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**POLY-PERSPECTIVAL WISDOM AND APERSPECTIVAL AWARENESS:
HOW ATTUNEMENT TO THE UMWELTEN OF NONHUMANS CULTIVATES
INTEGRAL CONSCIOUSNESS**

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ABSTRACT

This paper explores the idea that humans are biologically, mentally, and spiritually connected to nonhumans throughout the natural world. As science and philosophy expand to include the participation of the observer, new integral methodologies emerge and understanding shifts. Without deeper awareness of our place and purpose within the planetary ecosystem, we cannot begin to understand who we are as a species, and what we mean to the cosmos. We need to re-awaken to our relationship with the whole.

Theologian and Earth scholar Thomas Berry referred to this connected whole “the Great Conversation,” (1991). He warned that only our re-entry into this primordial conversation, and re-enchantment and communion with the whole, can facilitate conscious evolution. Biologist and early cyberneticist Jacob von Uexküll’s concept *umwelt* (“environment”) will be a focal point in this paper. This “conversation,” occurring at a level of consciousness hidden to most beings, forms the fundamental connection underlying the full complexity of life.

FGE and Poly-Perspectival Wisdom

Humanity is part of nature, a species that evolved among other species. The more closely we identify ourselves with the rest of life, the more quickly we will be able to discover the sources of human sensibility and acquire the knowledge on which an enduring ethic, a sense of preferred direction, can be built.

—Edward O. Wilson

Only the knowledge that everything in Nature is created according to its meaning and that all environments are composed in a world-score opens up a path leading out of the confines of one’s own environment.

—Jacob von Uexkull

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For the purpose of this inquiry, I will refer to the primordial conversation, the fundamental connection from which all complexity arises as the *fundamental ground of experience* (FGE). I differentiate the FGE from dualist, idealist, and materialist ideas by viewing consciousness not as primary (idealism), emergent from matter (materialism), or separate from matter (dualism). Instead, I consider both matter and consciousness as intrinsically and inextricably nondual. I also use the word *ground* to denote an imagined “locus” of connection, rather than its usual spatio-temporal definition as a surface, or bottom level. The FGE is more aptly described as *a level of experience*. In the process relational tradition of Alfred North Whitehead, all of reality arises from fundamental subjective experience and interconnectedness of the objective world. He defined this phenomenon as *concrecence*, or “coming together” (Whitehead, 1978). From this perspective, we can view all consciousness as an extension of the FGE. Every occurrence of experience, human and nonhuman, involves a differentiation of primordial unity and an articulation of nature’s creativity—always intrinsically related to the whole. Because of this primordial unity, humans have an innate inclination to understand and commune with nonhuman beings, and have done so through ritual, ceremony, altered states of consciousness, as well as philosophical and scientific inquiry. In short, we have a natural tendency to inquire into the intelligence of our fellow beings. We do so out of a deep-rooted awareness (even unconscious) of the value of every form of intelligence. From a systemic worldview, we can see how free-flowing communication benefits the entire planetary ecosystem. Being in attunement—physically, mentally, and spiritually—with nonhumans rescues our species from self-imposed isolation, and sustains our evolutionary growth.

The hyper-perspectival, object-oriented paradigm of the individualized “I” of human subjectivity disconnects us from the rest of nature, creating opposition between humans and other species. By contrast, the systemic worldview, rooted in complexity, reveals that healthy living systems tend toward fluid information sharing, what I call *poly-perspectival wisdom*. Ecological creativity depends on vital interspecies communication and a successful global ecosystem depends on unimpeded interspecies consciousness continuity—exemplified by Berry’s “Great Conversation.” The human noosphere depends on information sharing through attunement to a wide range of nonhuman experience and knowledge. Our continued success as Earthlings depends on the fluidity of our consciousness, and the ability to cultivate intersubjectivity with all beings.

The Biologist-Shaman

Anthropocentrism reigns in modern society. The emergence of perspectival, egoic, thinking—followed by Cartesian rationalism and Baconian empiricism, gave rise to rational-scientific thinking at the expense of other ways of knowing. As a result, nonhumans were categorized as insentient objects to be exploited as resources. This has changed little in contemporary society, as animals continue to be exploited in factory farms and laboratories globally. In most of the world, nonhumans have few rights—with their experiences either ignored or invalidated. Often assumed to be unique to human brains (and perhaps the brains of a token few other species), consciousness and creativity remain a purely brain-centric assumption.

In many pre-colonial, indigenous societies and Eastern spiritual traditions, nonhumans were seen as not only sentient, but possessed of great knowledge, wisdom, and power. Among many indigenous people of North America, nonhumans were called “people” as a sign of deep respect for the essential intelligence of the web of life—for example, “stone people,” “ant people”—as each nonhuman has its own qualities that often surpass the abilities of humans. Many ancient indigenous people considered themselves merely one species within a web of life, interdependent with all others. Hence the Lakota expression, *mitakuye o’yasin*, meaning, “all my relations.” In South American shamanic traditions, nonhumans have powerful essential spirits that hold wisdom and knowledge only accessible through alterations of consciousness. Eastern spiritual traditions such as Shinto and Tibetan Buddhism envisioned the world as a sentient whole infused by an intrinsic force, and everything around us connected by that force. In non-Western spiritual traditions, nonhumans were possessed of power, knowledge, and wisdom necessary for *human* survival. From many non-Western perspectives, humanity serves its own best interests by learning to respect and access the power, wisdom, and creativity of nonhumans through a respectful interdependence.

