information, while for Jung and Pauli, it is enfolded in the symbolic content of unconscious, archetypal ordering factors, and it unfolds when the archetype is constellated. Both the *unus mundus* and the *implicate order* are characterised by holism and non-locality.

THE MESSAGE OF THE ARCHETYPES

Before moving to a discussion of the metaphysical nature of symbols, I wish to conclude this section by commenting upon the evolution which occurred in Jung's thought; in particular, his statement that "the efficacious elements of the unconscious, ... the so-called *archetypes*, can therefore not with certainty be designated as *psychic*" (Jung, 1960, para. 439, cited in Atmanspacher, 2012, p. 13). In *Beyond Physicalism*, Atmanspacher (2015) writes:

This peculiarly cautious formulation is due to the shift that Jung's conception with respect to archetypes underwent from early ideas about (biological) hereditary instincts ... to his final notion of ... transcendental (or metaphysical) principles. The early 1950s was the time that this move became visible in Jung's publications" (2015, p. 203).

This period was one during which Jung (1958) wrote some of his most radical essays in his treatment of religion and theology. In these, Jung treated Christianity as a patient in analysis (Stein, 1986) needing the restoration of a lost wholeness symbolically represented, for instance in cosmic mandala symbols. Hence, dual-aspect monism in the philosophy of mind accommodates what from the perspective of physicalism would be anomalous and inconceivable, exceptional mystical and numinous experiences. As Kelly (2015) notes in chapter 14 of *Beyond Physicalism*, "the Jung-Pauli conception of an underlying ontic reality, the *unus mundus*, ... amounts to a metaphysical interpretation of Jung's concept of the collective unconscious ..." (p. 496). In the 2011 edition of the *Mind and Matter* journal, Atmanspacher observes in his Editorial that

Insofar as the psychophysically neutral reality ... is of ontic nature, it has a clearly metaphysical flavor. But it must not be misunderstood as a thought construct lacking actual existence. Metaphysics taken seriously in the sense of Pauli and Jung refers to a kind of reality more substantial, more "material" as it were, than everything that physics and psychology would characterise as "real".... It refers to a cognitive mode in which understanding is achieved by abstract symbols. These may be mathematically expressed, but they may also appear as symbols in the sense of Jung. (2011, pp. 3-4)

Atmanspacher and physicist Karl von Meyenn (2011, p. 11) both use the German word "*unanschaulich*" to characterise the reality of archetypal symbols that indicate an objective order in the cosmos of which humanity is part, but which also transcends humanity. Atmanspacher refers directly to a statement contained in a letter from Pauli to his colleague Markus Fierz on August 12, 1948:

When the layman says “reality”, he usually thinks that he is talking about something self-evident and well-known; whereas to me it appears to be the most important and exceedingly difficult task of our time to establish a new idea of reality What I have in mind concerning such a new idea of reality, is – in provisional terms – the *idea of the reality of the symbol*. On the one hand, a symbol is a product of human effort, on the other hand it indicates an objective order in the cosmos which humans are only part of (Pauli, 1948, cited in Atmanspacher, 2011, p. 4)

For Jung, symbols indicate archetypal ideas or archetypes which do not refer to explicitly accessible elements of everyday reality. In the Jung-Pauli variant of dual-aspect monism and regarding the *unus mundus*, from the mental, this neutral reality is approached via Jung’s collective unconscious while from the material it is approached via quantum nonlocality. The idea of the cosmic and transcendent nature of archetypes is fundamental to panentheism as, for example, Main (2017) has noted. These notions are incompatible with a promissory materialist scientific doctrine concerning the nature of Reality. If consciousness exists independently of the brain, and if the exceptional phenomenon of NDEs occur in states of verified cardiac arrest during which brain activity ceases within 6.5 seconds, as van Lommel, Sam Parnia and others suggest, then a purely materialist science, which denies the possibility of these anomalies, cannot provide a complete account of Reality.

