

# NEUROPHENOMENOLOGY AND NEOPLATONISM

---

*Bruce J. MacLennan*

This chapter argues that the worldview emerging from neurophenomenology is largely consistent with the phenomenological insights obtained by the Neoplatonists through their theurgical operations. *Neurophenomenology* combines phenomenological methods for investigating the mind with neuroscientific methods for investigating the brain; the goal is an integrated understanding of the embodied mind.<sup>1</sup> Implicit in the neurophenomenological research program is an acknowledgement that, at least at the present time, neither phenomenology nor neuroscience is adequate on its own for understanding the mind.

I begin with the unconscious mind, because it has the most direct connections to Neoplatonism and is the foundation for understanding the conscious mind, which is the topic for the second part of this chapter.

## **I. The Unconscious Mind**

Carl Jung drew an important distinction between the *collective unconscious*, which is common to all of us, and the *personal unconscious*, which is peculiar to each of us.<sup>2</sup>

### **The Collective Unconscious**

The collective unconscious refers to the phylogenetic behavioral adaptations of *Homo sapiens*. It is *collective* because it is common to all humans, and it is *unconscious* because its content is not accessible through introspection. Jung also called the collective unconscious the *objective psyche*, because it is characteristic of the human species and independent of our individual psyches (Stevens 2003, 65).

Like other animals, humans have unconscious behavioral programs that regulate external behavior and condition conscious experience (Stevens 1993, ch. 4; MacLennan 2006a). The Jungian *archetypes* are the psychical manifestations of these innate behavioral programs, and Jung compared them to the instincts.<sup>3</sup> Although Jung's method was phenomenological, behavioral aspects of the archetypes can also be explored through evolutionary psychology.<sup>4</sup> Moreover Jung compared the archetypes to Platonic Ideas: "'Archetype' is an explanatory paraphrase of the Platonic εἶδος" (Jung *CW* 9 i, ¶5). Especially in his later work he stressed that the archetypes are not so much innate images as innate patterns of behavior, that is, *dynamical Forms*, "active living dispositions, ideas

---

<sup>1</sup> The term was coined, apparently, by Laughlin, McManus and d'Aquili (1990). See also Varela (1996) and Rudrauf, Lutz, Cosmelli, Lachaux, and Le Van Quyen (2003).

<sup>2</sup> See, for example, Jacobi (1973) 8.

<sup>3</sup> "To the extent that the archetypes intervene in the shaping of conscious contents by regulating, modifying, and motivating them, they act like the instincts" (Jung *CW* 8, ¶404).

<sup>4</sup> The connection between the archetypes and evolutionary psychology has been explored by Meredith Sabini (2000) and especially by Anthony Stevens (1993, 2003).

in the Platonic sense, that preform and continually influence our thoughts and feelings and actions” (Jung *CW* 8, ¶154). The archetypes are *facultates praeformandi* that “correspond in every way to the instincts, which are also determined in form only” (Jung *CW* 9 i, ¶155).

In the archetypes, formal and final causation are mutually determinative. The goals that archetypes seek — the functions they perform — are part of their formal structure (their program). Conversely, an archetype’s formal structure has evolved as a consequence of its ability to fulfill certain adaptive behavioral functions. Therefore an archetype defines a field of potential meaning in human existence.<sup>5</sup>

As regulators of human behavior, the archetypes can behave like autonomous personalities, for each has its own adaptive function to fulfill — its own purpose. Moreover, the archetypes are the foundations for the world’s pantheons and mythologies.<sup>6</sup> Phenomenologically, the archetypes *are* the gods (Miller 1981; MacLennan 2003, 2005).

This might suggest that the gods are “merely psychological,” but the archetypes — and therefore the gods — are objectively real in that they are *empirical*, *public*, and *stable* (MacLennan 2003). They are *empirical* because they affect experience, for although they are not directly accessible to introspection, they do affect consciousness by regulating perception, affect, and motivation; they are known indirectly. The archetypes are *public* because independent investigators observe the same phenomenological structures manifesting in consciousness. That is, there is a common experience of the archetypes. Finally, the archetypes are *stable* in that they retain their characteristics over many generations. They change at evolutionary timescales and in psychological terms are practically changeless.<sup>7</sup>

Because the gods and other archetypal ideas are universal properties of the human species, they are incorporeal. In biological terms, they are implicit in the human genome (MacLennan 2005, 2006a, 2006b). Indeed, since the archetypes themselves are characteristics of the Form *Homo sapiens*, they are, in Neoplatonic terms, undescended (MacLennan 2005). Nevertheless, they have images in the individual nervous system, and as aspects of the soul they regulate our behavior. This is because our individual genotypes, as instances of the human genome embodied in our chromosomes, govern the development of our bodies, including our nervous systems, so that our behavior is regulated by the archetypes. Therefore, each of our individual souls contains an innate

---

<sup>5</sup> “[W]ithin the limits of psychic experience, the collective unconscious takes the place of the Platonic realm of eternal ideas. Instead of these models giving form to created things, the collective unconscious, through its archetypes, provides the *a priori* condition for the assignment of meaning.” (Jung, *CW* 14, ¶101)

<sup>6</sup> See, for example, selections in Jung (1995).