Shamans and healers routinely consult nonhumans through alterations in consciousness in order to solve human problems. For example, Peruvian shamans ceremonially drink the Banisteriopsis vine, called *ayahuasca* or *yage*, in order to receive information, such as cures for illness (Baruss, 2010). Anthropologist Jeremy Narby has extensively researched the Peruvian use of *ayahuasca* to “bring back useful and verifiable knowledge that was otherwise unobtainable” (Narby, 1998, p. 47). Narby describes the *ayusceros*’ mysterious access to scientific knowledge as an “unsuspected source of biomolecular knowledge” inaccessible to the scientific community due to “epistemological blocks” (Narby, 1998, p. 146). The Peruvian shaman consults a plant for information about the curative properties of other plants, a notion inconceivable within our current scientific paradigm—literally blocked by current ontological assumptions and epistemological methods. Mainstream science rejects the idea of plant intelligence, let alone human-plant communication.

If we take a different view, and assume that the FGE connects all planetary consciousness, we might view shamans as the original biologists. Those “original biologists” valued nonhuman experience and knowledge as beneficial to the whole. Linguist and polymath scholar Jean Gebser developed a model of the evolution of consciousness that moves through a sequence of stages—from “Archaic” through “Magical” and “Mythic” to “Mental,” culminating in “Integral.” The Integral incorporates the “traits” from all prior structures (Gebser, 1949), and facilitates the removal of certain epistemological blocks put in place by the Mental structure, typical of hyper-perspectival scientific methodologies. Integral includes a connection to the “primordial dimension” (Gebser, 1949), and combines that with scientific-rational epistemologies. This Integral, *aperspectival*, stage renders a more complete understanding of nature, where “objects” also count as *subjects* enjoying their own subjective experiences.

In the introduction to German biologist Jacob von Uexküll’s *Foray Into the Worlds of Animals and Humans*, first published in 1934, science writer Dorian Sagan calls him a

“biologist-shaman attempting to cross the Rubicon to nonhuman minds” (Uexküll, 2010, p. 4). As the neo-Kantian biologist and early cyberneticist attempted to get inside the subjective world of nonhumans during an era permeated with Cartesian and mechanistic ideas, he ventured where others saw an impassable obstacle, or nothing at all. He coined the term *Umwelt*, meaning “surround-world,” to refer to this enticing milieu of subjective experience. Sagan says of his work: “Uexküll’s example-rich discourse of life perceived by various species is relevant to epistemology; it expands phenomenology; and it integrates the primary data of perceptual experience into behavioral psychology” (Uexküll, 2010, p. 4). His work had deep and lasting ethical implications for the way humans relate to nonhumans. By inviting people into the *umwelten* of diverse beings, he essentially removed some of those heavy epistemological blocks, and began the shift toward a deeply integral epistemology.

Uexküll describes his “walk into unknown worlds . . . not only unknown but also invisible. Furthermore, the justification for their existence is denied by many zoologists and physiologists” (2010, p. 41). He goes on to say; “Certain convictions are able to bar the entrance to those worlds so securely that not even one ray of all the splendor that spreads over them can penetrate it” (2010, p. 41). Uexküll viewed the greatest impediment to taking diverse subjective experience seriously as primarily one of convictions or mental constructs. “Whoever wants to hold the conviction that all living things are only machines should abandon all hope of glimpsing their environments” (2010, p. 41). He felt that the Cartesian, mechanistic paradigm—so fixed on reductionism and “pure” empiricism—could not cross the bridge to a true understanding of the rich and beautiful subjective worlds everywhere around us. The biologist-shaman dared to imagine and attune as part of his method, envisioning the world as full of rich and varied nonhuman experience, intelligence, and creativity.

Magical Environments

Umwelt literally means “surround-world”; however, it also means the “experienced environment.” Uexküll based his work in Kantian epistemology, attributing behaviors to the architecture of subjectivity, so that an *umwelt* could be understood as the environment perceived by the species in question through its unique sensory adaptations. This uniquely perceived environment creates its experience and affects its behavior within its environment. In other words, inner worlds and outer worlds create what we perceive as “the world.” His concept of *umwelt* underscores how subjectivity relates to the whole and ultimately points to the vital importance of interspecies intersubjectivity as a key to conscious evolution.

