Wholeness Lost/Wholeness Regained: A Process Model View

Reams, Jonathan Roy, Bonnitta

This paper was prepared for "Transdisciplinarity and the Unity of Knowledge," June 2-6, 2007, in Philadelphia, PA, USA, a program of the Metanexus Institute (www.metanexus.net)

Abstract: In this paper we situate the quest for synthesis, transdisciplinarity, unity of knowledge, or the wholeness implied in the phrase "the whole story of the whole cosmos for the whole person," as being caught in a kind of category error, bound by the dual character of the epistemological field, while also proposing that just this kind of search resolves itself through an ontological dimensioning of Being. We begin with a brief tour of the view that infuses our perception of this issue, describing the main features of the distinction we make between the epistemological field and ontological dimension. Two personal accounts of falling into a state of grace present a narrative approach to the spiritual experience of what we call an ontological encounter. This is followed by an exploration of Bohm's notions of process, explicate and implicate orders and the holomovement. The distinctions Bohm provides help to delineate the distinction we make between the epistemological and ontological. We further make use of Bohm's conception of thought as a system to point to some out the limitations inherent in knowledge. These distinctions are then expressed from the view of the Process Model that is introduced. The nature of the epistemological field and how the processes within it generate the common structures of cognition and knowledge is outlined in detail. We then use this framework to map Brown's description of cognitive microgenesis, providing a rigorous approach to how cognition and knowledge are generated at a very deep level. The ontological dimension of Being is proposed next. This provides a way to enhance sensitivities aimed at allowing the kind of falling into ontological encounters with the ontological dimension of Being that we propose as essential in order to infuse knowledge with wholeness. Finally, we posit that only this ontological dimension is adequate to the desire to create knowledge with a view from wholeness.
Keywords: Process Model, wholeness, knowledge, holomovement, epistemological field, ontological dimension.

Note to the Reader: The following article is a theoretical abstraction that intends to draw you, the reader, to awareness of an experiential place that we are using the term "ontological encounter" to describe. Therefore, we ask you to engage the article both intellectually and experientially. Although the conceptual abstractions we use are laden with connotations emerging from our own ontological encounters, and thus can be challenging to communicate, the experiential component we ask of you is fairly easy—we ask you to contemplate for a moment on the notion of

ever-present-wholeness

As you read, we ask that you consider this *ever-present-wholeness.* However you consider this is ok. There are many aspects to *ever-present-wholeness.* You might catch yourself thinking of *ever-present-wholeness* as something primordial that is gone or lost—this too is *wholeness ever present,* since, under its aspect of time past this continually manifests, in this case as your yearning to return to a time now lost. You might catch yourself thinking of *ever-present-wholeness* as a future goal – as something that is awaiting you, or still to be realized—this too is *wholeness ever present,* since under its aspect of time future, this continually manifests, in this case as your yearning to enter a time not yet. You might catch yourself thinking of *ever-present-wholeness* as something imaginary—this too is *wholeness ever present*, since under its imaginary aspect is the implicit recognition of a state where *ever-present-wholeness* is real.

In this article, we will circle *ever-present-wholeness* from various conceptual windows. These iterations aim to provide entrees through which *ever-present-wholeness* can be recognized, and in the end, we hope you will better understand the meaning beneath your own experience of this

ever-present-wholeness

Introduction

Milton's Paradise Lost, and the Biblical story of Adam and Eve eating from the tree of knowledge and thus loosing access to the Garden of Eden, are powerful images in Western culture representing mankind's fall from grace. Eastern notions such as maya/illusion and forgetfulness deliver the same message of a lost or forgotten original wholeness. This fall, or disconnection from wholeness, is intimately entwined with our pursuit of knowledge.

This pursuit of knowledge has brought about undeniable benefits, but they come with a growing cost of unintended consequences. Today we are struggling with empirical evidence that there is an undeniable relationship between the accumulation of knowledge for the benefit of mankind, and a concern that their costs out-weigh their benefits. It is clear that technological advance comes with technological abuses, scientific advance contributes to environmental destruction, and economic fortune at one end of the world promotes despair somewhere else. Across generations we have seen liberation ideologies turn into fascistic ones, and fundamentally devout religions fuel global strife. These issues are symptomatic of a lack of wholeness, or fragmentation. The question then arises—is this fragmentation inherent in the pursuit of knowledge, or can knowledge participate in wholeness?

Organizations such as Metanexus (www.metanexus.net) are asking how we can take the measure of the knowledge created by science and gained through contemplative practices, and how these can be integrated with our spiritual and religious worldviews. It is clear that we yearn for this kind of synthesis. But can this holy grail of a transdisciplinary unity of knowledge actually deliver an understanding and worldview that speaks to the wholeness we seek? This is a central theme of our presentation: Is this postmodern quest for grand synthesis and integration/unity of knowledge the way to wholeness? Or are the means for taking the measure of knowledge fundamentally different than knowledge itself? In this paper we will present a way of looking at the

inherently dualistic character of knowledge and its relationship to wholeness lost and wholeness regained with a *view from wholeness*.

Spiritual traditions East and West alike provide soteriological and injunctive methods to regain wholeness. However, these spiritual narratives stand in apparent opposition to the scientific pursuits of a unified theory of nature, and its psychological equivalent—a unified psychology of cognition and self—pursuits which paradoxically lead us away from a sense of wholeness. We propose to resolve this apparent paradox by presenting a framework that integrates cognition, self, and the empirically veridical world in ways that reclaim wholeness as their source. Our approach integrates a wide spectrum of understanding, including Bohm's *holomovement* and *thought as a system*, an ontological *view from wholeness, cognitive microgenesis,* and *a process model* including the *ontological dimensioning of Being.* This framework describes how ontological *view* is a fundamental foundation that shapes our perception of reality, and why a *coherent view* is necessary to situate and contextualize specialized knowledge. It includes the authors' Process Model that reveals how individual and cultural perspectives are laid down as cognition arises, and makes a critical distinction between the epistemological field in which this occurs and the ontological dimension. It is in this ontological dimension that *Being* appears and wholeness is regained. Weaving these three elements together will allow us to show how the wholeness that we fear lost and seek to gain, is always already present, and paradoxically *sources its own apparent loss in multiplicity.*

The critical distinction we will focus on in our paper and presentation is between this epistemological field and the ontological dimension. We are putting forward a view that situates the quest for synthesis, transdisciplinarity, unity of knowledge, or the wholeness implied in the phrase "the whole story of the whole cosmos for the whole person," as being caught in a kind of category error, bound by the dual character of the epistemological field, while also proposing that just this kind of search—driven by the loss of wholeness—resolves itself only in a *view from wholeness* found in an ontological dimensioning of Being.

First Iteration: An Introduction to Approaches

We will begin by taking a brief pass over the territory we intend to cover. This introductory approach lays out how we view the distinction between the epistemological and ontological from various starting points. By circling around this a number of times from a variety of approaches, we hope to make our view visible, to spark resonance or recognition.

One of the approaches we use is from a spiritual point of view, which situates the notion of wholeness in terms of "falling into" as opposed to "falling from" grace. We will look at two descriptions of this state of grace, to mine their narratives for clues to characteristics of the ontological dimension. For it is here that an authentic, unbounded wholeness is encountered. However, the ontological cannot be accessed through reasoning—rather we need to be present to that state of wholeness, described as grace—in which the ontological situation reveals itself. In the process we will show that our conventional (and habitual) ways, or *view*, of looking at the world through epistemological categories and constructs creates a kind of blind spot in which we are no longer able to apperceive (see/feel) our ontological situation. We discuss how the most

fundamental epistemological categories such as subjects and objects, time and space, are themselves obstacles to an ontological apperception where these categories are not relevant.

We also approach this distinction from the view put forward by David Bohm. In his ongoing inquiry into the foundations of reality, Bohm (1980, 1993, 1994, 2003) came to see what he called "unbroken wholeness" as the fundamental reality. He describes "thought as a system" in a way that shows it functioning by limiting, or measuring this unbroken wholeness, correlating with the epistemological field. Bohm used this frame to point to what he referred to as insight, or that which comes from outside or beyond the system of thought, in our framework the ontological dimension. The "event" of insight, coming from the ontological dimension, impacts the system of thought, or epistemological field, in a manner that fundamentally "re-hardwires" it, leading to greater coherence with reality. Like Bohm, we therefore propose an entirely new framework of thinking about thinking—one that includes and integrates the epistemological and the ontological.

We do this in part by contrasting current approaches that intend to integrate and synthesize knowledge. For instance, an "integral" perspective on the subject of unity of knowledge would say that the integration of systems, such as disciplines, would only come at a meta-systemic level. This has a truth to it, and such models, like Wilber's (2000, 2006) AQAL model, can provide a meta-framework for bringing perspective to how various threads of knowledge fit into a synthetic whole. This kind of model can be extremely useful in making meaningful wholes that have practical value in the pursuit of synthesizing knowledge.

However, the view behind such approaches can easily assume a perspective on wholeness that *reasons from within* the epistemological field. That field contains knowing (in the common understanding of the term), cognition, and most of the world as we know it, and as such would seem to contain the wholeness we are looking for. However, there is no reason to believe that this process or method of synthesis would not eventually need to be repeated at a yet higher level of development, going on in this manner ad infinitum. Ultimately, these attempts fail to include the whole person and whole selves in the whole story of the cosmos, because they tend to limit their efforts to an epistemological view. We then discuss how the view from a Process Model framework can address this issue, and help create entirely new methodologies for knowledge-building.

A Process Model (Roy, 2006) view of wholeness emerges from different assumptions about the nature of wholeness. This view makes it clear that the wholeness we are talking about cannot be built up, constructed, or even unfolded. All of these views arise within the epistemological field. Later in this paper we will describe a Process Model view that further clarifies the main distinction between the epistemological field and the ontological dimension.