<sup>7</sup> Jung sometimes distinguishes the “archetypes as such” from the archetypal representations (images and ideas) mediated to us by the unconscious (*CW* 8, ¶417). The archetype as such “is characterized by certain formal elements and by certain fundamental meanings,” but it can be known only indirectly through its varied conscious manifestations. Therefore the archetypes as such are “theoretical entities” analogous to elementary particles in physics, which are postulated as the simplest theoretical account of the phenomena.

image of the universal pantheon. It is an embodied system of dynamical forms or programs.<sup>8</sup>

### The Personal Unconscious

In addition to the collective unconscious, which is characteristic of our species, each of us has a personal unconscious, which develops throughout our lives and is organized into a system of *complexes*. Archetypes are the nuclei around which complexes develop, for complexes are adaptations of the archetypes to the particularities of our circumstances (Stevens 2003, 74). Therefore, complexes are not, in general, pathological. They are normal and necessary components of our unconscious psyches. Like their parent archetypes, complexes are autonomous subpersonalities. “In a word, complexes behave like independent beings” (Jung *CW* 8, ¶253). They tend to be single-minded, inheriting their concerns from their parent archetypes, but can have complex personalities, which are a consequence of their individual biographies. As the mediators between the transcendent archetypes and our individual lives, complexes are phenomenologically equivalent to *daimones*, who descend in lineages (σειραί) from gods (MacLennan 2005, 2006b). Their function is to fulfill the offices of the gods in the context of our individual lives by influencing our thoughts, perceptions, emotions, and intentions.

Therefore, complexes are embodied behavioral programs, autonomous personalities existing in our brains and sharing our bodies. Unlike, however, the transcendent gods, who exist outside of space and time, the *daimones* are temporal, and most are bound to bodies.

Archetypes, and the complexes they engender, serve biological purposes, and they do this by regulating perception, affect, motivation, cognition, and action to serve their own ends. Jungian analysts, like their Neoplatonic predecessors, describe this as *possession* (e.g., von Franz 1980). Possession sounds like a bad thing — and it can be — but it can be advantageous as well, for it is the mechanism by which the archetypes — the gods — have ensured the survival and flourishing of humankind (MacLennan 2005). Possession is the source of artistic and scientific inspiration. However, unconscious possession can be harmful, and so it is important that we have a conscious relationship with the archetypes and our complexes.<sup>9</sup>

Jungian psychologists employ a practice called *active imagination* for negotiating with archetypes and complexes, that is, with gods and *daimones* (Johnson 1986; Jung 1997). It

---

<sup>8</sup> Whitehead’s process philosophy can be considered a modern development of Neoplatonism (Rodier 2002), and in recent years there has been a fruitful confluence between process philosophy, archetypal psychology, and embodied cognition (Griffin 1989; Maxwell 2016). In Whitehead’s terms, archetypes are complex eternal (i.e., atemporal) objects, for they are not preconditioned by temporal occasions. They have effects only by virtue of influencing experiential processes. Though, as forms, the gods are timeless and therefore unchanging, as archetypes residing in the human genome they do evolve, though very slowly; in process theology these contrary characteristics (impassible and passible) are one aspect of *dipolar theism* (Hartshorne 1967).

<sup>9</sup> Short of full-scale possession, the divine has non-coercive influence over conscious behavior, a conclusion also of process theology, in which humans “not only apprehend the divine appetitions but do so with initial conformation of feeling” so that they become their own appetitions (Griffin 2001).

is the theurgic process of *sustasis* — that is, conjunction or alliance — in modern clinical dress (MacLennan 2005). As in the ancient practice, contemplation, ritual, and symbolism are principal means for engaging gods and *daimones* in dialogue.<sup>10</sup>

And since the symbol derives as much from the conscious as from the unconscious, it is able to unite them both, reconciling their conceptual polarity through its form and their emotional polarity through its numinosity. (*CW* 9 ii, ¶280)

## The Self

Jung uses the term “self” (often now with a capital “S”) to refer to the ultimate principle of unity in the soul. It is “the totality of the psyche” (Jung *CW* 12, ¶44).