Bio-semiotician and Uexküll scholar Kaveli Kull points out that Uexküll formulated evolutionary ideas at a time when the scientific world initiated a shift to post-modernism: “[leaving] behind the whole concept of life’s progress as expressed in the tree of life and instead [we] understand the evolution as modifications in the web of life” (Kull, 2004, p. 3). Uexküll also described an early alternative to Darwinian selection and anticipated ideas of systems theorists such as autopoiesis and Lynn Margulis’ endosymbiotic theory. Kull says of this: “. . . he accepts the possibility of salutatory evolution, without the existence of all intermediate forms. These are similar to transitions from one motif to

another in a musical score” (2004, p. 9). Kull notes Uexküll’s “emphasis on the reciprocity of interactions in living systems,” and his “approach to the role of symbiosis...” (Kull, 2004, p. 10). Uexküll, an early cyberneticist, saw the world as connected through systemic relationships—each *umwelt* purposefully directing energy into relationships that support the grand orchestration of living systems, which Uexküll called the “world score.”

Uexküll’s “world-score” of myriad species performing their instrumental roles illustrates a holistic systemic approach to biology that re-imagines ancient notions of the web or circle of life in a postmodern scientific context. I consider that as an integral trait within the Gebserian mental structure. The idea of the *umwelt* and the world-score both include the imaginal and the metaphorical as necessary components within empirical science—the integration of pre-perspectival, perspectival, and aperspectival stages of consciousness.

Uexküll characterizes *magical environments* as “environments in which phenomena appear, visible, however, only to the subject. These phenomena are not bound to experience or, at most, a singular experience” (2010, p. 119). He discusses the magical world of children, how a character from a fairy tale might appear in the room of a child, and how dogs seem to “see” and react to something invisible to the human eye. He gives an example of how a pea wee larva, after reaching adulthood, bores a channel through the pea’s flesh. The planned activity of the weevil may be “completely meaningless” from its own point of view, but “the path stretches out clearly marked before it is a magical formation. The inborn path takes the place of the familiar path known by experience” (2010, p. 122). He discusses the *familiar path* that forms from previous experience, and the inborn path or *magical environment*. He points to the magical environment as evidence of the intrinsic knowledge that directs activity. He refers to nature’s intelligence that directs that activity as *Plan* (2010).

In attempting a Kantian-inspired systemic basis for biological evolution, Uexküll nevertheless attests to the mysterious “One”: “Forever unknowable behind all of the worlds it produces, the subject—Nature—conceals itself” (2010, p. 135). Much like Thomas Berry’s description of “creative energy,” an “all-pervading mysterious energy articulated in the infinite variety of natural phenomena” that seems to be the “primordial experience of human consciousness” (Berry, 1988, p. 24), Uexküll conveys a sense of respect for mystery and possibility as compatible with scientific rigor. Although our *umwelten* seem separated by an impassible Rubicon—the boundaries of our personal subjectivity—we can also allow for the possibility of an underlying *meta-umwelt*, the FGE, that remains invisible except by envisioning it through stepping out of the confines of our own narrow *umwelt* and taking “forays” into others’. If we can “touch” other worlds within this greater field—the One, or all-pervading energy, nature, or the FGE—we can expand and re-connect with Berry’s Great Conversation and Uexküll’s world-score, hitherto obscured by our perceptual boundaries. The magical structure of consciousness, according to Gebser, differentiates us from the whole (Gebser, 1949, p. 46).

Intimacy, Macrophase, and ‘Magic Wells’

Attunement to diverse subjective experiences and magical environments—the *umwelten* of other beings—and observing how their interrelationships form life, supports our ability to flourish as a planetary organism. Where anthropocentrism has been the hallmark of the perspectival awareness, the shift toward a more systemic, complex worldview in many disciplines marks the beginning of *aperspectival* awareness and the Integral stage consciousness. The ancient sense of primordial unity combined with an epistemological toolbox full of knowledge acquired during the evolution of consciousness, renders a conscious communion. Thomas Berry calls this “intimacy,” and that our “discovery of Earth as a living organism” integrates modern empiricism with an ancient premise—marking a shift from *microphase perception* to *macrophase awareness* (1988, p. 19). In the universe story, Berry and Cosmologist Brian Swimme expand on *microphase perception* and *macrophase awareness*:

By microphase we mean that which pertains to the here and now of a particular creature. By macrophase we point to the larger realities involved in the moment, both in terms of the largeness of the universe and of the Earth and the mystery of the unborn future. (1992, p.55)

As our species evolves, our original magical desire to have “power” over the whole from which we differentiated, along with the ensuing hyper-subjectivity (an aspect of *microphase* perception), begins to shift toward a new inclusion of macrophase awareness, or the ability to visualize deep time and our bigger cosmic story. This awareness reconnects us with primordial unity in a more “intimate” way, with the benefit of new consciousness skills. These include the ability to cultivate true interspecies intersubjectivity as we advance toward ever-more complex consciousness.

Developing intimacy requires “envisioning” other worlds as an act of empathic identification. Imagining through traits carried over from Magical and Mythical structures, directed by the Mental structure, moves us toward the Integral structure. Just as a shaman enters the worlds of plants or animals to gain magical power, and the biologist observes plants or animals to gain knowledge, the *biologist-shaman* enters the *umwelt* of plants or animals to gain wisdom. Recent studies of nonhumans affirm the importance of new subject-oriented methodologies and that these support the evolution of human consciousness.