TOWARDS PANENTHEISM: ANOMALIES FOR PHYSICALISM

I now outline some phenomena which may constitute serious Kuhnian anomalies for physicalism as a scientific worldview. (I have defined the nature of anomalies in the introduction to this essay.) Dutch cardiologist Pim van Lommel, in his book *Consciousness Beyond Life: The Science of the Near Death Experience* (2010), has provided an extensive review of both the phenomenology and the verifiable physical conditions which appear to be necessary conditions for the occurrence of NDEs. He writes that, “lucid consciousness can be experienced independently of the brain and body” and of what he describes as “compelling evidence that the NDE occurs during the period of clinical death and not shortly before or after the cardiac arrest” (2010, p. 161). Van Lommel refers to the conclusions of psychiatrist Bruce Greyson, intensive care physician Sam Parnia, and neuropsychiatrist Peter Fenwick, regarding the apparent paradox of lucid consciousness during cardiac arrest and loss of brain function. Quoting Bruce Greyson:

The paradoxical occurrence of heightened, lucid awareness and logical thought processes during a period of impaired cerebral perfusion [blood flow] raises particularly perplexing questions for our current understanding of consciousness and its relation to brain function. As prior researchers have concluded, a clear sensorium and complex perceptual processes during a period of apparent clinical death challenge the concept that consciousness is localised exclusively in the brain. (Greyson, 2003, cited in van Lommel, 2010, p. 162)

Quoting Sam Parnia and Peter Fenwick:

The data suggests that in this cardiac arrest model, the NDE arises during unconsciousness. This is a surprising conclusion, because when the brain is so dysfunctional that the patient is deeply comatose, the cerebral structures which underpin subjective experience and memory must be severely impaired. Complex experiences such as are reported in the NDE should not arise or be retained in memory. Such patients would be expected to have no subjective experience, . . . as those cerebral modules which generate conscious experience and underpin memory are impaired by cerebral anoxia. (Parnia & Fenwick, 2001, cited in van Lommel, 2010, pp. 162-163)

Thus, van Lommel argues, “the first symptoms of oxygen deficiency are recorded on the average 6.5 seconds after the onset of cardiac arrest. If the heartbeat is not immediately restored, the complete loss of all electrical activity in the cerebral cortex always results in a flat EEG after ten to twenty seconds, a mean of fifteen seconds” (p. 164).

Perhaps most fundamental to the understanding of NDEs is the mystical and non-local character of the phenomenology of reported experiences. Referring to Bruce Greyson, van Lommel writes, “Near death experiences are profound psychological events with transcendental and mystical elements, typically occurring to individuals close to death or in situations of intense physical or emotional danger” (Greyson, 2000, cited in van Lommel, 2010, p. 8). However, crucial to undermining dogmatic physicalism is the evidence that such mystical and self-transformative experiences actually occur during cardiac arrest and an absent or flat EEG indicating a lack of electrical activity in the brain. According to materialist doctrine, such phenomenological experiences would be regarded as impossible under these circumstances, as would post-mortem survival.

Regarding the phenomenology of NDEs van Lommel refers to Raymond Moody’s (1975) first book which outlined twelve NDE elements while emphasising that most people experience only a few. Perhaps the most striking of these elements and those commonly reported are the ineffability of the experience, a feeling of peace with the absence of pain, a tunnel experience in being drawn towards a small pinpoint of light (which

becomes all enveloping of the experiencer), seeing a Being of light with complete acceptance and unconditional love, gaining access to deep knowledge and (cosmic) wisdom, the panoramic life review which is non-local and timeless, and the conscious return to the body often accompanied by disappointment at having something so beautiful taken away, or alternatively, a heightened sense of tasks yet to be fulfilled and loss of the fear of death with enhanced spirituality (for details, see van Lommel, 2010, pp. 11-12). Below is an account of my own personal and transformative NDE.

PERSONAL NDE: PHENOMENOLOGY

Atmanspacher (2007) has referred to near death experiences (NDEs) which “transcend the individual in a transpersonal sense” (p. 133). My personal NDE occurred during severe complications following triple by-pass coronary surgery on August 1, 2005. I had been given a maximum loading of aspirin and clopidogrel for an attempted stenting procedure to unblock three occluded coronary arteries. The degrees of occlusion were at least ninety, eighty, and sixty percent, respectively, in the three arteries. Stenting was unsuccessful, releasing considerable plaque, and so I was scheduled for an emergency coronary by-pass operation on the same evening with no time to reduce the aspirin and clopidogrel administered in the morning. The cardio-thoracic surgeon successfully completed the by-pass; however, within a short time, I experienced a 1600ml blood clot, pleura and mediastinum (lungs and chest cavity). I was taken back to the operating theatre for emergency surgery to relieve the life-threatening blood clot. During this procedure, I experienced cardiac arrest which required multiple attempts to resuscitate me with a defibrillator, leaving severe bruising. The phenomenology of my NDE was as follows:

My finite ego-consciousness felt connected to a rapturously beautiful Light, a loving Presence and a Source of wisdom which seemed to be cosmic, infinite, numinous, timeless and eternal, not spatiotemporally bound and without any apparent beginning or end. The Light seemed to be far brighter than the external sun, boundless and all enveloping. I experienced what seemed to be augmented wisdom in fields of knowledge beyond what I had formally studied and a sense of numinous becoming in which I was participating. I also experienced the presence of departed visionaries including Teilhard de Chardin and Carl Jung who were among those who had inspired my previous work especially with people dying of AIDS. I was filled with a profound sense of tasks yet to be fulfilled and contributions to be made to science, and humanity; work which might further the work of those who had come before me, especially in depth psychology, psychoanalysis and

religion, and an inward vision of participating in a Copernican revolution in science and a mystical theology which would replace archaic doctrines and an interventionist God external to the cosmos. The numinous experience was of a cosmic and radiantly beautiful Presence though not anthropomorphic in form. The experience was formless except for that of the rapturously beautiful enveloping Light and sense of Presence.

Afterward, the world seemed to be pristine, re-newed, sacralised and transfigured in my consciousness. My first comment to a friend as consciousness returned was “God is so beautiful!” The Unconscious God archetype which I seem to have encountered during the NDE filled me with a sublime sense of the oceanic unity of all people and faith traditions as well as the integration of science and religion. What I described as the Source during the experience became the inspiration for the work which I have since published and presented, especially on depth psychology and a numinous dimension of evolutionary becoming. This notion of a numinous dimension implicit in cosmology and evolution is pantheistic in nature, as is the process theology of Teilhard de Chardin and others. I still access some of the elements of the NDE in dreams and meditative states. My book published on these themes is titled *The Individuation of God: Integrating Science and Religion* (Todd, 2012).

After returning home from hospital after a forty-four day admission, still fragile and weak from the operations and peritonitis, I sat with the support of a loving friend and typed a sixty-thousand-word manuscript which became the basis for the book and articles in the interdisciplinary journal, *Mind and Matter* (Todd, 2008) and the journal of the American Teilhard Association, *Teilhard Studies* (Todd, 2013).

Kelly (2015) observes

that persons who experienced OBEs or NDEs, including highly educated modern persons, typically find it virtually impossible to resist the conviction that they have vacated their ordinary bodies (or experienced cardiac arrest) and yet continued to function as fully conscious or even hyperconscious agents usually in some sort of embodied form These intense experiences in fact often lead to expectations of post-mortem survival, accompanied by profound reduction in any pre-existing fears of death. (p. 506)

Moreover, in cardiac arrest there is no brain activity in the form considered in contemporary neuroscience to be the necessary and indispensable condition for conscious experience. The absence of such neuroelectric activity should preclude the vivid, even heightened awareness, thinking and memory formation as well as the mystical elements of NDEs.

On the basis of decades of empirical research into such anomalies for physicalism as NDEs, Kelly (2015) has concluded, “In our collective

Sursem judgement, we are very close to the point to justify belief in the possibility if not indeed the likelihood of one's own personal survival [post-mortem existence]" (p. 13). The acronym "Sursem" refers to the so-called "survival seminar" which comprises physical, biological and social scientists as well as scholars of religion, philosophers and historians of science.

THE ANOMALY OF CONSCIOUSNESS ITSELF

Perhaps the most intractable anomaly for materialist science is the existence of reflective consciousness itself, particularly if perceived as the mirror which the universe has evolved to reflect upon itself and in which its very existence is revealed. As physicists Wolfgang Pauli and Henry Stapp have expressed it, not only is consciousness not a mere illusion or epiphenomenal by-product of brain processes, human beings have become through reflective consciousness actors and not spectators in the drama of cosmology and evolution. Dual-aspect thinking suggests that mind is a fundamental feature of Reality which exists throughout the universe. In his book *The Undivided Universe*, Bohm postulated human participation in "a greater collective mind in principle capable of going indefinitely beyond the human species as a whole" (2002, p. 386). This is analogous to the Jung-Pauli insight that archetypal symbols indicate an objective order of the cosmos of which humans are part but which also transcends humanity (see also, Atmanspacher, 2011, pp. 3-7).