The self is not only the center, but also the whole circumference which embraces both conscious and unconscious; it is the center of this totality, just as the ego is the center of consciousness. (Jung *CW* 12, ¶44)

Deep in the collective unconscious, the Self is the common root of all the archetypes, and thus is the form of the universal and eternal *Anthrôpos* (Stevens 1993, 47), “the spiritual, inner and complete man” (Jung *CW* 9 i, ¶529). Its image in the individual unconscious is the “God within us” (Jung *CW* 7, ¶399) or, as Proclus describes it, the “flower of the whole soul” (πάσης τῆς ψυχῆς ἄνθος).<sup>11</sup> Jung stresses that the Self is paradoxical because, as the ultimate principle of unity in the psyche, it unifies all oppositions.

The self then functions as a union of opposites and thus constitutes the most immediate experience of the Divine which it is psychologically possible to imagine. (Jung *CW* 11, ¶396)

The Self transcends logic and must be reached symbolically. It is described in the same terms as *To Arrhêton Hen*, the Inexpressible One of Neoplatonism, which likewise transcends duality and is therefore beyond logic and verbal expression.

The archetypal Self is rooted in human physiology, and so, at the deepest level, the psychical merges into the physical. Therefore, Jung understood the unconscious mind and physical reality to have a common root in the *Unus Mundus*, “the original, non-differentiated unity of the world or of Being” (*CW* 14, ¶659); it has both physical and psychical aspects, for “psyche and matter are two different aspects of one and the same thing” for “the biological instinctual psyche, gradually passes over into the physiology of the organism and thus merges with its chemical and physical conditions” (*CW* 8, ¶¶418,

---

<sup>10</sup> Johnson (1986) 102 defines ritual as “symbolic behavior, consciously performed.” A symbol acts as a sign stimulus or releaser for the learned or innate releasing mechanism of an instinct, that is, an archetype or complex (Stevens 2003, 63–65). Therefore symbols are used in theurgical ritual to invoke the gods and *daimones*.

<sup>11</sup> *Ecl. Pr. Phil. Chald.* IV 156 (Cod. Vat. 233r), Jahn, 4.23. See discussion at Majercik (1989) 139.

420). Hence, Jung argues for a kind of dual-aspect monism, in which reality has both physical and psychical aspects.<sup>12</sup>

Practices in analytical psychology, such as active imagination and dream interpretation, are directed toward *individuation*, that is, psychological integration, in particular, the integration into consciousness of the unconscious archetypes and complexes, in order to become *individuus* (indivisible) (Jacoby 1967). Individuation is the process of “becoming one’s own self” (Jung *CW* 7, ¶266). According to Anthony Stevens (2003, 174), “Individuation is a conscious attempt to bring the universal program of human existence to its fullest possible expression in the life of the individual.” It is the final cause of human psychological development.

It is one of the foremost tasks of the individuation process to raise the God-images, that is their radiations and effects, to consciousness and thus establish a constant dynamic contact between the ego and the Self. This alliance bridges over the tendencies to personality dissociation which arise from the instincts pulling in opposite directions. (Jacoby 1967, 53)

In Neoplatonic terms, individuation is aimed at living in accord with the *Pronoia* of the gods and *daimones* (Stevens 1993; MacLennan 2005, 2006b).

## II. Consciousness and Neurophenomenology

So much for the unconscious mind. The conscious mind also functions like a complex — the *ego daimôn* — but forces us to address the fundamental problem of *phenomenal consciousness*, that is, the experience of awareness.<sup>13</sup> How can we explain the fact that an inner subjective world accompanies the physiological processes in our brains and bodies, that is, that these processes create a phenomenological world? How can we reconcile our scientific understanding of reality with the undeniable existence of subjective experience? This is the issue that David Chalmers has dubbed the *Hard Problem* of consciousness (Chalmers 1995).

Attempts to reduce mind to matter or vice versa have proved inadequate. As Galen Strawson (1994, 2006) has put it, we cannot see how to define a phenomenological predicate in terms of physical predicates. Perhaps someday we will understand how to do so, but I think we can still make progress on the Hard Problem while accepting the effective mutual irreducibility of the mental and the material. The reason is that conscious

---

<sup>12</sup> For more on the *Unus Mundus* and dual-aspect monism in analytical psychology, see Atmanspacher (2012), Jung and Pauli (1955), and Stevens (2003) 79–88. Likewise, Whitehead speaks of the “dipolar” (material and mental) character of actual entities. According to Cobb (1989) 127, the physical pole is the predominant part of an occasion of experience. It is the “actual world” or past, and corresponds to the experience’s foundation in the depths of the unconscious. The mental pole is its present manifestation in consciousness.