In *Are We Smart Enough to Know How Smart Animals Are?*, primatologist Frans de Waal’s argues that the more humans evolve, the more we become aware of nonhuman intelligence; we can discern a correlation between human evolution and our ability for interspecies intersubjectivity. As we evolve to become a more compassionate, empathic species, we understand more about the rich, “magic wells” of experience of other species, (as de Waal’s calls them). Those “magic wells” inform our own understanding of what it means to be human (2016). He gives the example of methodologies that have shifted away from the purely objective study of nonhuman animals toward methodologies that consider the experience and inner environment of the subject, and that the observer *participates* in the experiment: “Instead of making humanity the measure of all things, we need to evaluate other species by what *they* are. In doing so we will discover many magic wells, including some as yet beyond our imagination” (2016, p. 275).

We are just beginning to tune into nonhuman worlds invisible to us, as macrophase awareness influences how we look. The difference between looking and seeing, expands our glimpses of beautiful interspecies intersubjectivity. As we shift away from our narrow, microphase perceptual bubble and expand our range of consciousness, we become *poly-perspectival*—more intimate with the “magic wells” of experience all around us, enabling us to draw wisdom from other *umwelten*.

Continuity and Poly-Perspectival Wisdom

Although Darwin himself had a deep love of nonhumans and attributed sentience to many other species, the modern tendency toward anthropocentrism has roots in Darwinism. Toward the end of *The Descent of Man*, he stated that although he believed a difference exists between human and nonhuman cognition, he characterized this as only a degree of difference, not the huge gap conventionally assumed during his time:

We have seen that the senses and intuitions, the various emotions and faculties, such as love, memory, attention, curiosity, imitation, reason, etc., of which man boasts, may be found in an incipient, or even sometimes in a well-developed condition, in the lower animals. (1909, p. 193)

De Waal (2016) notes Darwin’s evident respect for the interiority of many species, and his early intuitions about cognitive continuity. He discusses our inherited perception of discontinuity between human and nonhuman cognition, and how it this flawed assumption pervades current biological sciences to some degree. He argues that in reality no gap exists; instead, we can assume a continuous spectrum of cognition from nonhumans to humans. De Waal refers to our anthropocentric worship of the frontal lobes “hailed as the seat of rationality—but according to the latest anatomical reports, they are not truly exceptional. . . . All in all, the neural differences seem insufficient for human uniqueness to be a foregone conclusion” (2016, p. 124). While biological science has only recently granted sentience to nonhuman mammals (and other species), Darwin wrote passages about the playfulness of insects (supposedly at the bottom of the sentience hierarchy) a little more than a hundred years ago (1909). Because of stubborn epistemological blocks, studies have only recently confirmed the possibility that bee colonies possess complex sentience and can experience emotions such as depression (Bateson, Desire, Gartside, & Wright, 2011). At this crucial moment when global bee deaths occur at alarming rates, it behoves us as a species to understand their *umwelt* in an effort to save them—and ourselves. Our ability to attribute *umwelten* to nonhumans increases our awareness of how rich those experiences are, and how attunement to *umwelten* offers us a potentially better future.

As noted earlier, the Integral stage in the evolution of consciousness incorporates traits from other structures, yielding a more fluid, flexible, complex consciousness. In the Magical stage, pre-perspectival humans, did not differentiate themselves from nonhumans. Gebser calls the magical unity of the pre-perspectival stage, the “vegetative intertwining of all living things” (Gebser, 1949, p. 49). As we moved through the Mythical and Mental structures, we became farther removed from that “vegetative intertwining” until we strongly identified only with human subjectivity and ordinary

states of consciousness. Our necessary shift toward aperspectival awareness requires the ability not only to attune to nonhuman consciousness, but also to shift to other states of consciousness in order to do so. Dr. Allen Combs calls aperspectival awareness a more “transparent, or *diaphanous*, experience of reality, one in which perspective, no longer anchored to perspectival ego, becomes fluid” (Combs, 2002, p. 101). The ability to have experiences of intersubjectivity with nonhumans indicates an emerging fluidity and complexity of consciousness.

Cognitive continuity between species, the cultivation of poly-perspectival wisdom and the emergence of aperspectival awareness, originates in the unity of the FGE. Interspecies cognitive continuity supports the idea of primordial unity of all species. Poly-perspectival wisdom—using many modes of consciousness to facilitate interspecies information sharing—releases knowledge unattainable to the ordinary mode of human perspective. As we cultivate poly-perspectival wisdom, scanning the consciousness continuum, we develop a more fluid, “diaphanous” experience of the world: *aperspectival* awareness. That fluidity of consciousness enhances creative integration toward conscious evolution. The complex system of the conscious cosmos, or what panpsychist philosopher and Whitehead scholar Christian de Quincey (2010) calls, the “cosmic organism,” requires free-flowing information sharing to facilitate overall systemic health.

Mutualism, Cognitive Ripples, and the Consciousness Continuum

Shamans experience the presence of interspecies consciousness and attune to the continuum of consciousness in nature. Neurotheologist Michael Winkelman proposes that “shamanic rituals have ancient roots built out of prior adaptations revealed in the homologous behaviors humans share with closely related species” (2010, p. 42). In other words, spiritual practices (and the desire to enter the experience of nonhumans) have roots in nonhuman cognition, and consciousness. We seek primordial connection to the world around us through attunement to the consciousness continuum.