Recent contributions in process thought have created new methodological tools for integrating cognition and consciousness, knowledge and understanding. Borrowing from Jason Brown's (1991, 1997, 2002, 2005) Whiteheadian theory of cognitive microgenesis, and the pure process thinking associated with the pre-Buddhist Tibetan Bon philosophers (Guenther, 1984, 1989), we present how this Process Model integrates the epistemological field with an ontological dimension of *Being*. The Process Model

describes this process, which is wholeness itself, *as the process of wholeness continually liberating into multiplicity.* It is within this dance that the individual person is fundamentally situated. Thus, with this view of wholeness—an unbounded and authentic wholeness—the individual also understands herself *as self-liberating wholeness,* an apperception of which has been described by various writers as an illumination or opening of Being, a dynamic *opening in to* authentic awareness.

The Process Model describes this in very rigorous terms, presenting a framework that can be utilized as a methodology across disciplines, such that each discipline might adopt a view *from wholeness* even as they contribute to its ever-expanding expression in the form of specialized knowledge. With this new methodology, trans-disciplinary studies may one day develop entirely new languages for expressing the ways that knowledge can be integrated. These may not only inform us on a meta-systemic level, but also in ways that inform the kinds of questions raised within each specific discipline. This then is the hope of the new methodology: that entirely new kinds of questions will lead to entirely new ways of thinking and Being; and create effective solutions to improving the conditions of self-other-world.

Second Iterations: Diving Deeply

We will now take a pause, and ask you to again contemplate

ever-present wholeness

in the context of the impressions, images, concepts, feelings and memories that the first iteration has evoked. Simply note what arises, as it is all aspects of *ever-present-wholeness.* Allow all that arises to flow effortlessly through the stream of awareness, as they require no work on your part. There is no need, indeed no possibility to "figure it out," or have it all fall into place within some epistemological order.

Spiritual Views: Falling into Grace

This light attentiveness, or soft focus, begins to allow attention to be released from the stream of items floating by. It is a preliminary step towards falling into grace. It is a condition of being *accident prone*. It is a state of simply *allowing.* Spiritual traditions from all over the world have been clear that the heavenly state of grace cannot be forced, earned, or reasoned into. One must fall as it were, trip unexpectedly and find that instead of hitting one's head on the sharp rock of uncertainty, it is possible to experience something totally and radically different.

Consider the following descriptions of this kind of falling into grace. The first comes from Alfred Starratt (1979).

In the year 1925 my family lived on a small farm in Danvers, Massachusetts. My father was chief engineer at the Salem Electric Light Company. He had neither the time nor the inclination to work the land, but the farm was a pleasant place for the children in the family—two older sisters and a younger brother besides myself. I

was ten years old that summer and thoroughly enjoying my love affair with the world.

One pleasant moonlit night I responded to the call of some inner urge for adventure by climbing out of my bedroom window to the roof of the porch just below. From there, as I knew from many past excursions, it was easy to cross over the top of a couple of intervening sheds and reach the edge of the roof of the big barn. Soon I was up on the ridgepole of that tall building and I sat down feeling that I was at the highest point in all creation. The old farmhouse and the outbuildings were at my back and before me stretched low rolling fields toward a distant stand of trees and then rising hills. The air was clear and still. Moonlight washed out most of the stars and illuminated the scene. Below me Grunt, our pet pig, was making snuffling noises in his pen.

As I sat quietly there on the roof of the barn I began to notice a strange transformation coming over everything I could see. Things were becoming luminous before my eyes. They shone from within, flowing with light in a riot of colors that continuously increased in intensity. It was as if the grass of the fields, the brown fences, the red barn that belonged to our neighbor, the white walls and green roof of our own house when I turned to look back—as if they all were made of stained glass with sunlight shining through them.

As this inner light grew brighter I noticed that it pulsed with a steady rhythm that appeared to me to be the beating of some gigantic heart, as if it were the life-throb of the Self of the World. The scene became a living, scintillating dance of glory—everything beautiful and everything just right in relation to everything else. The very darkness of the distant trees and hills became shining purple and blue.

Then something more strange happened. While still retaining awareness as an individual, the sense of "me" at a fixed location in space and time expanded into less limited conscious perception. I can try to suggest what happened by saying there was a shift of identity from the self of an observer to all that was there to be observed. Instead of seeing that living light, I became the light. It was seeing without any specific person doing the seeing from any particular perspective. The whole circle of the horizon was before my eyes simultaneously.

My personal life became universal life. The rhythm of the luminous pulse beat was the surging rhythm of my own vital processes which had become identical with inner shaping and sustaining power of all creation. I could feel directly the variant urges, strivings and relationships of the different forms of the one limitless life. I felt in a tree its love for the earth and air; the holding-on of fence posts; the grass reaching toward the light; all things gathered and held in the supporting embrace of earth. I was also sensitive to conflict among the various forms, where life struggled with life and one kind of existence was absorbed into another kind. But the opposing tensions were experienced as one hears dissonant chords in great music which add to the beauty as they are resolved in harmony.

How long the experienced lasted I cannot say, but eventually the process reversed itself. My conscious awareness took up again the perspective of a particular location on the roof of the barn. The light of glory faded. My seeing became a natural human vision again and I had returned to the sensory limitations of a little

boy with an aching bottom from sitting for some unknown length of time on the ridgepole of the barn roof. (pp. 12-15)

This account of Starratt's boyhood experience in which his "*personal life became universal life*" illustrates the kind of falling we are pointing to. There was no conscious intention at work, no attempt to induce an altered state of consciousness, no thing, action, or set of circumstances that could be pointed to as the cause of the experience. The experience simply arose, and then faded. What kind of process can prescribe this shift of awareness to the non local, atemporal universal, and back again? How can we account for a mystical experience in which "*opposing tensions resolving into harmony*" accompanied an inner light that transformed objects "*as if they all were made of stained glass with sunlight shining through them*?"

If we try to account for this shift from the perspective of being an individual in a particular here and now, to being part of a universal wholeness, indivisible into the particulars of 'I,' 'here,' and 'now,' from the standard western interpretation, we would say that somehow the person's cognitive functioning has become "unglued." This pathological interpretation is so strongly embedded in our culture that even a 10 year old boy fears to speak of such experiences, lest he be considered insane:

So what do you do with the most perfect experience of your life? No one had to tell me that nothing like this had ever happened to anyone I knew. They'd say I was dreaming—maybe even that I'd had some kind of crazy fit. Everyone I knew would explain it in such a way as to reduce it to shameful oddity. Members of my family already complained often enough that I was a strange lad "... always his head stuck in a book instead of going out to play with the other children. And when he does go out it is mostly by himself—living in some dream word of make-believe characters out of his book."
On a high hill in Danvers there was a group of old red brick buildings that everyone called The Insane Asylum. You were locked up there if you were different from everyone else. So I kept my experience to myself. (p. 15)

The standard western interpretation depends on a view grounded in a set of assumptions about the nature of the ontological reality of existence. This view assumes that our cognitive faculty somehow perceives the world "as it is." Lear (1998) talks about the problem associated with this process of cognition creating such implicit images of reality by stating that;

We think we are looking at something 'obviously true.' What we do not understand, . . . is that we are being persuaded, not by obvious truth, but by the force of our own projective identifications. We are creatures who cannot help but create mythic accounts of how our mind works, of how we hook onto the world, of what reality is really like. We project this imaginative activity onto the world and then mistake it for 'the way things really are.' In this way, we systematically mistake a bit of ourselves, our imaginative activity, for the world. (p.12)

The collective image that is taken for reality in the standard western view includes categories of *separate* subjects and objects. From this implicit separateness, we create a belief system based on an assumption that our world, and reality as a whole, is at its basis fundamentally fragmented. It is this kind of assumption, backed by the "facts" of "empirical evidence" – that is at odds with something deep inside us that knows differently, and thus drives the search for wholeness.

But what if our implicit assumptions assumed an original wholeness? Then our interpretation of Starratt's experience is stood on its head. Instead of seeing an experience of becoming unglued, we see his experience as awareness falling into or encountering an ontologically prior wholeness, or grace in which reality is a rich, pulsating, vibrant and luminous whole. Instead of seeing a faulty perception of the world, we see that conventional cognition has added the categories of division and fragmentation onto an original seamless universal continuum. If we start with an assumption of wholeness, if we engage in inquiry with a view from wholeness, then we ask different questions. Rather than looking for the causes of an assumed pathology, we might look for the processes that are responsible for laying down the categories of division and separation in each occasion of cognition. If we can understand this process at a very deep level, then we might be able to intentionally shift our awareness from the local and the particular, to the non-local, atemporal, and universal.

Conventionally we seem to be locked into the categories of thought that constitute a fragmented perspective—a view which is limited by the particulars that define it—a separated individual observer, a discrete here and now. The experience of Starratt, while rare, is not unique, and such instances point out the potential for experience to come through a view that is not limited by such divisions. Mystical experiences have been known to philosophers, mystics and saints for ages. Yet, with very limited exceptions, our interpretations of these experiences have been locked into categories of thought that oppose the wholeness these encounters reveal. It seems we need a new view to account for experiences that are not normative, but are nonetheless valuable aspects of our human condition.

From our view, what these experiences suggest is that there is a dynamic process that generates categories of thought – a process that is responsible for setting up the categories of the local and the particular from a continuum of the universal. If such processes are conceptualizable, then it may be the case that they can be made realizable, that is, transmuted into phenomena that can be experienced by the self, rather than properties that condition or constrain the self.