<sup>13</sup> “Consciousness” is used in many senses, which should be distinguished (Block 1995). *Functional* or *access consciousness* refers to the purpose that consciousness serves in cognition and behavior. The topic here, however, is *phenomenal consciousness*, the difficult-to-define yet self-evident experience of sentience, of being a subject. See also MacLennan (2008).

experience is structured, and through phenomenological analysis and experiment we can reduce the dynamics of the conscious state to more elementary phenomenological processes — still, I must emphasize, in the subjective domain (MacLennan 1996). Obviously neuroscience is engaged in a similar endeavor, trying to explain high level cognitive and behavioral processes in terms of lower level neurological processes. Both of these reductionist programs are ongoing, long term research programs. Where will they end?

Parallel reductions in the phenomenological and neurological domains reach their ends when they arrive at elementary constituents of consciousness associated with simple physical processes; that is, the parallel reductions point toward natural processes that can be experienced both externally, that is, objectively, and internally, that is, subjectively. These hypothesized smallest units of subjectivity may be called *protophenomena* (MacLennan 1996).<sup>14</sup> They are not conscious phenomena per se, but the elementary constituents of phenomena, as atoms are not bodies themselves, but the elementary constituents of bodies. In the absence of a reduction to physical processes, protophenomena are treated as fundamental properties of certain physical systems. They can be investigated empirically, in particular through *neurophenomenology*, which correlates first-person phenomenological experiments with third-person neuroscientific experiments.<sup>15</sup>

Since protophenomena correspond to simple neural processes, which occur throughout the brain, they are hypothesized to be simple subjective intensities with no qualitative aspects (Chalmers 1996, ch. 8; MacLennan 1996, 2008). Since we know from neuroscience that the same neurons and the same basic cortical architecture can represent information in all the sensory modalities, it is primarily the connections among the neurons that makes neural activity a visual sensation, for example, as opposed to an auditory sensation. In parallel in the phenomenological realm, qualia arise from causal interdependencies among (quality-free) protophenomena. These causal interdependencies define the structure of subjective possibility in one's phenomenological world (MacLennan 1996, 2010). Protophenomenal analysis implies, therefore, a structural theory of qualia.<sup>16</sup>

## **Dynamical Forms**

We know empirically that certain physical processes, namely those in some, at least, of the neurons in our brains, support protophenomena. In principal, we can do experiments to explore the physical properties necessary and sufficient for the existence of

---

<sup>14</sup> See also Chalmers (1996) 126–7, 298–9; related terms are *proto-qualia* (Llinas 1988) and *phenomenisca* (MacLennan 1995). Long ago, Willam James (1890/1955 I:149) referred to “mental atoms” and “aboriginal atoms of consciousness.”

<sup>15</sup> Various approaches to the neurophenomenology of consciousness are discussed in Lutz and Thompson (2003), Varela (1996), and MacLennan (2008).

<sup>16</sup> Specifically, the phenomenological structure of qualia coincides with the abstract topological structure of a subject's phenomenological world, which is determined by the interdependencies among its constituent protophenomena (MacLennan 2010). These interdependencies are correlated with connections among neurons.

protophenomena, but these experiments are very difficult to conduct now. In the meantime, in the absence of empirical information about the sorts of material systems that support protophenomena, the best we can do is to formulate hypotheses and explore their implications.

There is not space here to go into the details, but if you consider various properties of neurons that might be necessary and sufficient for protophenomena, one is driven to the conclusion that physical systems other than neurons might have them, but what sorts of physical systems? Chalmers (1996, ch. 8) has suggested that any *physical information space* will have these two, mutually irreducible, aspects: an external, objective or material aspect, and an internal, subjective or mental aspect. If we drill more deeply into this concept of a physical information space, we encounter a vein of Neoplatonic ideas.

Analysis of physical information spaces reveals that they have both an eternal formal structure (as mathematical objects, abstract process descriptions, or programs) and a material substrate that allows the formal pattern to evolve in time and have physical effects. That is, a physical information space is a temporal process with a specific formal aspect and a generic material aspect. This is because, first, information depends on form and is independent of specific matter and, second, because information processing is *transformation* — that is, a change of form — by means of a material process (MacLennan 2011). In principle, the same information processes can be realized in any physical system capable of supporting the required formal relations. Therefore, any physical process can be understood as information processing when its function depends on formal relations and not on specific material properties.

We should understand this dependence on form and independence of specific matter in the context of fulfilling the function of the information processing (MacLennan 2011). That is, for information to be informative it must fulfill some function, and therefore the definition of information processing depends on a final cause.<sup>17</sup> In biology, the final cause is survival of the species, which is largely a consequence of replication, that is, the multiple material instantiation of a form (MacLennan 2015). This is part of the continuing emanation of form into materiality, the manifestation of plurality out of unity. However, this ultimate final cause can be quite remote from more immediate functions of information processing in biology.