Winkelman discusses the importance of *emotiomentation* in the development of the mammalian brain: how facial expressions and nonverbal gestures and communication create “collective awareness,” and that these non-verbal group communications eventually led to ritualistic behaviors associated with early shamanism (2010). De Waal also proposes that collective awareness in primates arose from an evolutionary adaptation that serves the survival of the group (2014). Non-verbal behaviors and signaling, such as reading body language, facial expressions and calls or hoots enhanced collective awareness. Perhaps our obsession with the human brain and symbolic language, obscures our ability to cultivate collective awareness, not just within our own species, but with others. Animal behavior researcher Jonathan Balcombe says that, “for all the value we ascribe to our ability to speak, language could have a dulling effect on the rest of our perceptions” (Balcombe, 2010). In a sense, humans may be too busy verbalizing to listen with our other senses, blocking out a more primordial conversation. As Berry put it, “We are talking only to ourselves. We are not talking to the rivers, we are not listening to the wind and stars” (1991).

In our current paradigm, most humans have by now lost the intuitive, embodied ability to

read non-verbal language present everywhere around us. Human forms of communication and expression became more significant during the Mythical and Mental structures. In *Becoming Animal*, philosopher and naturalist David Abram says of this original sense of language that it is . . .

less a human possession than it is a property of the animate earth itself, an expressive, telluric power in which we, along with the coyotes and the crickets, all participate. Each creature enacts this expressive magic in its own manner, the honeybee with its waggle dance no less than a bellicose, harrumphing sea lion (Abram, 2010, p.171).

From the ancient, pre-perspectival worldview, as well as the emerging aperspectival worldview, language becomes a property of the “animate earth,” not just of human beings. Our ability to understand what our senses tell us about nonhuman expressions all around us, and even within us, helps us to become better humans; more intimate, fluid, and intersubjective—better aligned with the whole.

Contrary to Modernist assumptions, current research reveals the highly developed senses and intelligence of nonhumans (including insects, plants, and microbes). As ancient people were able to “read” animal behavior to warn them of inclement weather, natural disasters, or even to help them find needed resources, science has just begun to view the intelligence of animals as real and beneficial to humans. The integration of all structures of consciousness, and the ability to combine “reading” of animal experience and expressions with scientific knowledge of their behavior and abilities, could be an essential tool not only for our biological survival but more importantly for our conscious evolution. As we relearn to respect, value, and understand the intelligence of nonhumans, we regain a lost skillset, the ability to thrive through cultivating symbiotic relationships and *mutualism*.

Evolutionary biologists recently published a study documenting the symbiotic relationship between the Yao honey-hunters of East Africa and the honey bird. Through reciprocal signaling, honey-hunters and honey guides discover ways to access honey. The honey-hunter calls the bird through sounds, and the bird alerts the honey-hunter to the presence of a hive. The humans gain access to the hidden hive, and the honey guide bird gains access to the contents of the comb, which they cannot open themselves. This clearly displays inter-species *mutualism* and reciprocal communication (Spottiswoode, Begg, & Begg, 2016). Unfortunately, the legacy of Cartesianism, and its hyper-perspectival focus on human intelligence, continues to undervalue interspecies mutualism. From partnerships between microbes and cells in our own bodies, to hunting alliances between humans and birds, mutualism reveals nature’s intelligence.

In *Dogs That Know When Their Owners Are Coming Home*, biologist Rupert Sheldrake presents studies that suggest strong telepathic, premonitory, and navigational abilities in many nonhuman animals. He proposes that attunement to nonhuman animals can tell us a lot about what’s going on in the world. He gives the example of several Chinese studies of animal behavior as predictive of seismological events, and discusses his own studies with colleague David Jay Brown in California that confirmed a strong correlation

between strange animal behavior and impending seismological events (2011). The Mental perspectival structure obscures mutualism between humans and other species. By contrast, poly-perspectival wisdom and aperspectival awareness shape a more fluid ability to experience this intrinsic, mutual connection.

De Waal considers “cognitive ripples” significant indicators of cognitive continuity. He points out that organisms develop streamlined cognition to concentrate information flows toward what it “needs to know.” Once information is “known,” it ripples throughout the cognition continuum:

The more scientists discover, the more ripple effects we discover. Capacities that were once thought to be uniquely human . . . often turn out to be widespread. . . . Cognitive ripples spread from apes to monkeys to dolphins, elephants, and dogs, followed by birds, reptiles, fish, and sometimes invertebrates (2016, p. 69).

De Waal points out that facial recognition, once considered (by modern science) a uniquely human trait, has recently been discovered in many mammals, cold-blooded animals, and even insects. The more we develop the ability to recognize these “ripples,” the more we find. Our stage of consciousness goes hand-in-hand with how well we recognize continuity and value it.