Our second example of falling into grace comes from Scott Russell Saunders (1993):

According to a theory favored by many physicists, the universe bloomed from the breaking of symmetries in the first smidgen of a second after the Big Bang. Symmetry breaking led to the preponderance of matter over anti-matter, the clumping of stuff into stars and galaxies, and the division of a single force into the four we observe (gravity, electromagnetism, strong and weak nuclear forces). Myths likewise tell us that originally there was a unity, and now there is a scatter; originally there was no break between life and ground, between creatures and Creator, and now there is estrangement. When Buddhism speaks about recognizing our true Self, or Taoism about centering ourselves in the Way, or Judaism about

8

Eden before the Fall, or Christianity about being One in Christ, they point, longingly, toward an unbroken symmetry, a primal unity.
Pilgrims often journey to the ends of the earth in search of holy ground, only to find that they have never walked on anything else. Here, for an eloquent example, is what Peter Matthiessen discovered in Tibet, where he went in search of the snow leopard and enlightenment:

The search may begin with a restless feeling, as if one were being watched. One turns in all directions and sees nothing. Yet one senses that there is a source for this deep restlessness; and the path that leads there is not a path to a strange place, but the path home. . . . The journey is hard, for the secret place where we have always been is overgrown with thorns and thickets of "ideas," of fears and defenses, prejudices and repressions.

I have spied that secret place from time to time, usually as through a glass darkly, but now and again with blazing clarity. One time it glowed from a red carnation, incandescent in a florist's window. Once it shimmered in drifting pollen, once in a sky needled with ice. I have seen it wound in a scarf of dust around a whirling pony. I have seen it glinting from a pebble on the slate bed of a creek. I have slipped into that secret place while watching hawks, while staring down the throat of a lily, while brushing my wife's hair. The experience is not a glimpse of realms beyond, nor of becoming someone new, but of acknowledging, briefly and utterly, who I am. (p.155)

This description of "*who I am*" reflects an *ever-present-wholeness* in that it is not about "*realms beyond*" or "*something new*," but rather about a transformation of *view*. There is no way to point to a casual explanation for the occurrence of these views in any traditional sense. For both Starratt and Saunders, the events leading to these extraordinary states of grace, and the very "things" that played their parts, were themselves quite ordinary – a boy, a barn, a fence and its posts; a carnation, sky and ice, a scarf and a pony. For both Starratt and Saunders, the ordinary became extraordinary, because their way of *seeing* was transformed. Their way of seeing had to become whole for the wholeness that is ever-present to reveal itself in the normal and natural; for the place of grace, that "secret place," is "where we have always been," in the normal and the natural. We just need a new way of peering into the normal and the natural. We need a new kind of view.

In the following sections of this paper, we discuss the potential of seeing in new ways that are grounded in and can reveal wholeness through just this notion of view. Just as Starratt's and Saunders' experiences of grace revealed themselves through seeing from a place of grace, we are suggesting that the experience of wholeness arises through the *view from wholeness.* And just as Starratt and Saunders came to understand that wholeness was ever-present, even as they experienced themselves moving back and forth between those seeing-states—between primal unity and scatter, tension and harmony— we are suggesting that the view from wholeness is of *ever-present-wholeness*, *experienced as a movement back and forth between the experience of wholeness lost and wholeness regained.*

David Bohm: The Unbroken Wholeness of the Holomovement and Thought as a System

To provide a conceptual approach or bridge to this view from wholeness, we begin by examining our concept of *order*. What kind of order emerges with a view from wholeness? One of the most important early articulations of this notion was proposed by David Bohm. He used the term *holomovement* to describe his view of movement within an unbounded and unbroken wholeness. In this section we will move from Bohm's process orientation towards knowledge and reality, through his line of inquiry from quantum physics through the implicate order to the holomovement, and into the implications for consciousness and Bohm's notion of thought as a system.

Bohm's work has influenced views in a wide range of fields as diverse as physics, philosophy, business, and communication. We perceive that the seminal nature of his thinking emerged due to an implicit view from wholeness that Bohm sought to express throughout his life. We propose that this view did not result *from* his inquiries into quantum physics or any other discipline, but that its implicitness in his view allowed him to see the wholeness implicit in each area of inquiry he pursued. Bohm (2003) noted how in his work "the central underlying theme is the unbroken wholeness of the totality of existence as an undivided flowing movement without borders. . . . Thus, wholeness permeates all that is being discussed, from the very outset" (p. 80). Bohm also noted that:

> It takes the mind in its totality to perceive the totality of anything. The fragmented mind inevitably sees in parts, while the person who begins with the part thereby fragments his mind. In a sense, to perceive the totality of understanding, one must be a totality. (p.210)

Bohm looked for this totality or wholeness as a measure of coherence in theories, allowing him to pursue a path in life that while marginalizing him from the mainstream for a variety of reasons, led to innovative theories that have resonated with many people over time.

Process, Knowledge and Reality

This essential view from wholeness is a dynamic rather than static one. Bohm (1980) describes the processural and evolutionary nature inherent in his thinking by saying:

> But my attitude has, from the beginning, been that our notions concerning cosmology and the general nature of reality are in a constant process of development, and that one may have to start with ideas that are merely some sort of improvement over what has thus far been available, and to go on from there to ideas that are better. (p. xiv)

Implicit in this process orientation is a view of knowledge (and reality) as other than a static *thing* that can be grasped and fixed in some manner that provides a kind of familiarity and security for the ego. Bohm (1994) goes so far as to show how the notion

of an ego as a fixed identity is incoherent, and presents an alternative view: "There was an ancient view: '*I don't know what I am. What I am is unknown, but constantly revealing itself*'" (p. 167) and "The point is to have the notion of a *creative* being, rather than an *identified* being" (p. 169). These statements display a deep process orientation that avoid static representations of self and reality.

This process orientation is further articulated in the following description of Bohm's (1980) notion of how reality and process are related:

> I regard the essence of the notion of process as given by the statement: Not only is everything changing, but all *is* flux. That is to say, *what is* is the process of becoming itself, while all objects, events, entities, conditions, structures, etc., are forms that can be abstracted from this process. . . . This means that no matter how far our knowledge of the laws of physics may go, the content of these laws will still deal with such abstractions, having only a relative independence of existence and independence of behaviour. . . . Clearly, to be consistent, one has to say that knowledge, too, is a process, an abstraction from the one total flux, which latter is therefore the ground both of reality and of knowledge of this reality. (pp. 48-9)

This view that all of the *things* that occupy our everyday attention, "objects, events, entities, conditions, structures, etc.," are *abstracted* from the process of becoming itself begins to point to a radically different *order* of reality and by implication our knowledge about it. Later in this paper, we will further unpack the idea of this becoming in describing the process model, relating the nature of 'things' and 'knowledge' to what Roy (2006) calls the epistemological field.

This distinction between reality as a flux of becoming and all of that which is abstracted from it points to fundamentally different kinds of order. A process view inherently aims to avoid perceiving the order which these abstractions constitute as having a greater reality than is appropriate. It does not deny all reality to such abstractions; rather it sees them *from* a different view, situating them in a fundamentally different context described by the notion of order Bohm laid out.

Quantum Theory, the Implicate Order and the Holomovement

In order to further unpack the nature of this view and the context it provides to situate our ideas about knowledge and reality, we will focus next on Bohm's (1993) inquiry into the notion of order. The entry point for this inquiry arose from issues presented by the incongruence between the physical concepts and mathematics used in physics.

> What we are proposing here is that this disparity between physical concepts (e.g. particle, wave, position, momentum) and the implications of the mathematical equations arises because the physical concepts are inseparably involved with the Cartesian notion of order, and this violates the essential content of quantum mechanics. What we need is a notion of order for all our concepts, both physical and mathematical, which coheres with this content. (p. 351)

While Bohm sees that relativity theory goes beyond Cartesian notions of order by introducing new concepts such as simultaneity and curvilinear coordinates, it also maintains continuity and locality, which are in contradiction with aspects of quantum theory such as non-locality and discontinuous movement.

> The basic orders implied in relativity theory and in quantum theory are qualitatively in complete contradiction. Thus relativity requires strict continuity, strict causality and strict locality in the order of the movement of particles and fields. As we have seen throughout this book, in essence quantum mechanics implies the opposite. (p. 351)

Bohm (1993) looked beyond this difference to see what both theories might have in common, and noted that even though they get there in different ways, both theories have a quality of unbroken wholeness. The conception of this wholeness challenges our tacit notions of order that have primarily been in used in physics, which "come out of intuitive forms and common experience" (p. 353). He looked for "how an order appropriate to wholeness can be found in our intuition and general experience" (p. 353). The phenomenon of coherent light that was discovered and harnessed in such innovations as the hologram in the 1960's provided Bohm with an example of a qualitatively different example of order, one that;

> seems, on cursory inspection, to have no significant order in it, and yet there must somehow be in it an order that determines the order of points that will appear in the image when it is illuminated. . . . We may therefore say that each part of the hologram contains an enfolded order essentially similar to that of the object and yet obviously different in form. As we develop this idea, we shall see that this notion of enfoldment is not merely a metaphor, but that it has to be taken fairly literally. (pp. 353-4)

This leads to conceptions of enfoldment or implication, and unfoldment or explication. Bohm (1980) proposes;

> that a new notion of order is involved here, which we called the *implicate order* (from a Latin root meaning 'to enfold' or 'to fold inward'). In terms of the implicate order one may say that everything is enfolded into everything. This contrasts with the *explicate order* now dominant in physics in which things are *unfolded* in the sense that each thing lies only in its own particular region of space (and time) and outside the regions belonging to other things. (p. 177)

Cartesian order thus represents a limiting case wherein all of the 'objects, events, entities, conditions, structures, etc.,' are abstracted from the implicate order, and contained in the explicate order. By highlighting the entire realm of these domains as examples of this explicate order, Bohm helps to make clear the fundamental distinction he is making with the implicate order. The relationship between the explicate and implicate orders also challenges the common approach taken in physics and general worldviews. In a manner

similar to how Newtonian mechanics exists as a special limiting case within quantum mechanics, Bohm (1993) shows how:

> What we are proposing here is to turn this notion upside down and say that the implicate order will have the kind of general necessity that is suitable for expressing the basic laws of physics, while the explicate order will be important within this approach only as a particular case of the general order. . . . In this case the order of enfoldment and unfoldment will be fundamental, while the Cartesian order will have a relatively limited kind of significance. (p. 354)

This relationship of the explicate order, containing almost all of our common notions and categories of knowledge and reality, as a limited case or abstraction from the implicate order, sets the context for how we will later refine this notion in our description of the epistemological field within the process model. In line with the process approach we are taking, Bohm then goes on to show how this results in a more dynamic description of the implicate and explicate orders. He draws on principles and qualities of field theory to move from a static idea of a hologram as representing this ground to a flowing, process oriented description of a *holomovement*. He also reinforces how notions of identity are abstractions from this and have only a limited domain in which such concepts have validity.