Since a necessary property of an information process is that it depends on form rather than matter, let us think about formal processes that evolve in time. An equation can provide a static, timeless, finite description of a temporal process. Moreover, the sequence or continuum of states defined by the equation is itself a timeless, mathematical object. Qua mathematical objects, they are both purely formal. The distinction is between *intensional* (with an “s”) and *extensional* forms of the same temporal sequence.<sup>18</sup>

---

<sup>17</sup> In fact, all four of Aristotle’s causes are relevant to the analysis of information processing in natural and artificial systems (MacLennan 2011).

<sup>18</sup> The *extension* of a predicate is the set of individuals to which it applies; its *intension* is the principle that distinguishes them (Blackburn 1994, s.v. extension/intension). Extended to functions (which, in mathematical terms, are relations and therefore predicates), the extension of a sequence is the ordered series

For the purpose of understanding consciousness, a computer program provides a better analogy, for while an equation generates an invariable sequence of states, a program generates states in interaction with a larger environment. It is a formal object that governs the behavior of a physical system (the computer) by controlling efficient causation within it subject to the computer's material structure. Programs are also a better analogy because they usually have a purpose (and thus a final cause). The program is generating a sequence of states toward some end, and thus is similar to cognitive processes, which also fulfill functions (their final causes).

A program is a formal object defining possible sequences of formal states in interaction with a larger environment. It defines an abstract relationship between inputs and outputs in time. The distinction between a program and its execution sequence or history corresponds to the intension and extension of the sequence, but it is important to notice that both the intension and extension are formal. The extension is the “moving image” of the intension, or static program. Xenocrates defined the soul as a self-moving number (αὐτοκίνητος ἀριθμός),<sup>19</sup> which is a good description of an equation and, even better, of a program. In other words, a self-moving number is a dynamical form, that is, a timeless form that defines a sequence of forms.

A program cannot run or execute unless it is embodied in a physical system (that is, loaded into a computer); the computation must be realized as a physical process. As pure form it is atemporal; to evolve in time it requires matter, though it does not depend on one specific material. Embodiment is necessary for its potentiality to be actualized.<sup>20</sup> Indeed, over the past several decades there has been growing recognition of the importance of physical embodiment to understanding information processing and cognition.<sup>21</sup>

To bring this back to consciousness, each (discrete or continuous) state change generated by a program is an elementary physically realized information process, that is, a “difference that makes a difference” (Chalmers 1996, 281). Therefore, each is a candidate for a protophenomenal change. But whether the physical process is information processing must be decided in the context of a final cause: Could the function be performed by a different material realization of the same formal process? Even in

---

of elements (states, in this case), while the intension of the sequence is the principle that determines the elements and their order (an equation or function, in this case). Consider the Fibonacci numbers. Their intension can be expressed finitely by the relations  $F_0 = 0$ ,  $F_1 = 1$ , and  $F_k = F_{k-1} + F_{k-2}$  for  $k > 1$ . These equations define implicitly the sequence's infinite extension, which begins 0, 1, 1, 2, 3, 5, 8, 13, ...

<sup>19</sup> The idea that the soul is a number that moves itself (ἀριθμὸς ἑαυτὸν κινῶν) is widely attributed to Xenocrates (frs. 60–65 Heinze). Plutarch attributes it to him (*de an. procr.* 2012D = fr. 68H), but also to unnamed “ancients” (*quaestt. Platon.* 1007C = frs. 61H). The term αὐτοκίνητος appears in Iamblichus' *de anima* (I.4.364), where it is attributed to Xenocrates (frs. 60H).

<sup>20</sup> So also, in process philosophy, eternal objects are potentials that may “inform actual occasions with hierarchic patterns” (Whitehead 1925, 174).

<sup>21</sup> On embodied cognition, see for example Clark (1997); Dreyfus (1979) 248–250, 253; Johnson and Rohrer (2007); Pfeifer and Bongard (2007); Pfeifer and Scheier (1999). The importance of embodiment has been argued also by Piaget, Gibson, Heidegger, Polanyi, Merleau-Ponty, and other psychologists and philosophers. MacLennan (2011) discusses applications of embodiment in information processing.



biological systems such as the nervous system, however, the ultimate final cause may be very remote from elementary information processing operations. If we are entertaining protophenomena as fundamental aspects of reality, then it seems unlikely that the presence of protophenomena depends on these final causes. This suggests that *all* physical changes are accompanied by protophenomenal changes. Therefore, the best candidates for the physical entities associated with protophenomena are the elementary degrees of freedom of the physical system. In the context of quantum theory, these are the basis elements of the Hilbert space underlying the wave function, but the general conclusion does not depend on the specifics of quantum theory.<sup>22</sup>