Recent recognition of cognitive continuity supports the idea of a consciousness continuum. The tendency toward interspecies communication and mutualism originates in our fundamental connectedness, the FGE. Poly-perspectival wisdom in humans facilitates the ability to traverse the continuum of consciousness, gathering valuable insights into experience and knowledge of other species, enhancing the longevity of the cosmic organism.

Integral Methodology and Delicate Empiricism

The perspectival Mental structure of consciousness created objective empiricism, an epistemological position that has rendered many wonderful discoveries—including the ability to observe very small subatomic scales, and also huge scales, such as a “picture” of our known universe right back to a few moments after the Big Bang. However, objective empiricism cannot render an understanding of our subjective experiences and how those experiences connect to create our world. During most of the Mental Structure, reductionist science did not see the world in terms of connections, and the Cartesian paradigm categorized most of our world as insentient. Only recently have biologists begun to perceive of the world as a sentient, connected whole in which relationships between species matter a great deal.

Biologists and other scientists now perceive how deeply we are, in the words of E. O. Wilson (1984), “kin” to other organisms, and not just primates. Wilson’s concept of *biophilia* documents and describes our intrinsic desire to affiliate with other life forms, as a result of our primordial genetic connection (1984). The more scientists discover about DNA, the more we understand that all Earthlings—from cells to cetaceans—evolved as siblings in the same terrestrial family. We already see signs of some scientists shifting

from the Mental to the Integral structure of consciousness, as they transcend the false dualism that separates humans from cosmos. Jean Gebser attributes the inauguration of this shift to Uexküll's his theory of "interconnections." Gebser observes that in moving toward the Integral stage, "in the natural sciences there is an insistence on the diaphanous and aperspectival manifestation of interrelationships" (1949, p. 386). Methodologies that include attunement to diverse nonhuman *umwelten* reveal those interrelationships through a more "diaphanous and aperspectival" vision of the world as a continuous and contiguous whole. *Integral methodologies* proceed from the worldview that includes biophilia, and interrelatedness, and incorporates various epistemologies to develop macrophase awareness.

The shift toward *Integral methodologies* includes studies of nonhuman intelligence previously rejected by mainstream science. In the perspectival paradigm, anthropocentrism went hand-in-hand with hyper-individuality. As the Mental structure shifts into the Integral, aperspectival and fluid consciousness turns the previous ontological hierarchy upside down—where humans no longer occupy the apex of evolution. Rather than descent or ascent, we can see evolution more like ripples in a pond, or a nested hierarchy in which what has been considered the "lowest" form becomes "highest" in terms of its creative flexibility and ability to adapt. For example, viewed through an aperspectival lens, microbes, fungi, and plants become the most proliferative, intelligent, and adaptable species on the planet.

As noted above, the perspectival Mental structure created objective empiricism, a way of observing insentient objects using insentient mechanisms. The shift toward the Integral stage renders a more aperspectival epistemology—*delicate empiricism*—originally elucidated by Johann Wolfgang von Goethe, in order to better understand the world as a living organism. Like Uexküll, Goethe could be seen as an Integral scientist operating within the Mental structure. Director of the Nature Institute, Craig Holdrege, conducts his research with a Goethean view of the natural world—an integral ontological-epistemological combination.

Goethe saw *delicate empiricism* as a way to move toward alignment with the subject, rather than create distance for the sake of objectivity: "There is a delicate empiricism that makes itself utterly identical with the object, thereby becoming true theory. But this enhancement of our mental powers belongs to a highly evolved age" (Miller, 1995, p. 307). This "enhancement of our mental powers" is a clear aperspectival and macrophase shift toward an Integral methodology. In *Thinking Like a Plant*, Holdrege explains that in order to understand the genius of flora, we must orient ourselves toward process thinking. Because our Mental structure orients us toward object thinking, we fail to identify the special creativity and intelligence of plants. "The thinking we use to follow and understand the plant as process cannot be static. It has to move with the processes and transformations" (Holdrege, 2013, p. 77). Holdrege makes a strong case that learning to think like a plant not only works as an important scientific methodology but also involves a necessary shift toward a more transformational consciousness:

When plants help us to become attuned to process, we gain a capacity to discover in any field of inquiry a wealth of dynamic and transformative processes that

static and additive ways of thinking would never see. . . . Just as the plant forms distinct parts but lets them go again, we form clear and distinct ideas as phases in a process, but we can also let them wilt and die away as the plant of living knowledge develops. (172-173)

Delicate empiricism, an adaptable way of thinking, allows the observer to approach a field of inquiry as a participant, and, by extension, a *student* of the subject. Attunement to the *umwelt* of the plant renders not only an understanding of its unique creativity but also its inherent wisdom with many applications toward humanity's conscious evolution.