> Recalling that the essential qualities of fields exist only in their movement we propose to call this ground the holomovement. It follows that ultimately everything in the explicate order of common experience arises from the holomovement. Whatever persists with a constant form is sustained as the unfoldment of a recurrent and stable pattern which is constantly being renewed by enfoldment and dissolved by unfoldment. When the renewal ceases the form vanishes.
> The notion of a permanently extant entity with a given identity, whether this be a particle or anything else, is therefore at best an approximation holding only in suitable limiting cases. (p. 357)

This description of how our common experience arises from the holomovement in a constant process of unfoldment and enfoldment, and how consistency in form or identity is linked to the renewal this process provides is explored further in Roy's (2006) *Process Model of Integral Theory*. This extensive description provides a more detailed and rigorous explanation of the workings of this process.

Our brief discussion of Bohm's notions of order indicate a fundamental and qualitatively distinct way in which we can view Cartesian notions of order in a context appropriate to seeing how it is abstracted from a view of order grounded in wholeness. It also shows how common concepts like 'objects, events, entities, conditions, structures, etc.,' are associated with abstractions from the more fundamental implicate order of reality. The way in which the traditional concepts have tended to dominate the scope of our attention reveals some of the fundamental issues underlying the seeming tension between knowledge and wholeness.

The issues implied in conversations about mind and matter, consciousness and quantum physics and knowledge and reality provide the next focus of our attention. To

address this, Bohm goes on to show how consciousness is also included in this notion of an implicate order.

Consciousness, the Implicate Order and Thought as a System

There has been a good deal of controversy in quantum physics regarding the role of consciousness. The view of many physicists appears to be that the equations of quantum mechanics should not need to include consciousness, that they can describe how quantum level activity operates on subatomic particles in strictly material terms. Others interpret the indivisibility of the observer and the observed in situations like the two slit experiment and Heisenberg's uncertainty principle to indicate that consciousness must be involved in some manner in the description of quantum physics. Within this view, there have been various approaches as to how to best include consciousness. Bohm (1993) approaches this by saying:

> Our proposal in this regard is that the basic relationship of quantum theory and consciousness is that they have the implicate order in common. . . . All things found in the explicate order emerge from the holomovement and ultimately fall back into it. They endure only for some time, and while they last, their existence is sustained in a constant process of unfoldment and re-enfoldment, which gives rise to their relatively stable forms in the explicate order.
> It takes only a little reflection to see that a similar sort of description will apply even more directly and obviously to consciousness, with its constant flow of evanescent thoughts, feelings, desires, urges and impulses. All of these flow in and out of each other and, in a certain sense, enfold each other (as, for example, we may say that one thought is implicit in another, noting that this word literally means enfolded). (p. 382)

Here again a sense of wholeness and process pervades Bohm's description. There is not a separation of consciousness and matter, but a core process and ground in common. This wholeness is further related to how thought works.

> The implicate order is not only the ground of perception, but also of the actual process of thought. For thought is based on information contained in memory. . . . This strongly suggests that somehow our 're-collection' is directly from a whole rather than the result of an algorithm for searching memory in detail.
> All of this is clearly compatible with the notion that the basic order of the mind is implicate, and that the explicate arises as a particular case of this implicate order . . . . (pp. 383-4)

To continue carrying through the implications of Bohm's notions of wholeness and the implicate order, he explores how it applies to thought as a system. From this view of the primacy of wholeness, notions of physical and mental processes as being separate become problematic. Bohm sees that there are not two processes, but that "both are essentially the same" (p. 385). There is no fundamental gap between mind and matter, but rather a kind of active information that shapes the entire spectrum from mind to matter.

"It is thus implied that in some sense a rudimentary mind-like quality is present even at the level of particle physics, and that as we go to subtler levels, this mind-like quality becomes stronger and more developed" (p. 386). This mind like quality present in matter is complimented by matter like qualities present at subtle levels of thought. This wholeness also implies that for us as human beings that the mental and physical aspects of our being fundamentally participate in each other. The basis for this participation is seen by Bohm to be memory. Thought is taken to be "in essence, the active response of memory in every phase of life" (1980. p. 50). In this way, "Likewise, intellect, emotion and the whole state of the body are in a similar flux of fundamental participation. Thus there is no real division between mind and matter, psyche and soma" (1993. p. 386) and "We include in thought the intellectual, emotional, sensuous, muscular and physical responses of memory. These are all aspects of one indissoluble process" (1980. p. 50).

In taking this view of wholeness and what it implies for us as human beings, Bohm (1994) further examines how it applies to our lives and world conditions in general. He sees a fundamental kind of fragmentation at work leading to incoherence in the system of thought. Our application of knowledge to solve problems in society appears to lead to more problems in time. This kind of activity is easy to perceive from a formal operational mode of cognition. Beyond this, a systemic level of cognition begins to realize that our application of knowledge through action can produce unintended consequences, but to address this, such a mode of thought tends to simply apply more complexity of thought to the problem. Further along this trajectory, a meta-systemic level of cognition is able to further perceive underlying patterns transcending such systems. In this way it appears to get at the root of the problem, and allow us to apply an even broader perspective to issues at hand. It asks questions like how can knowledge become unified, how can we find knowledge that transcends yet includes traditional disciplinary knowledge?

However, we are proposing that this process of ever more complex forms of cognition within the system of thought is ultimately a dead end. There is no basis to be able to say that there will not be a more complex level of cognition available in the future that will bring about another revision of how knowledge and reality are perceived. It is similar to scientists saying that the atom was the most fundamental and indivisible foundation of all matter, and then finding protons, neutrons and electrons. Of course this level of fundamental particles did not last long either, as ever more sophisticated technology revealed a sub-atomic layer of particles such as bosons, leptons, quarks and so on, not to mention string theory or a host of other interpretations of experimental results. In discussing why we continually experience the troubles in our society, Bohm (1994) points to this dead end by saying:

> What is the source of all this trouble? . . . I'm saying that the source is basically in thought. Many people would think that such a statement is crazy, because thought is the one thing we have with which to solve our problems. . . . I'm saying the reason we don't see the source of our problems is that the means by which we try to solve them are the source. (pp. 2 - 3)

This view implies a deep incoherence in the process of thought. Bohm sees that thought as this system of the active response of memory acts in a mechanical fashion. It

is in a way self contained, continually generating and then defending its own view of world and self and how they interact. However, Bohm (1980) says that:

> There is in this mechanical process no inherent reason why the thoughts that arise should be relevant or fitting to the actual situation that evokes them. The perception of whether or not any particular thoughts are relevant requires the operation of an energy that is not mechanical, an energy we shall call *intelligence*. This latter is able to perceive a new order or a new structure, that is not just a modification of what is already known or present in memory. For example, one may be working on a puzzling problem for a long time. Suddenly, in a flash of understanding, one may see the irrelevance of one's whole way of thinking about the problem, along with a different approach in which all the elements fit in a new order and in a new structure. Clearly, such a flash is essentially an *act of perception,* rather than a process of thought, . . . though later it may be expressed in thought. (p.51)

This "*act of perception*" is distinguished from the system of thought, indicating a kind of intelligent perception in which "the brain and nervous system respond directly to an order in the universal and unknown flux that cannot be reduced to anything that could be defined in terms of knowable structures" (p. 53). This distinction between the normal functioning of thought and an intelligent act of perception reveals another path into the view we are putting forward. It is our contention that such a distinction creates space for perception of a kind of awareness, beingness, or *ontological dimension* that is not able to be contained within or described by any kind of epistemological categories, processes or distinctions. It is thus not knowledge as we normally conceive it, yet it is essential to taking the measure of knowledge, being able to find coherence in it and not be totally swallowed up by the system of thought. Bohm (1994) goes on:

> I'm not saying the system is everything there is. I'm saying that the system pervades our whole activity. It's like something pervading our activity; but that doesn't mean that it's all there is. Do you get the distinction? The system has become so pervasive, however, that it may be almost all that we are able to see much of the time.
> Q: Can you say what is not part of the system?
> We could say for one thing, that perhaps there is some kind of perception or intelligence which is deeper, which is able to see this incoherence. . . . I'm saying there is 'perception' or 'insight' or 'intelligence' which may not be part of the system. (pp. 23 - 4)

Bohm describes how the tendency of the system of thought to appropriate intelligent perception or insight can be a central problem in attempting to keep a coherent view. "The worst confusion takes place in the question of what is *not* part of the system, because if you confuse part of the system as not being part of the system then you're lost" (p. 24). It is this confusion which we are proposing has led to the kind of category error of trying to gain wholeness or a unity of knowledge through epistemological categories.