A consequence is that causally connected sequences of physical states have associated sequences of protophenomenal states. These sequences exist as timeless mathematical objects determined by timeless formal descriptions (that is, equations or programs). These descriptions are timeless forms that implicitly define explicit temporal sequences of states that are simultaneously physical and phenomenal.<sup>23</sup> The explicit phenomenal sequence constitutes the stream of consciousness. What makes the universe temporal, then, is that the protophenomenal states are points in the explicit sequence. In this sense time is, as Plato said, the moving image of eternity (*Ti.* 37D).<sup>24</sup>

The foregoing implies a form of panpsychism (specifically, *panprotophenomenalism*), and panpsychism is gaining acceptance, though still a minority view (Freeman 2006; MacLennan 2008, 2010). Panprotophenomenalism does not imply that rocks, cars, or computers are conscious. Their constituent parts might have protophenomenal aspects whose dependencies are insufficiently structured to cohere into anything approaching a conscious state.<sup>25</sup> Using the analogy between protophenomena and atoms: all matter is made of atoms, but that does not imply that every atom is part of an object (in the ordinary sense of that word); some atoms are moving independently or interacting weakly in incoherent collectives such as gases. Similarly, large numbers of protophenomena must interact strongly and coherently in order that a macroscopic phenomenon (conscious state) will emerge.

---

<sup>22</sup> The possible states of a quantum system belong to a Hilbert space (a generalized vector space), which has a countable basis. A particular quantum state is defined by the complex amplitudes of these basis elements. Protophenomena would be associated with a particular basis and protophenomenal intensities would be correlated with the corresponding amplitudes.

<sup>23</sup> As Maxwell (2016) ch. 8 observes, “formal and efficient causation are intimately and inextricably intertwined, the Janus-faced aspects of interiority and exteriority, of psyche and cosmos.”

<sup>24</sup> To put this more concretely (albeit more technically), the evolution of a quantum system is defined by a particular differential equation, Schrödinger’s equation, which is a finite, timeless definition of a continuous sequence of quantum states for the system. As abstract information structures, these states have two aspects: the usual physical aspect but also a protophenomenal aspect. According to the relative state formulation of quantum mechanics, these observations would apply to the universe as a whole, for Schrödinger’s equation (an eternal relation) defines the evolution of the universal wave function as its “moving image.”

<sup>25</sup> So also, in Whitehead’s process philosophy, everything has the characteristic of experience, but not necessarily consciousness.

## How is unconscious thought possible?

Panprotophenomenalism raises another issue: if elementary subjectivity is so widespread in nature, how do we account for the unconscious mind? One answer is that some of these unconscious processes may be of low dimension and only weakly coherent, and so not rising to a level of organization that we would want to characterize as a conscious state (MacLennan 1996, 2008).

But what of the archetypes and complexes, which behave as subpersonalities, the gods and *daimones* at which theurgy is directed? One possibility is that these unconscious processes are in fact *conscious* subpersonalities, but weakly connected to the brain's motor areas, especially speech areas (MacLennan 2010). In other words, they are just as conscious as our egos are, but unable to talk about it or communicate it in other ways. This is consistent with *passive frame theory* developed by Ezequiel Morsella, which says that a principal function of ego consciousness is to entertain alternative motor actions.<sup>26</sup> From this perspective, our egos are only weakly connected to these other conscious minds in our psyches, which are therefore only slightly more accessible to one's ego than are other humans' interior states. All these subpersonalities are conscious (have subjective experience), but the psychological terms "conscious" and "unconscious" are defined from the ego's perspective.

A planetary analogy may clarify this view. Like the enormous number of protophenomena — the "mind atoms" — that constitute our psyches, the solar system comprises a vast number of elementary particles. Many of these are bound together in the planets and other large bodies, some just as solid as Earth; these are like the coherent subpersonalities. Other particles are more loosely bound, such as the atoms in gas clouds or comets; yet other particles wander freely in interplanetary space. The perspective of ego consciousness can be compared to our view from Earth. At one time we believed it was the only world, but now we realize there are others, which interact weakly with Earth. So also, we have advanced from the view that the ego is the only personality residing in our bodies to an understanding that there are others, even though their influence on the ego is indirect. Moreover, the ego is not the center of the psychical cosmos, but it orbits under the influence of the true center, the Self. This shift of perspective has been called Jung's Copernican Revolution (Stevens 2003, 173).

## III. Conclusions

In conclusion, I think that the idea of a dynamical form, a timeless form that defines a temporal sequence of forms, provides a unified basis for understanding both the conscious and unconscious minds, a perspective that could be called *dual-aspect mathematical Platonism*, because these formal relations have a phenomenal aspect that is the basis for conscious experience. Moreover, by ontological parsimony it is a reasonable to assume that the gods and *daimones* residing in the unconscious mind are similarly

---

<sup>26</sup> Morsella, Godwin, Jantz, Krieger, and Gazzaley (2015).

conscious. This perspective can inform our understanding of the Forms, the World Soul, and individual souls in Neoplatonism, philosophy of mind, and neuroscience.