Plant Intelligence and Aperspectival Awareness

As mainstream science shifts toward more Integral methodologies, it reveals mounting evidence for plant intelligence. Plant neurobiologists Stefano Mancuso and Alessandra Viola have incurred ridicule from the mainstream scientific community for daring to flip the ontological hierarchy; the audacity to consider plants intelligent and complex as any species, without the benefit of human neurobiology. They argue that plants qualify as the dominant species on Earth given that plants are much more abundant on Earth than humans—humans only account for about .3 percent of animal life (Mancuso & Viola, 2015), and according to recent scientific studies, phytomass (plant biomass) is about 1000 times greater than zoomass (animal biomass) (Mora et al, 2011). Mancuso and Viola also make the case that plant life has a more complex sensory system than humans. Not only can they “see” by using light sensitivity distributed throughout their bodies, but they can “smell,” sense touch, “hear” vibrations not through ears, but “mechanosensitive channels,” and beyond that, plants have fifteen sense we do not. Not only can plants recognize and identify harmful chemicals, they can render some chemicals harmless (phytoremediation) (Mancuso & Viola, 2015). Mancuso and Viola and other researchers attempt to understand the *umwelten* and intelligence of plants, exposing human biases and constructs that prevent us from using information offered by plant creativity. In a polluted world, our survival could depend on phytoremediation and the biodiversity of plants. Furthermore, the evolution of human consciousness could well depend on the creativity and intelligence of plants. Plants and other species have superpowers that exceed anything humans are capable of; our survival depends on our ability to learn from the entire global ecosystem.

Biologist-shamans, using *delicate empiricism* and *poly-perspectival wisdom*, cultivate Integral and aperspectival methodologies to discover solutions present in the intelligence, creativity, and experience of the nonhumans. Through the special gifts of plant perspectives, we can gain access to information and experience within the consciousness continuum, beyond the limits of our narrow human *umwelt*. Nonhumans not only possess many senses humans lack, but their molecular makeup may allow us to transcend our limited senses. By learning more about the *umwelten* of certain plant species, and by ingesting substances they produce, we can expand and facilitate deeper connections to other levels of consciousness.

The use of entheogens and hallucinogenic plant substances, as well as reptile and amphibian venom, challenge the rational epistemologies of the Mental structure and

Modernist paradigm in general. Previous to the Mental structure entheogens and psychoactive substances may have played a significant role in shaping the evolution of consciousness among humans. Winkelman explains the link between psychoactive substances, induced mystical experiences, and human evolution:

These experiences reflected an enhanced integration of unconscious processes and potentials into consciousness and the overall integration of brain processes. Human evolution was stimulated by interactions among exogenous neurotransmitter substances, the adaptive potentials of the states of consciousness they produced, and the shamanic ritual practices that supported the engagement with altered states. (2013, p.45)

Plant intelligence and molecular composition holds a significant key to our conscious evolution. The devaluation of plant intelligence and direct connection with that intelligence through altered states may impede our ability integrate consciousness modes.

Ethnobotanist Terrence McKenna called the reconnection to plant sentience “the gnosis of the vegetable mind,” and argued for a necessary “Archaic revival” that would return us to a partnership-oriented society (1992). Rather than the Mental structure definition of gnosis as a dualist form of enlightenment, what he meant was that we return to a former oneness with the mystical knowing of plant species. The cultivation of this oneness took place during ingestion, at which time the plant imparts information. The mystical knowing of plant species connects us to the FGE as a tool of communion, a tool of intimacy. Just as the microscope and telescope allow us to view many biological scales, altering our conscious lens through plant intelligence allows us to envision many spiritual dimensions. Our integral methodologies combine an ancient “gnosis of the vegetable mind” with post-Archaic structures and aperspectival awareness toward a more expanded ability to heal individuals and societies.

Ancient pre-perspectival practices and recent integral scientific studies confirm that the alterations of consciousness induced by these substances have many psychological and biological palliative effects. We could compare the ability of plants to remediate harmful pollutants in our biosphere to their ability to remediate psychological pollutants in our noosphere. Recent university studies show that use of hallucinogens can treat a variety of conditions ranging from depression to post-traumatic stress disorder (PTSD). For example, one study reveals that psilocybin can treat stress disorders through its regenerative effects on the hippocampus (Catlow, Song, Paredes, Kirstein, & Sanchez-Ramos, 2013). Another study by Charles Grob at Harbor UCLA uses psilocybin to treat anxiety in terminally ill patients; Grob has also extended his studies to include a wide range of anxiety disorders (Grob, 2011). Contemporary medicine and psychiatry take consciousness-altering plant substances seriously as an alternative to dangerous synthetic pharmaceuticals that often treat only symptoms, not underlying problems. Independent studies using amphibian venom generate even greater controversy. For example, Mexican physician Octavio Rettig Hinojosa documented his work with toad venom in *The Toad of Dawn: 5-MeO-DMT and the Rise of Cosmic Consciousness*. He says of the Sonoran toad:

The incredible thing . . . is that they have the correct concentrations and necessary

enzymes for the methylation of O-Methyl-bufotenin into 5-MeO-DMT for rapid and easy absorption. . . . In the right doses, they open new dimensional portals in our lives and heal our species. They induce deep meditational states that connect and correct human consciousness. (2016, p. 15)

Just as McKenna pointed to “gnosis” or “spiritual knowledge” in the plants around us, Hiniyosa points out there may be “dimensional portals” to the FGE hidden within many substances within our natural world—in other words, awakening to what nonhuman beings try to tell us can help move us toward the Integral stage. Attunement to the FGE “connects” us to ubiquitous sentience and creativity, and also “corrects” the fallacy of hyper-perspectival, hyper-mental thinking. In other words, that original “vegetative intertwining” of all consciousness invites us back into the fundamental connection through “*molecular magic*,” which otherwise would remain unknown to us. Life seeks to connect with life. This echoes E. O. Wilson’s theory of *biophilia*, but adds the Integral dimension of the biologist-shaman. We feel drawn to connect with diverse life forms through alternative modes of consciousness, attracted by a consciousness continuum overflowing with “magic wells” of experience.