Bohm, Reams, Roy and the Process Model

In early 2006, we (the authors) began dialoguing about Roy's (2006) proposal for a *Process Model of Integral Theory* through their work as editors of Integral Review. Reams immediately saw the parallels between Bohm's work and Roy's interest in examining the structural model of Wilber's (2000, 2006) AQAL (all quadrants, all levels, all lines) model from a process view in a way that could open up new directions for integral theory. Like Bohm, this was in the direction of a view from wholeness. In the writings of Guenther (1984, 1989), Roy had discovered the Dzogchen notion of "unbounded wholeness" and the kinds of pure process thinking that the Tibetan Bon lineages were using to describe the processes in which conventional reality arises from such a wholeness. Like Bohm, Roy (2006) realized that a process orientation;

> . . . requires adopting a certain attitude—allowing one's mental framework to release its grip on thinking in terms of things, and following . . . a world of process or flow in a field of dynamic forces. It requires you to suspend structurally based perceptions to allow for new ways of orienting perceptions. (p. 120)

Bohm (1994) had previously understood ways in which perception became based in the structures created by the system of thought, leading to a subtle but pervasive incoherence in perception. Bohm (1980) also realized that this issue showed up in our habitual ways of using language in saying that;

> every language form carries a kind of dominant or prevailing world view, which tends to function in our thinking and in our perception whenever it is used, so that to give a clear expression of a world view contrary to the one implied in the primary structure of a language is usually very difficult. (p. 46)

Likewise, Roy (2006) also saw the ways in which the English language presented a major challenge to the presentation of process thought:

> English is primarily a noun-based one that leads almost exclusively to subject-verb-object constructions—constructions which in turn implicitly lead to a world view in which subjects and objects are separate "things" that require conjoining. In verb-based languages [like the languages of the Tibetan Bon, or Ojibwe First Nations], subject and object are wholly implicit in the verb which itself is sufficient to convey meaning. (p.121)

The themes central to and developed by Roy's *Process Model of Integral Theory* in many ways parallel those of Bohm's, including: his notion that structure is but an aspect of the over-all process of unfoldment and enfoldment; his intention to get below the usual level of thoughts, words, and feelings, coming to a *direct* awareness of the process-structure of the ego; his efforts to find the general principle of the process-structure that can abstract as time-space; the relations of wholes and parts; and of course, an expression for the kind of process-dynamic responsible for unbroken unbounded wholeness.

Our (the author's) dialogue on the nature of these themes and how they show up in our work is of course in process. While many of the themes described above do indeed appear to be parallel, there are ways in which each of our perceptions of them arises from slightly different views, revealing different nuances, connotations and interpretations. These differences fuel the continued inquiry into how the triangulation of these views can reveal ever greater and hopefully more coherent perceptions of reality. These matters are beyond the scope of this paper, awaiting finer resolution and articulation. What is relevant to this paper is to lay out an introductory articulation of the Process Model in order to present further articulations of the view from wholeness we are proposing.

The Process Model: Further Distinctions on *ever-present-wholeness*
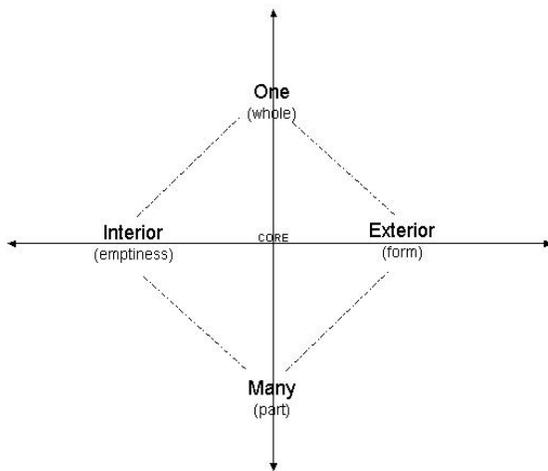
The Epistemological Field

The Process Model is intended to be a heuristic tool to organize the central themes we have been describing into a process view of reality as ever present wholeness. It is our hope that this Process Model can enable a new kind of integration of current bodies of knowledge, and also serve as a methodology for revitalizing our way of thinking and our potential for knowledge making. Ultimately, it is our hope that this Process Model will enable knowledge creation from a view of wholeness. The following introduction to the Process Model is by necessity too brief to properly elucidate all of its nuances and implications. Those readers wishing to access a more in-depth description of the Process Model are encourage to read Roy's full paper on the subject, which can be found in issue 3 of *Integral Review,* http://integral-review.org.

The Process Model proceeds with a view from wholeness by imagining a process which, through generative transformations, creates the structures of knowledge such that we come to know our self as our self, the world as the world, and others as others. The most fundamental structures that arise from this process build the conventional relations of cognition such that we feel we are a mind inside a body, negotiating an exterior world, in community with other selves. However, this set of relations, or order, is not normative for all experience. The narratives of Starratt and Saunders, and the intuitions of Bohm all attest to this. The process underlying our structures of knowledge, therefore, must account for the fluidity of the boundaries that prescribe interior-exterior relations, such that the mind can be perceived as being inside the body; but also such that the mind can be, on rare occasions of grace, be perceived to be in unity with all creation, which includes the body. The process underlying our structures of knowledge must account for the fluidity of perception which sees other selves, as well as experiences in a very real sense, the unity of all selves. They must also account for the apparent fragmentation of our world, as well as for its indubitable wholeness—the timeless philosophical question of the relation between the One and the Many.

In the Process Model, this knowledge-creating process is imagined to arise in a field of dynamic relations described as the Epistemological Field, since it is here where all the structures of knowledge are laid down. The Process Model describes this Epistemological Field as a dynamic interplay of interior-exterior relations in which cognitive structures are laid down through whole-part transformations. To understand this process, consider
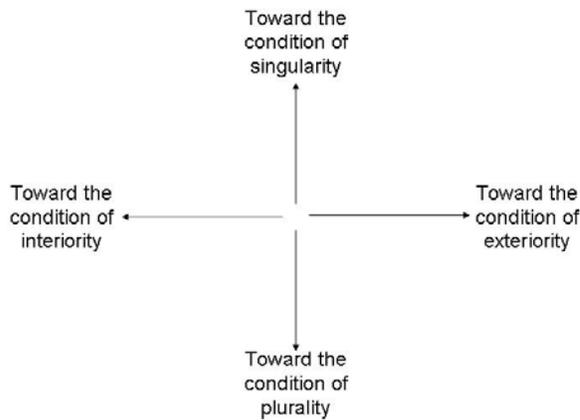
Figure 1. Process View

Figure 2. The Epistemological Field

Figure 1 which illustrates these relations as a set of complementary "pairs" pulling in opposite directions.
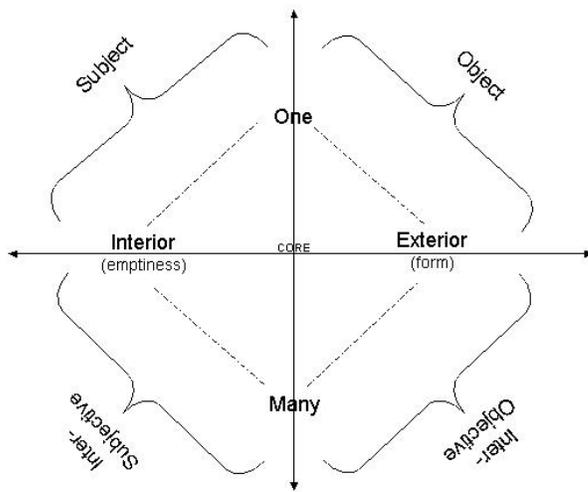
We can furthermore imagine a kind of force field where the ends of the axes represent complementary "forces" acting to create a kind of dynamic movement or interplay among these relations as in Figure 2:

It can be shown that everything that arises as self-world-other can be derived from this very simple field of relations. Wilber's (2006) Integral Theory describes self-world-other as emerging as a quadrant matrix that represent the very deepest structures of the universe. This matrix is comprised of the four domains of knowledge, namely the subjective, the intersubjective, the objective, and the interobjective. Wilber contends that reality at its most fundamental level, is made up of perspectives in whole-part relations. His model thus becomes a four-quadrant matrix in which developmental relations in many different modes (levels, lines, streams) creates a hierarchy of whole-part levels. Wilber maintains that evolution proceeds through increasing complexification of greater wholes transcending and including their prior parts. This model, which he calls AQAL, is a comprehensive framework for organizing and integrating the various disciplines, and the developmental or evolutionary narratives within them.

The Process Model begins by asking; what kind of process might prescribe these fundamental domains? If we can describe a process that generates these primary domains, then we can consider these domains as primary structures generated by this process. If we can envision a unified field-dynamic that is process, we can begin to understand that the domains are not rigid and fixed separate aspects of reality, but they are fluid and dynamic ways of generating structures of knowing within the reality of a seamless whole. Such a process is illustrated in Figure 3:

Figure 3 shows how the simple operation of combining nearby relations generates the quadrant-structures of Wilber's AQAL matrix; so for example, the subjective domain is derived from the combination (interior x one); the objective domain is derived from the combination (one x exterior); the interobjective domain is derived from the combination

Figure 3. Four Quadrant Domains

(exterior x many); and the intersubjective domain is derived from the combination (many x interior). For now, these kinds of simple combinations can be considered to be "first order operations," since they are generated from less than one full iteration around the Epistemological Field. It can be shown that more complex structures can be derived through successive iterations, from 2nd, 3rd, … nth-order operations. For example, when each of the quadrant-structures undergoes a second iteration along the interior-exterior valence, Wilber's (2006) eight indigenous perspectives are generated (namely, the insides and outsides of each of the four domains). Wilber identifies the various disciplines as being foundational in one or another of these perspectives, with little or no capacity to speak across their individual "zones," which he corresponds with the following methodologies:

Zone 1: The inside of the subjective is studied through phenomenology.
Zone 2: The outside of the subjective is studied through structuralism.
Zone 3 : The inside of the intersubjective is studied through hermeneutics.
Zone 4: The outside of the intersubjective is studied through ethnomethodology
Zone 5 : The inside of the objective is studied through autopoiesis (cognitive science).
Zone 6: The outside of the objective is studied through brain science (neurophysiology).
Zone 7: The inside of the interobjective is studied through social autopoesis.
Zone 8: The outside of the interobjective is studied through systems theory.