Regarding the evolutionary significance of consciousness, the visionary thought of Teilhard de Chardin could be construed as a globally significant contribution with its notions of a noosphere or membrane of consciousness superimposed upon the biosphere, and of the interconnectedness and sacredness of all beings and of the earth itself. In his glowing endorsement of Teilhard's (1959) magnum opus *The Phenomenon of Man*, the eminent evolutionary biologist Julian Huxley (1959) wrote in the Introduction:

With his conception of mankind as at the same time an unfinished product of past evolution and an agency of distinctive evolution to come, [Teilhard] wanted to deal with the entire human phenomenon, as a transcendence of biological by psychosocial evolution" (Huxley, 1959, cited in Teilhard de Chardin, 1959, p. 24)

Humankind finds itself in the unexpected position of being business managers for the cosmic evolutionary process. Teilhard asks, "How could we imagine a cosmogenesis reaching right up to mind without being

confronted with a noogenesis? Man discovers that he is nothing else than evolution become conscious of itself, to borrow Julian Huxley's striking expression (Teilhard de Chardin, 1959, p. 221). While cosmogenesis denotes the evolution of the cosmos, noogenesis is a more specific term referring to the unfolding of a global membrane of consciousness connecting all human beings.

Teilhard predicted that humanity not only participates in a numinous dimension, but also in co-creative divinisation by directing the future evolution of the biosphere and the noosphere. Concerning a transcendent order in cosmogenesis and the culmination of a continuing process of incarnation, Teilhard (1959) wrote:

In Omega we have in the first place the principle we needed to explain both the persistent march of [things] towards greater consciousness By its radial nucleus it finds its shape and natural consistency in gravitating against the tide of probability towards a divine focus of mind which draws it onward. (p. 271)

Through ongoing incarnation in humanity, God in Teilhard's thought becomes conscious and is completed by humankind in directed evolution. Although he probably never explicitly embraced panentheism as a Jesuit palaeontologist for whom the cosmic Christ was the fulfilment of the natural evolution of beings, I believe that his theology could accurately be described as panentheistic. I now turn to panentheism as a new theological paradigm in which science and spirituality could be reconciled.

PANENTHEISM: FIVE DEFINING ATTRIBUTES

In the Abrahamic faiths, God tends to be construed as utterly transcendent, ontologically and functionally separate from the world rather than immanent and evolving with it. However, as Jung noted, the doctrine of the Incarnation itself implies a profound intersection of God and humankind. It is the notion of a purely transcendent and interventionist God which has been an irrelevant hypothesis since Newton, while perpetuating the schism between science and religion. Beyond classical theism is an emerging panentheism in which the numinous or divine is both immanent in cosmology and evolution and yet transcendent of both with something more.

In chapter fourteen of *Beyond Physicalism*, Edward Kelly outlines five properties which he believes define panentheism. The panentheistic God is characterised by being eternal and temporal, conscious knowing of the world and world inclusive, God fills the world but there is something

left over as in theism (2015, p. 531). With respect to understanding the nature of the something left over or the transcendent function, Main (2017), relates this to the cosmic God archetype. Both Jung and Pauli during their collaboration outlined a worldview which integrated rational understanding and the mystical experience of unity.

There seems to be a convergence between the panentheism implicit in Jung's later thought on religion and that of Teilhard de Chardin, for whom a numinous reality implicit in cosmology and evolution becomes conscious of itself through incarnation in humanity so that "our struggle is that of the universe itself" (Kelly, 2015, p. 541). In evolutionary panentheism, the *deus implicitus* (implicit God) becomes in and through humanity a *deus explicitus* (explicit God). Panentheism is grounded on a few fundamental principles. First, evolution is a fact (which becomes conscious of itself through humanity), second our universe is constituted by a world transcending supernature whether known as God, Buddha-Nature, or Allah, and third, human beings have a fundamental identity with that Reality (Murphy, 2015, p. 563). This vision is of a divinity that is both immanent in and transcendent of the world. Such a panentheism perceives the entire world as an evolutionary disclosure of the divine, as does the evolutionary theology of Teilhard de Chardin with his notion of cosmogenesis culminating in an Omega point, or divine focus of mind, in which the mystical Christ "is the fulfilment of even the natural evolution of beings" (1964, p. 305). Evolutionary panentheism is compatible with the theological positions of Teilhard de Chardin for Roman Catholics and Paul Tillich for Protestants.