Chi-Sei, Imaginal Gates, and Integral Consciousness

In *Intelligence In Nature: An Inquiry into Knowledge*, anthropologist Jeremy Narby argues that intelligence exists everywhere around us, and gives many examples of studies that support the notion of widespread nonhuman sentience (Narby, 2005). He cites examples in which scientists have begun to examine the *umwelten* of different species, from slime molds to cephalopods. For example, both slime molds and cephalopods can navigate mazes, demonstrating awareness of their environment, qualifying them as intelligent beings.

Narby discusses the Japanese word *chi-sei* that closely correlates with the English word “intelligence.” Study of different cultural backgrounds and interpretations reveals how the Western concept of *intelligence* reflects an anthropocentric and brain-centric bias, whereas *chi-sei* refers to intelligence widely distributed beyond brains and nervous systems (Narby, 2005) The Japanese term *chi-sei* can be traced back to an ancient Shinto spiritual worldview that views nature as intrinsically intelligent. Once we push aside our Western Cartesian assumptions, we can open up to what other cultures take for granted: nature teems with its own intelligence.

Our attunement to many different *umwelten* depends on our ability to shift perspectives using imaginal creativity, our ability to focalize and defocalize, to connect us with the FGE. Our ability to understand the implications of these attunements depends on critical thinking skills and the ability to envision systemic connections. Poet and noted expert herbalist Stephen Harrod Buhner correlates our ability to connect with plant intelligence with our access to the imaginal realm:

Once sensory gating channels are expanded, the organism can take in more meanings, and the increased knowledge opens up significant new avenues of behavior, response and innovation. That is the reason that mechanisms exist in

every organism (throughout the ecosystems of Earth) for the expansion of sensory gating channels (Buhner, 2014, p. 67).

Buhner describes the connection point between the imaginal realm and evolution envisioned by Goethe in his concept *Urpflanze*, the archetypal plant form. “When we find our way into the imaginal world, we enter a place where we can perceive archetypes before they are expressed into form” (371). The ability to enter the imaginal realm is a distinctly Mythical trait. Whereas in the Magical, we remained in what Gebser referred to as a “dreamless sleep” (Gebser, 1949), the Mythical differentiated us to “enter” the realm of waking consciousness. Buhner explains that, when needed, archetypes “extrude” from the imaginal realm into form in order to “keep homeodynamis intact, to maintain the self-organized field” and that “everything we encounter—every ability, facility, behavioral expression possessed by the phenomena we encounter—has been generated out of the needs of the self-organized system itself” (2014, p. 372). These “extrusions into form,” necessary for the evolution of consciousness, result from our connections to the imaginal realm (the FGE). Our primordial conversation takes place primarily at the level of the imaginal, meeting our global systemic needs through creative sharing that manifests an array of forms to support our individual and collective evolutionary growth.

Every organism, including humans, can focalize and defocalize through what Buhner calls sensory gating channels. In the Mental structure, humans focus on perspectival, narrowly focused modes of information gathering. In order to expand consciousness, we have to employ forgotten abilities native to other organisms. We need to gather information using different modes of knowing and perceiving. Poly-perspectival wisdom requires the ability to narrow and expand “gating channels,” much like changing the aperture of a lens.

Biologist-shamans employ a Goethe’s “delicate empiricism” that integrates different consciousness states. Uexküll’s passage illustrates the Integral ability to traverse the imaginal in order to render a dazzling picture of connectedness. His interest in the inner lives of his subjects enabled him to envision how those lives *mean something* to the interdependent whole:

The girl gave her boyfriend a bouquet of flowers that she was using as decoration, and so the flower stalk entered a love duet. The ant, which used the stalk as a path, hurried along it to the ovary of the flower in order to milk its milk cows, the aphids, there, while the cow converted the green feed, to which the stalk belonged, into milk. The spittle-bug larva grew up in the foam house that the juice of the stalk had provided for it and soon filled the meadow with its soft love chirps. (Von Uexküll, 2010, p. 186)

The biologist-shaman views the world through the eyes of delicate empiricism and incorporates the imaginal realm into their inquiry, envisioning the cosmos as an interconnected, sentient whole. The Integral scientist applies aperspectival awareness and poly-perspectival wisdom, employing many epistemologies and attuning to diverse humans and nonhuman umwelten to render a more intimate understanding of that whole. As complex, integral methodologies in the sciences render intimacy-oriented and

macrophase perspectives of the cosmos, our collective consciousness makes a vital shift toward the Integral Stage.

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