Returning to the primary valences in the Epistemological Field can show us why communication of knowledge across zones is generally difficult, if not impossible when knowledge arises from iterations around the vector pairs as proposed. The vector pairs are considered to be complementary forces, in the sense that they are apparently opposite, but are coupled in such a way that they, in fact, mutually define.

Complementary vectors are related in a characteristic way – the more you have of one, the less you have of the other. In the empirical domain, we run into complementarity with such matters like the wave-particle duality, and the relativistic equations between energy and matter. It can be seen that the characteristic of complementarity underlies all dualistic thought. David Loy (1997) writes: [Dualistic thought is] "thinking which differentiates that-which-is-thought-about into two opposed categories: being and nonbeing, success and failure, life and death, enlightenment and delusion, and so on" (p. 18).

The Process Model suggests that *everything* that arises through the dynamic interplay of complementary forces—everything that is generated in this dynamic field, being composed of dualistic categories, has this dualistic nature. (Bohm's explicate order describes aspects of this as well). This is a critical condition for the kinds of structures that arise there. We tend to interpret these structures—and their taxonomic organization—as somehow precisely delimited; that, for example, once a level in a structure-stage emerges, the lower levels are transcended and included in such a way that the lower can be seen by the higher *in a transparent way.* According to Wilber, this transparent seeing happens because the subject of the prior level becomes the object of the subject of the next level. The Process Model says something different. The Process Model says that since the structure-stages arise in a field of complementary valences, they are *inherently dualistic* and therefore, relations between them are also complementary and self-define—in other words, the relations which delimit the structures, relations such as lower and higher, before and after, whole and part, subject and object—are dualistic.

The problem with dualistic thinking, Loy (1997) says, is that

> although distinctions are usually made in order to choose one or the other, we cannot take one without the other since they are interdependent; in affirming one half of the duality we maintain the other as well. . . . What kind of thinking remains? If all language seems to dualize, in distinguishing subject from predicate/attribute, how can there be such a thing as nondual, or nonconceptual, thinking? Can we get along without dualistic categories? And even if we can, is it desirable? The nature of any alternative—or is it no thinking whatsoever?—needs to be explained, and its feasibility defended. (pp. 18-21)

If there is non-dualistic, non-conceptual thinking then it must arise through another kind of process—and the Process Model reveals an *ontological* dimension, which will be introduced later in the article. Prior to doing this, we will introduce a new understanding of cognition, which will address the question of the desirability of thought itself. For if (like Bohm) we can *understand the process that is "thought,"* then we can better engage its usefulness or enable coherence. *If we can understand the process that is "mind,"* then we can be more *"mindful."*

Epistemological Dynamics

Jason Brown (1991, 1996, 1997, 1998, 2000, 2002) has used the termed *Cognitive Microgenesis* to describe the process-based theory of cognition that he developed through years of clinical research on linguistic pathologies, as well as pathologies and anomalies concerning object relations. Simply stated, cognitive microgenesis says consciousness is a symphony-like process in which innumerably simultaneous "waves" advance from an unarticulated core through discrete steps (micro steps) toward a more and more fully articulated cognition, and then recede back to the core through the same steps. These micro steps are:

Core > Presence > Affect > Image > Object(body) Space > Object(world) Space

Microgenesis describes a process of *articulation*, in the sense of a further and further reaching out from a central core, so that we can say of the above sequence, presence articulates to affect, affect articulates to image, image to Object(body) Space, and that Object(world) Space is the final (or mature) articulation of the cognitive occasion. In addition, the innumerable simultaneously articulating waves do not necessarily reach the same levels of articulation, and are in different phases of advancing and receding—together which constitute the complex landscape of the cognitive occasion. In turn, each cognitive occasion is determined by a particular length or duration over which the microgenies are summed to produce it. Finally, the entire complex landscape of microgenies can be imagined to grow out in a branching structure, like an evolutionary tree, with mature forms arising and receding, with interference and resonance creating something along the lines of what Stuart Kaufmann (2000) calls "a fitness landscape" that lays down both the evolutionary history and the future potentials of cognition. This and many other implications stemming from Brown's theory of Cognitive Microgenesis concern topics outside the scope of this article, but I introduce them to give the reader a summary overview.

These "steps" can be described briefly as:

Core: The unarticulated core is aspectless.

Presence: … is the spontaneous potential of a cognition—the simple feeling of being.

Affect: Cognitions that articulate to affect stage are primordial feelings, like a deep intuitive feeling that has not yet attached itself to an image or word. Affect-level cognitions are not to be confused with "emotions," which are more complex structures.

Image: Image stage cognitions are like dreams that have an image form, thinking in pictures or symbolisms or various sorts, and visual hallucinations (pathological or otherwise); images that are not yet associated with or alternately have become dissociated from, the concretizing operation of object perception.

Object(body)Space: Further articulation of the cognitive process generates the spatial dimensioning of the kinesthetic body and its perceived "dominion"—that of the will (willing my finger to move, for example).

Object(world)Space: The furthest articulation (or discharge) in Brown's theory of microgenesis. This is the point where cognition has articulated to object orientation that constitutes a world. We shall use our process model to take this articulation two steps further than Brown has proposed.

Brown's micro-states are represented as structures that are enfolded in a developmental series, building layers through clockwise movement. Moving clockwise from the central "core," this movement progresses from the "deep interiority" of pure presence toward greater degrees of exteriority, through the steps of affect, image, object(body) space and world. As the microstructures build up like layers of a conch shell, there is a consistent dynamic associated with the progressive exteriorization of cognition. As pure presencing begins to articulate affect and images, a "self" is imputed as being "subject to" affects and images. In conventional cognition we still consider that feelings and dreams are part of our interior, and not somewhere "out there" in the world; yet there are micro-layers delimiting a deeper interior of affect, and an outer layer of image. (We are not our dreams, for example, but we have dreams, i.e., dreams are "exterior" to a deeper presence.)

Moving clockwise in the process model, we progress from "one and interior" toward "exterior and many." This is associated with a persistent dynamic—a progressive loss of agency that correlates with operations along the one-many valence (or the arising of a shared world). The affect level then "recedes" to a new interior layer, as the cognition articulates to image stage, which "emerges" into a new, yet still interior level—we still feel that feelings and dreams pertain to our sense of self and agency, more so than to the world "out there." But as cognition further articulates toward exterior and the first object cognition arises as "body," there is a sense of shared or relational agentic aspects that arises as the notion of internal *will*—the feeling of internal agency—and *intention*—the projection of will out in the world. The body represents the boundary between these two senses of agency, and is itself a combination of the two, since we feel we can will our body to act, but we do not have control over all the activities of the body.

Finally, further articulation of the microgenetic series toward the 'many' generates object(world) space. At this stage, interior agency completely withdraws, as we come to know objects in a world space that operates according to external causation and the independent laws of nature.

Mapping the cognitive microgenetic series onto the Process Model reveals the dynamic operators of cognitive articulation: a) *emergence* characterizes the phase from core to presence; b) *articulation* characterizes the phase from presence to affect; c) *withdrawal* characterizes the phase to image stage; d) *will* characterizes the phase to object(body) space—the final vestige of interior agency in a progressively exteriorizing cognition; and *protraction* characterizes the cognition of object(world) space.

Here is where Brown's theory ends, with the articulation of an independent subject sharing agency with an exterior world. While Brown considers the problem of other selves a condition of object relations, we can utilize the Process Model to continue to map the cognitive process from world(space) or the domain of 'exterior and many' all the way around the Epistemological Field, toward the 'many and interior' and finally back to the 'interior and one.' Proceeding through the Epistemological Field, clockwise from object(world space) and the inter-objective domains, we then generate other selves, or the inter-subjective domain. In the Process Model, the dynamic operator from world to others is *projection*—corresponding not only to the recognition of other human selves, but also associated with the dynamics of primary projections onto non-humans, animals, dolls, amulets, idols, etc. A complete turn ends with the operations between the 'interior and one' which constitutes what Whitehead termed *subjective unification*; or a coherence among parts; namely the experience not of a series of operations, or discrete stages, but a unitary expression of the enveloped parts as one structural whole (aka "self-world-other" or Wilber's co-emergent quadrants).