PANENTHEISM IN JUNGIAN THOUGHT

Main (2017) elucidates the nature of divine transcendence by exploring Jung's notion of the cosmic God archetype in the collective unconscious. Main observes that,

Jung's signature concept of the archetype was influenced by biology and physics, on the one hand, and Platonic philosophy and Augustinian theology, on the other, and it was explicitly characterised in Jung's later writings as having both an instinctual and a spiritual pole. (p. 1106)

Main lists process philosophy, emergence, and dual-aspect monism, as particularly salient influences upon Jung's religious publications.

With respect to Jung's psychological model, the unconscious is more than consciousness and the (God) archetype is not identified with any number of archetypal images. Main quotes from Jung's essay *Answer to Job*

in noting that Jung was emphatic (that) the image and the statement about the God-image (*imago Dei*) are psychic processes which are different from their transcendental object: “There is no doubt that there is something behind these images that transcends consciousness” (Jung, 1958, para. 555; as cited in Main, 2017, p. 1110). Even more unambiguously perhaps, Main observes that Jung concluded *Answer to Job* with the remark that,

even the enlightened person is never more than his own limited ego before the One who dwells within him, whose form has no knowable boundaries, who encompasses him on all sides, fathomless as the abysses of the earth and vast as the sky. (Jung, 1958, para. 758, as cited in Main, 2017, p. 1110)

This statement expresses a distinction between the primordial archetype in itself and the archetypal image. The archetype in itself is transcendent in nature. In other words, concepts such as the inexhaustible unconscious and ultimately unknowable archetypes imply that Reality is not fully knowable by empiricism and reason alone: “Jung often signaled this irreducible mystery and incalculability by referring to the numinosity of the archetypes” (Main, 2017, p. 1111). Furthermore Jung’s description of his own NDE in *Memories, Dreams, Reflections* (Jung, 1995, p. 328) suggests that Jung was open to exceptional and mystical experiences involving transcendence of space time and causality. Jung and Pauli understood the nature of

the symbol as an expression of something partly known or conscious (immanent) and partly unknown (transcendent) ... and of the archetypal image as a phenomenal (immanent) expression of the unknowable (transcendent) archetype (Jung, 1947/1954/1969, paras. 417-420, as cited in Main, p. 1112).

Finally, Jung (in *Answer to Job*) envisioned an evolution in the *imago Dei* through historic time:

The future indwelling of the Holy Ghost in man amounts to a continuing incarnation of God. Christ, as the begotten Son of God and pre-existing mediator, is a first-born and divine paradigm which will be followed by further incarnations of the Holy Ghost in the empirical man. (Jung, 1958, para. 693)

Through ongoing incarnation in humanity, God becomes conscious and is completed by humankind in directed evolution; an idea central to the panentheistic theology of Teilhard de Chardin.

CONCLUSIONS

A dual-aspect monist position in the philosophy of mind permits an expanded and post-materialist science in which the role of reflective consciousness in directed evolution, the existence of consciousness independently of the brain, and phenomena such as NDEs, become open to empirical research and understanding. Mind is construed to be a fundamental feature of Reality which exists throughout the universe due to the tectonic shift created by the quantum revolution in physics in the early twentieth century. These developments in turn permit an emergent evolutionary panentheism, in place of an outdated theism with its notion of an interventionist God external to the cosmos which has been an irrelevant hypothesis since Newton.

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¹ [CW = The Collected Works of C. G. Jung (20 volumes). Edited by Gerhard Adler, Michael Fordham, and Herbert Read; William McGuire, Executive Editor; translated by R. F. C. Hull. New York and Princeton (Bollingen Series XX) and London, 1953-1979.—EDITOR.]

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