## **Acknowledgements**

I'm grateful to the anonymous reader who suggested that I discuss the connections to Whitehead's process philosophy.

## **Bibliography**

### **Editions**

Iamblichus. 2002. *De anima: Text, translation, and commentary*. Phil. Ant. XCII, ed. and trans. J. Finamore and J. Dillon. Leiden: Brill.

Plutarch. 1976. *Plutarch's Moralia XIII Part I*. Loeb 427, ed. and trans. H. Cherniss. Cambridge: Harvard.

Proclus. Jahn, A. 1891. *Eclogae e Proclo de philosophia Chaldaica; sive de doctrina oraculorum Chaldaicorum*. Halle.

Xenocrates. Heinze, R. 1892. *Xenokrates: Darstellung der Lehre und Sammlung der Fragmente*. Stuttgart: Teubner.

### **Translations**

Jung, C. G. *CW. The collected works of C. G. Jung*. Ed. H. Read, M. Fordham, and G. Adler. London: Routledge & Kegan Paul, 1953–78; New York: Pantheon, 1953–60, and Bollingen Foundation, 1961–67; Princeton, NJ: Princeton University Press, 1967–78.

Jung, C. G. 1995. *Jung on mythology*. Ed. & Intro. R. A. Segal. Princeton: Princeton University Press.

Jung, C. G. 1997. *Jung on active imagination*. Ed. & Intro. J. Chodorow. Princeton: Princeton University Press.

Jung, C. G., and Pauli, W. 1955. *The interpretation of nature and the psyche*. Trans. R.F.C. Hull & P. Silz. London: Routledge & Kegan Paul.

### **Secondary Sources**

Atmanspacher, H. 2012. Dual-aspect monism à la Pauli and Jung. *J. Conscious. Stud.* 19:96–120.

Blackburn, S. 1994. *The Oxford dictionary of philosophy*. Oxford: Oxford Univ. P.

Block, N. 1995. On a confusion about a function of consciousness. *Behav. & Brain Sci.* 18:265–66.

Chalmers, D. J. 1995. Facing up to the problem of consciousness. *J. Conscious. Stud.* 2:200–219.

Chalmers, D. J. 1996. *The conscious mind*. New York, NY: Oxford University Press.

- Clark, A. 1997. *Being there: Putting brain, body, and world together again*. Cambridge: MIT Press.
- Cobb, J. B. 1989. Eternal objects and archetypes: Past and depth. A response to Stanley Hopper. In *Archetypal Process: Self and Divine in Whitehead, Jung, and Hillman*, ed. D. R. Griffin, 125–128. Evanston, IL: Northwestern Univ. Press.
- Dreyfus, H. 1979. *What computers can't do: The limits of artificial intelligence*, rev. ed. New York: Harper & Row.
- Franz, M.-L. von. 1980. *Projection and re-collection in Jungian psychology: Reflections of the soul*. La Salle: Open Court.
- Freeman, A., ed. 2006. *Consciousness and its place in nature: Does physicalism entail panpsychism?* Charlottesville, VA: Imprint Academic.
- Griffin, D. R., ed. 1989. *Archetypal process: Self and divine in Whitehead, Jung, and Hillman*. Evanston, IL: Northwestern Univ. Press.
- Griffin, D. R. 2001. Process philosophy of religion. *International Journal for Philosophy of Religion* 50:131–151.
- Hartshorne, C. 1967. The dipolar conception of deity. *Review of Metaphysics* 21:273–289.
- Jacobi, J. 1967. *The way of individuation*. Trans. R. F. C. Hull. London: Hodder & Stoughton.
- Jacobi, J. 1973. *The psychology of C. G. Jung: An introduction with illustrations*. Trans. R. Manheim. New Haven, CT: Yale University Press.
- James, W. 1890/1955. *The principles of psychology, authorized edition*. New York, NY: Dover. Reprint of Henry Holt edition.
- Johnson, M., and Rohrer, T. 2007. We are live creatures: Embodiment, American pragmatism, and the cognitive organism. In *Body, Language, and Mind*, ed. J. Zlatev, T. Ziemke, R. Frank and R. Dirven, vol. 1, 17– 54. Berlin: Mouton de Gruyter.
- Johnson, R. A. 1986. *Inner work: Using dreams and active imagination for personal growth*. New York: Harper & Row.
- Laughlin, C. D., Jr., McManus, J., and d'Aquili, E. G. 1990. *Brain, symbol and experience: Toward a neurophenomenology of consciousness*. Boston: New Science Library.
- Llinas, R. R. 1988. The intrinsic electrophysiological properties of mammalian neurons. *Science* 242:1654–1664.
- Lutz, A., and Thompson, E. 2003. Neurophenomenology: Integrating subjective experience and brain dynamics in the neuroscience of consciousness. *J. Conscious. Stud.* 10:31–52.
- MacLennan, B. J. 1995. The investigation of consciousness through phenomenology and neuroscience. In *Scale in Conscious Experience: Is the Brain Too Important to be Left to Specialists to Study?*, ed. J. King and K. H. Pribram, 25–43. Mahwah: Lawrence-Erlbaum.