The Process Model asks us to think in terms of micro-steps that are transformationally related through a generative process. We can describe these transformations as operators that generate self-world-other. The processes generated by this transformational relation are:

emergence→ articulation→ withdrawal→ protraction→ projection→ unification
illustrated in Figure 4:
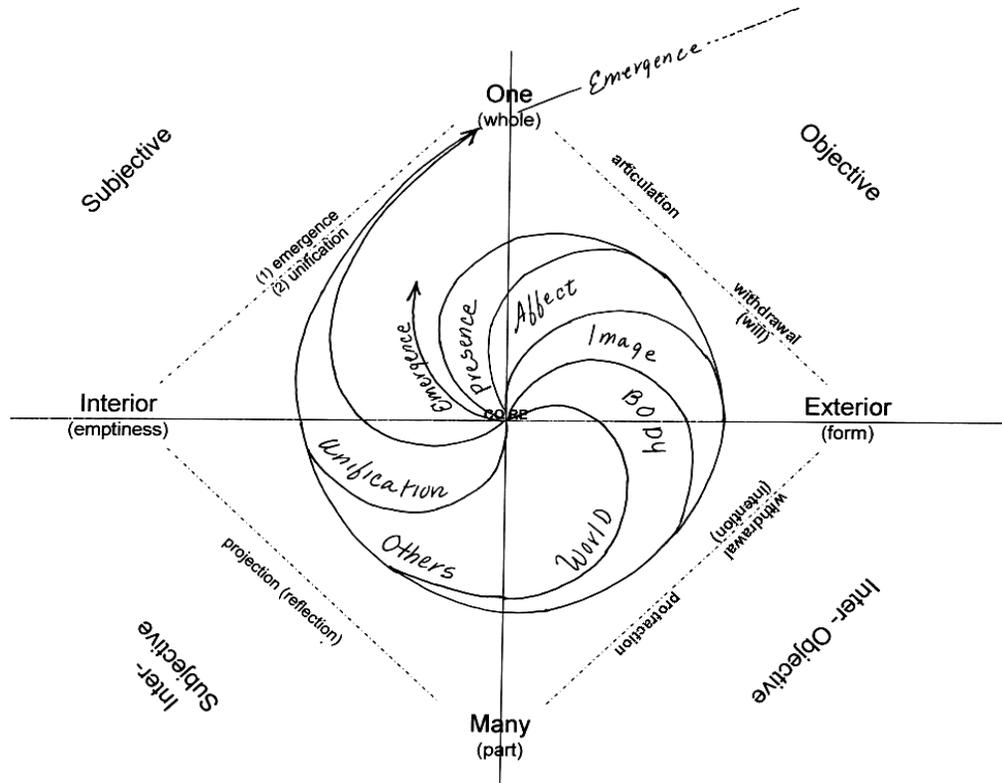
Figure 4. Model of Cognition

These epistemological dynamics represent the basic processes of the Epistemological Field in the Process Model. The microgenesis of *conventional* cognition is seen as a generative process being "driven" in that field from interior to exterior through whole-part transformations. Each cognition discharges to a specific form (a length or breadth that defines its "duration"); its duration in turn determines the cognitive event that arises, whether it be a primordial affect, an image, or a fully exteriorized world—and then each process recedes back to the core through the reverse sequence of microstates. The sum of numerous microstates going out and receding constitutes the full spectrum of what arises as self-world-other.

The Epistemological Field thus prescribes the genesis of the multiplicities of how we come to know our self, world, and others, and how we think in conceptual terms, and what kinds of beliefs we hold. The Process Model describes these complex set of "truths" not as the unalterable facts of a fragmented reality, but as the multiplicities of structures that arise with each cognitive occasion, and each cognitive advance. From a pure process view, this multiplicity arises through whole-part transformations laying down successively compartmentalized structures in a wave of consciousness from core to self, self to world, self-and-world to others, self-world-others to formal operations, to self-world-others in belief states. If these processes can be made conceptualizable, then it may be the case that they can be made realizable, that is, transmuted into phenomena that can be experienced by the self, rather than properties that condition or constrain the self to the impression of a compartmentalized and fragmented reality.

Roy's (2006) *Process Model of Integral Theory* goes on to provide greater detail on how the microgenesis of cognition functions to produce multiple levels of structure, how the same kind of process relates to values, and shows the detailed process under which structural enfoldment occurs, namely, (1) through a directional process of iterations (2) within a field of complementary valences (3) deriving interior-exterior and whole-part relations.

We view this as a more rigorous description of the process Bohm introduces as the unfoldment of the explicate order. Further understanding of how well these two views actually cohere and related implications is the subject of our ongoing inquiry. For our current purposes, the features described above of the explicate order and the Epistemological Field both point to why knowledge as traditionally conceived is necessarily fragmented. In addition, the process of cognitive microgenesis in the Epistemological Field can point to a new way of viewing how knowledge is generated.

The nature of the Epistemological Field, with its explicate, complementary and dualistic character, is the governing process creating multiplicity of knowledges from a core source, a generative whole undergoing transformations. But where does this core source point us to? How can we understand its meaning, how can we even intuit its presence, if we are forever locked into the structural conditions of the epistemological or the system of thought?

The Ontological Dimension

Similar to Bohm's notion of an implicate order, the Process Model includes another dimension entirely, which describes the "ontological dimensioning of Being." This dimension runs along an ontological valence labelled anterior/posterior and is illustrated in the Figure 5:
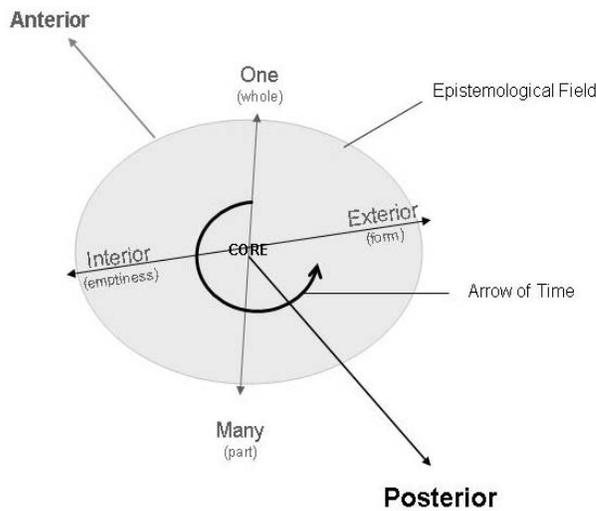
Figure 5. The Ontological Dimension

Unlike the vectors in the Epistemological Field, where the forces are complementary and therefore prescribe dualistic knowing, the anterior and posterior vectors of the Ontological Dimension are *entangled.* The term entangled is used to convey the characteristic of temporal simultaneity and spatial nonlocality; as well as to contrast it with the dualistic, trade-off characteristic of complementarity. Entanglement also entails omni-directionality, coherence (unity) of events, and the like.

The shaded area in the above diagram represents the Epistemological Field with its arrow of time embedded within the

25

structures that arise as the conditions of their relations are laid down through the processes of epistemological transformation. These processes are responsible for creating a local "here and now" in the epistemological realm. The Ontological Dimension has no such fixed arrow of time, it provides no spatial or temporal benchmarks. The anterior is related to the posterior not as a "before" and an "after", but as a single and seamless simultaneity—a resonant and coherent spatial and temporal unity.

To understand our experience of the ontological dimension, consider the following. When I learned algebra for the first time, I experienced learning it as a specific event in time—there was a clear sense of "before I knew algebra" and "after I knew algebra." This correlates to the development of knowledges with specific temporal conditions, and leads to structure-stages of development that are fairly discrete levels. As knowledges grow embedded with these kinds of temporal conditions, we begin to see knowledge as becoming increasingly complex and increasingly "distant" from an original whole.

On the other hand, a mystical experience of a higher *state* of consciousness, what we have called "falling into grace," is experienced both as having come to that realization *in time but also as having re-remembered it as always already having been:*

> *Yet one senses that there is a source for this deep restlessness; and the path that leads there is not a path to a strange place, but the path home. . . . The journey is hard, for the secret place where we have always been.* (Saunders, 1993 p.155)

Unlike the knowledge that is produced in the Epistemological Field, which generates an infinite parcellation of parts from a prior whole, what we are calling *ontological encounters* in the narratives of Starratt and Saunders, create a sense of a greater and more unifying whole, such that *the opposing tensions were experienced as one hears dissonant chords in great music which add to the beauty as they are resolved in harmony.* As opposed to the structure-stage relations in the building of knowledge, the relations between states of consciousness—between conventional states and the state of grace—are experienced as greater and greater inclusions into prior (already always) existing, but previously unrealized wholes.
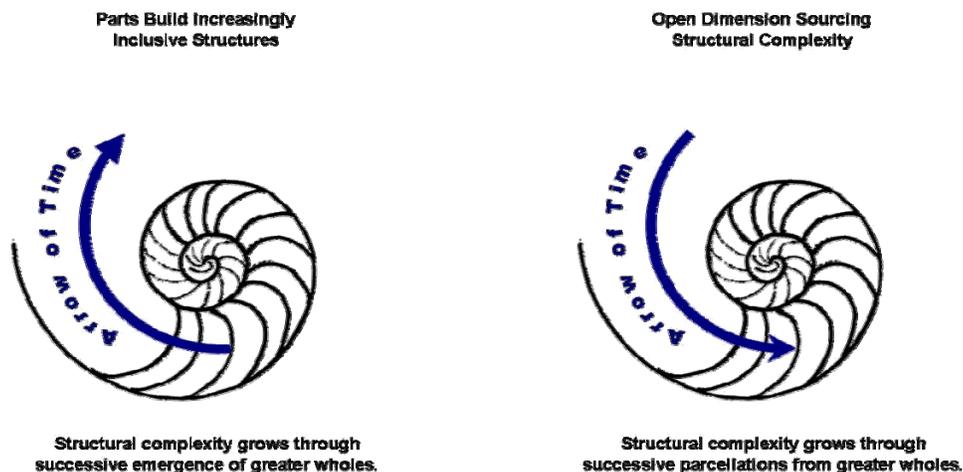
Consider the following pair of diagrams:

Parts Build Increasingly Inclusive Structures

Arrow of Time

Structural complexity grows through successive emergence of greater wholes.

Open Dimension Sourcing Structural Complexity

Arrow of Time

Structural complexity grows through successive parcellations from greater wholes.