- MacLennan, B. J. 1996. The elements of consciousness and their neurodynamical correlates. *J. Conscious. Stud.* 3:409–424. Reprinted in *Explaining Consciousness: The Hard Problem*, ed. J. Shear, 249–266. Cambridge: MIT Press.
- MacLennan, B. J. 2003. Evolutionary neurotheology and the varieties of religious experience. In *NeuroTheology: Brain, Science, Spirituality, Religious Experience*, ed. by R. Joseph, 317–334. San Jose: University Press, California.
- MacLennan, B. J. 2005. Evolution, Jung, and theurgy: Their role in modern Neoplatonism. In *History of Platonism: Plato Redivivus*, ed. R. Berchman and J. Finamore, 305–322. New Orleans: Univ. Press of the South.
- MacLennan, B. J. 2006a. Evolutionary Jungian psychology. *Psychological Perspectives* 49:9–28.
- MacLennan, B. J. 2006b. Individual soul and world soul: The process of individuation in Neoplatonism and Jung. In *Wegmarken der Individuation*, ed. T. Arzt and A. Holm, 83–116. Würzburg: Königshausen & Neumann.
- MacLennan, B. J. 2008. Consciousness: Natural and artificial. *Synthesis Philosophica* 22:401–433.
- MacLennan, B. J. 2010. Protophenomena: The elements of consciousness and their relation to the brain. In *Irreducibly Conscious: Selected Papers on Consciousness*, ed. A. Batthyány, A. Elitzur and D. Constant, 189–214. Heidelberg & New York: Universitätsverlag Winter.
- MacLennan, B. J. 2011. Bodies — both informed and transformed: Embodied computation and information processing. In *Information and Computation: Essays on Scientific and Philosophical Understanding of Foundations of Information and Computation*. World Scientific Series in Information Studies, 2, ed. G. Dodig-Crnkovic and M. Burgin, 225–253. Singapore: World Scientific Publishing.
- MacLennan, B. J. 2015. Living science: Science as an activity of living beings. *Prog. Biophysics & Mol. Biol.* 119:410–419
- Majercik, R. 1989. *The Chaldean oracles: Text, translation, and commentary*. Stud. Grk. & Rom. Rel., 5. Leiden: Brill.
- Maxwell, G. 2016. *The dynamics of transformation: Tracing an emerging world view*. Nashville, TN: Persistent Press.
- Miller, D. L. 1981. *The New Polytheism*. Dallas: Spring.
- Morsella, E., Godwin, C. A., Jantz, T. K., Krieger, S. C., and Gazzaley, A. 2015. Homing in on consciousness in the nervous system: An action-based synthesis. *Behavioral & Brain Sci.* 22:1–106.
- Pfeifer, R., and Bongard, J. C. 2007. *How the body shapes the way we think — A new view of intelligence*. Cambridge: MIT.
- Pfeifer, R., and Scheier, C. 1999. *Understanding intelligence*. Cambridge: MIT.

- Rodier, D. 2002. Alfred North Whitehead: Between Platonism and Neoplatonism. In *Neoplatonism and Contemporary Thought Part I*, ed. R. B. Harris, 183–204. Albany, NY: State Univ. of New York Press.
- Rudrauf, D., Lutz, A., Cosmelli, D., Lachaux, J.-L., and Le Van Quyen, M. 2003. From autopoiesis to neurophenomenology: Francisco Varela's exploration of the biophysics of being. *Biol. Res.* 36:27–65.
- Sabini, M. 2000. The bones in the cave: Phylogenetic foundations of analytical psychology. *J. Jungian Theory Pract.* 2:17–33.
- Stevens, A. 1993. *The two-million-year-old Self*. College Station: Texas A&M University Press.
- Stevens, A. 2003. *Archetype revisited: An updated natural history of the Self*. Toronto: Inner City Books.
- Strawson, G. 1994. *Mental reality*. Cambridge, MA: MIT Press.
- Strawson, G. 2006. Realistic monism. In *Consciousness and its place in nature: Does physicalism entail panpsychism?*, ed. A. Freeman, 3–31. Charlottesville, VA: Imprint Academic.
- Varela, F. 1996. Neurophenomenology: A methodological remedy for the hard problem. *J. Conscious. Stud.* 3:330–349.
- Whitehead, A. N. 1925. *Science and the modern world*. New York: Macmillan.