Figure 6. The Arrow of Time

How we interpret reality depends upon the conditions of structural enfoldment, namely their interior-exterior relations, their whole-part relations, and the fixing of an arrow of time. These in turn determine our experience of wholeness. The diagram on the left illustrates the view of a future wholeness, arising from increasing complexification of parts (knowledges) into future greater whole understanding. The diagram on the right illustrates the view of a lost prior wholeness that has passed into increasing complexification of parts. In turn, the diagram on the left illustrates Bohm's explicating process, the one on the right, his implicating process. In ways that are too complex and beyond the scope of this article, Bohm's holomovement describes their intersection and exchange at the boundary between the explicate and implicate orders.

In process language, the former "sees" actuals realizing more of the "original" potential; the second "sees" original potential generating more and more actuals. There is also an "interior-exterior" condition that distinguishes the two views, represented by the spatial regions in the illustrations. The first view "sees" complexity as an ever-expanding evolution into an unbounded aspectless "exterior" wholeness; the other "sees" an unbounded original wholeness penetrating infinite "interior" depth.

If we can agree that there is some truth to both of these views, then it must be the case that each view is *true but partial.* However, since they both arise from a structural approach—within a structural framework which is *itself limited* by the very same conditions of structural enfoldment—that framework cannot show *how* they are true and partial. A structural approach, therefore, is forced to choose one over the other. Only a process approach has the capacity to widen the view beyond the conditions of structural enfoldment, so that they no longer constrain our view, but are contextualized by it. A pure process view, such as a generative process, says that the all of the actual is already *in* the potential as potential actuals.

Referring then to the set of diagrams above, a pure process approach sees they are saying the same thing, namely that potentials are generating actuals, and actuals are realizing potentials, regardless of the arrow of time—it has been rendered transparent. The whole-part condition between the two has also broken down, since potentials and actuals are *both whole and part to each other*—on the one hand, there is all of the actual potential (but not all of the actual) in the potential, and there is all of the actual (but not all of the actual potential) in the actual.

In other words, generative processes are "Janus faced"—they look in two directions at once, inside and outside, past and future, whole and part. The Process Model goes even further than this. The Process Model shows us that *neither* of the two has the capacity to reason into the ontological dimension, neither has the capacity to address what is your ontological view, since neither has the capacity to go beyond its, and their, conditioned epistemic relations. The problem we face is that our deepest spiritual concerns are ontological ones, and yet we allow our spiritual notions to either flounder around or compete with each other in limited epistemological frameworks. The Process Model points to a different place entirely. It says that although one cannot reason oneself into a deeper ontological view, one's ontological view deepens *from the kinds of ontological encounters we are open to receive.* This in turn depends upon opening into a view from ever-present wholeness.

Third Iteration: Wholeness, Knowledge and *Adequatio*

Take a deep breath. Allow the journey through the second iteration we have presented to fade gently into the background. Let each idea, concept, and feeling to slip by unattended. Continue letting go of all that arises in the field of your consciousness, and let yourself slip away, into

ever-present-wholeness

As this *ever-present-wholeness* reveals itself, the view from wholeness becomes more accessible. It has been our contention throughout this paper that it is this view that enables a coherence of perception and a hope for infusing knowledge with the wholeness being sought. It has also been our contention that this wholeness is intimately bound with Being, or the ontological dimension of self. From this, we propose that we need a capacity for accessing this ontological dimension that is *adequate* to perceive a unity of knowledge or wholeness.

This quality of relationship between the knower and the known involves the principle of *adequatio*. Schumacher states that "this is the Great Truth of *adequatio* . . . the understanding of the knower must be *adequate* to the thing to be known" (in Palmer, 1993, p. 51). If we wish to know wholeness, or have wholeness infuse knowledge, our understanding must be sufficient. Then what is the nature of this understanding?

To address this, we began by introducing the accounts of Starratt and Saunders to provide a phenomenological description of the view from wholeness. We contend this view was adequate to infuse knowledge with wholeness, and allow its unity to clearly reveal itself in their experiences or an ontological encounter of Beingness.

Exploring Bohm's notions of order provided a view of the distinction between our everyday world of "objects, events, entities, conditions, structures, etc." as abstracted from the holomovement as part of the explicate order and the radically different realm of the implicate order. Bohm's distinction illuminates aspects of the differences between the epistemological field and ontological dimension.

His further application of this view to seeing thought as a system bound within the explicate order (or epistemological field) also illuminates limitations of thought taken as the source of knowledge. It is this limitation of knowledge, especially when used to reason into wholeness or provide meta-level syntheses aiming at a kind of unity, that we have been driving home repeatedly in this paper. We also have aimed to make it clear that we do not view knowledge as incapable of participating in wholeness. Just as Bohm talks about intelligent perception or insight as coming from outside the system of thought, we have used the term *view from wholeness* to point to perception arising from ontological encounters.

It is our contention that a coherent approach to the unity of knowledge is not to be achieved through knowledge bound by the system of thought. The introduction of the Process Model allowed us to approach this by introducing the epistemological field. The process approach used in describing this allowed for what we perceive to be a more coherent view of how knowledge is generated within this domain. The use of Brown's cognitive microgenesis enabled us to describe this process in rigorous terms, and flesh out the framework for understanding how knowledge is created.

It is with the distinction of the ontological dimension of Being that the nature of wholeness we perceive is able to be pointed to. This is done partially through the process of negation – by describing what it is not in the explicate order and epistemological field – and in the qualities we can begin to describe albeit in a limited manner. It is our hope that by making the distinction between these aspects of the Process Model that we enable a refinement or sensitivity to our own encounters with ontological Being. It is this mode of being, the ontological encounter, that we perceive as best enabling a coherent view of knowledge, of best being able to take the measure of knowledge, and avoid the trapping of attention within the epistemological field and or system of thought.

Conclusion

While it may appear that our pursuit of knowledge has brought us a desire to find wholeness, it may be more the case that it has only brought about that desire by taking us further from the wholeness we seek. The paradise we lost in the pursuit of knowledge may well have been an innocence based in ignorance, but it is not to be regained in the construction of grand meta-syntheses of knowledge that exclude the ontological dimensioning of Being. The challenge before us is to learn how to make good use of our knowledge-making potential by liberating it from its own blind spot, from a self-constricting, self-referential cycle, and expanding it with a view that includes an unbounded and timeless, or *an authentic wholeness.* By bringing clarity to the relationship between the epistemological field and the ontological dimension, we hope to enable investigators in many diverse fields of inquiry to look for knowledge with a *view from wholeness* such that their individual contributions do not despair of its loss in a cycle of fruitless pursuit, but fully realize both the sustained presence and dynamic display of wholeness.

References

Bohm, D. (1980). *Wholeness and the implicate order*. London: Routledge.

Bohm, D, and Hiley, B.J. (1993). *The undivided universe*. London: Routledge.

Bohm, D. (1994). *Thought as a system*. London: Routledge.

Bohm, D. (2003). Ed. Nichol, L. *The essential David Bohm*. London: Routledge.

Brown, J. (1991). *Cognitive microgenesis: A neuropsychological perspective*. Berlin: Springer-Verlag.

Brown, J. (1996). *Time, will, and mental process*. New York: Plenum Press.

Brown, J. (1997). *Mind, brain, and consciousness: The neuropsychology of cognition*. New York: Academic Press.

Brown, J. (1998). *The life of the mind*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Brown, J. (2000). *Mind and nature: Essays on time and subjectivity*. London: Whurr Publishers.

Brown, J. (2002). *The self-embodying mind: Process, brain dynamics and the conscious present*. New York: Barrytown/Station Hill.

Brown, J. (2005). *Process and the authentic life: Toward a psychology of value.* Piscataway, NJ: Transaction Books.

Guenther, H. (1984). *Matrix of mystery: scientific and humanistic aspects of rDzogs-chen thought*. London: Shambhala.

Guenther, H. (1989). *From reductionism to creativity: rDzogs-chen and the new sciences of mind*. Boston: Shambhala.\

Kauffman, S. (2000). *Investigations*. Oxford: Oxford University Press.

Lear, J. (1998). *Open minded. Working out the logic of the soul*. Cambridge, MA: Harvard University Press.

Loy, D. (1997). *Nonduality: A study in comparative philosophy*. Highlands, NJ: Humanities Press.

Palmer, P. (1993). *To know as we are known. Education as a spiritual journey*. San Francisco: HarperSanFrancisco.

Roy, B. (2006). A Process Model of Integral Theory. *Integral Review*. 3. Bethel, OH: ARINA Inc. Available at http://integral-review.org/current_issue

Saunders, S.A. (1993). *Staying put: Making a home in a restless world*. Boston: Beacon Press.

Starratt, A. (1979). *Your self, my self & the self of the universe*. Ownings Mills, Maryland: Stemmer House Publishers.

Wilber, K. (2000). *Integral psychology*. Boston: Shambhala.

Wilber, K. (2006). *Integral spirituality*. Boston: Shambhala.

Bonnitta Roy is on the Editorial Board of *Integral Review*, and graduated from Colby College with a BA in both Biology and Philosophy. She worked under a NSF Grant, at Princeton, and then as a PhD candidate at UC Berkeley in neurophysics. Bonnitta then turned back to philosophy as a graduate student at University of San Francisco. Bonnitta is a Qigong Practitioner and served as 2005 President of the National Qigong Association, during which time she developed the NQA's publication, "The Journal of Qigong in America." Bonnitta is Founder/President of EAGLE Foundations, a not-for-profit organization whose mission is to create environments that foster the horse-human encounter.

Jonathan Reams, Ph. D. is an Associate Professor in the Department of Education at the Norwegian University of Science and Technology, and Editor-in-Chief for *Integral Review*. His background began in agriculture, turned to trucking and has included consulting and coaching in leadership and organizational development. He has been involved in fields such as education, economic development and civic leadership. His doctorate is in Leadership Studies, with a dissertation on *The Consciousness of Transpersonal Leadership*. Jonathan has presented at international conferences on topics ranging from consciousness and identity, to transformative learning, to spirituality on campus.