

NON-LINEAR SCIENCE, MINDFULNESS & THE BODY
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Non-linear Science, Mindfulness and the Body
in Humanistic Psychotherapy

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Abstract

The article begins by reviewing concerns about the humanistic psychology-science dialogue. It then moves to outline the contours of recent non-linear approaches to science, and how that understanding might interface with the use of mindfulness and the body in humanistic psychotherapy. Various ways in which both client and therapist use the awareness and compassionate aspects of mindfulness in passive and active ways are explored. Research involving the body in terms of interpersonal neurobiology and neuroplasticity, and its use as a royal road to the unconscious are outlined. A case study is referenced throughout. The conclusion returns to the basic concerns, and offers a final critique.

Non-linear Science, Mindfulness and the Body in Humanistic Psychotherapy

*When they think that they know the answers, people are difficult to guide.
When they know that they don't know, people find their own way -- Lao Tzu
(Johanson & Kurtz, 1991, p. 15)*

Concerns & Cautions

Contemporary developments in science are decidedly more hospitable and helpful to humanistic psychology and psychotherapy than the previous Newtonian-modern models. This is a somewhat controversial statement given that the long tradition of discourse related to the psychotherapy-science-humanistic dialogue (Shoben, 1965; Madsen, 1971; Rogers, 1985; Aanstoos, 1990; LeShan 1990; Rice, 1997) has resulted in a number of continuing concerns.

Gregory Bateson, who did not think psychotherapy and science were well related in his own day (May, 1976), was clear that ideas have consequences, and one should be wary of uncritically adopting various scientific concepts. LeShan and others argue that we must avoid harmful reductionisms (LeShan & Margenau, 1982) by insuring that an adequate science take into account “such observables as self-consciousness and purpose, which [do not] exist in the realm of experience studied by the physicists” (LeShan, 1990, pp. 14-15). In his numerous works Wilber (1995, 2000) likewise champions the necessity of not getting caught in a flatland science of objective external perspectives that jettisons the depth of subjective internal realities of both the individual (consciousness) and the culture (values). Berman (1989, p. 277) argues we must always remain “involved participants” and not succumb to being solely “alienated observers,” in addition to not leaving out significant parts of life not encompassed in some systems theory (Berman, 1996).

Sundararajan (2002, 45) expresses the concern that after immersing ourselves in scientific perspectives, therapy must still allow “an open ended process, which unfolds in the expressive space of the body and capitalizes on the strategic play with temporality.” Likewise, she is concerned that psychotherapeutic practice not devolve into rules of applied theory that ignore the embodied “logic of practice” (Bourdieu, 1990) that leads to the high level “skillful comportment” in psychotherapy (Spinosa, Flores, & Dreyfus, 1997) valued by humanistic therapists (APA Division 32 Task Force, 1997); a concern echoed by LeShan (1996) that our work carry us *Beyond Technique*. The dimension of grace and art that Bateson valued (May, 1976) must be allowed. Room must remain for the union of feeling and thinking that poetry conveys. The art and science of therapy, the interpretive and explanatory, the romantic and objective traditions should not feel at inseparable odds (Smith, 1994; Salzinger, 1999). Since learning to do therapy is experiential, like learning to ride a bike, one must ask how hard will it be to learn to ride in practice while struggling to assimilate heavily abstract science-laden theories about how to ride?

Or, when Margurite walks into our office, how should we view her? Does it constrict humanistic concerns to think of her in terms of a complex adaptive system (CAS)? Are flexibility and creativity retained? Is the language appropriate to full human-beingness? Do we risk missing her while concentrating on parts of her system as real as opposed to preserving knowledge of her patterns and their contextual roots in relationships that Bateson taught? Do we leave enough room for immaterial form, order, and pattern to escape being materialists?

This article agrees with Giorgi (2000, p. 56) that it is desirable for psychology to become more unified, but not that humanistic traditions need to take “a complete break from the natural science conception of psychology.” However, the psychotherapy-science dialogue must proceed with the above cautions in mind. Apparently caution has been winning out for the most part. At the time of writing, there were no articles listed in *The Humanistic Psychologist* or *Journal of Humanistic Psychology* that contained the words “psychotherapy” and “science” in their titles. We proceed experimentally then, with a prudent caution.

Science

The Organization of Experience

Bateson (1979) offered us stunning insight into the nature of living, organic systems in his classic *Mind and Nature* that outlined a number of propositions that describe a system characterized by mind (Kurtz, 1990, pp. 34-36). His first proposition is that we are all wholes made up of parts, and in turn part of a greater whole, what Koestler (1967) termed holons, a terminology adopted by Wilber (2000) and many others. Berman (1990) suggests this places us in a participatory universe where we are joined with many other parts in increasing levels of complexity as subsystems join with suprasystems (Skynner, 1976).

Bateson’s second proposition clarifies that what makes the system organic is not simply that it has parts, but that the parts communicate within the whole. Plus, if that communication is happening, the organism is self-organizing, self-directing, and self-correcting, thus demonstrating that it has a mind or wisdom of its own. This is Bateson’s third proposition, which Wilber (1979) echoes in his argument that therapy can be thought of as healing splits within the organism; perhaps one part of the mind from another, the mind from the body, the whole organism from its environment, and a final transpersonal split that transcends all boundaries.

Proposition four is that energy is secondary or collateral to the system, while what is of primary importance is the way the system processes information. The system encodes, filters, or transforms signals from both internal and external sources (proposition five), and then organizes this information into a hierarchy of logical levels of organization (proposition six).

Together, these propositions take us out of the linear, cause and effect hydraulic systems of Newtonian mechanical models, and into the contemporary information processing world. This is a place consistent with philosophical new key methods such as Langer’s (1962) conception of the symbolic transformation of the given.

In psychotherapy it is consistent with the emerging consensus that all therapies deal with the organization of experience. While there is ongoing dialogue about how things get organized and what is required to reorganize them, the agreement of Kurtz (1990) in the humanistic world, Schwartz (1995) in the family therapy world, White and Epston (1990) in the narrative therapy world, and Mahoney (2003) in the cognitive-behavioral world is that we are working with the organization of experience. The title of Stolorow, Brandchaft, and Atwood’s (1987) chapter on transference in their *Psychoanalytic Treatment: An Intersubjective Approach* is “The Organization of Experience.”

When Margurite comes into our office then, a reasonable question to have in the back of our minds is, “how has this person organized her life?” Actually, organizing ourselves in a way that

makes meaningful sense out of the life we experience is not a therapy issue. It is a normal task, complete with the requisite hard wiring to do it (Siegel, 1999).

Since Bateson argues that a living organic system is self-organizing, self-directing, and self-correcting when all the parts are communicating within the whole, if Margurite is struggling with more than the inevitable suffering of life, the therapy question would be more specifically, “what might she be organizing out of her life” (Johanson, 2006b)? Or, as Kurtz puts it, what are the indicators of a missing experience in this person (Keller, 2005)? Could she be organizing out realistic possibilities we all need and theoretically have available in life, such as experiences of welcome, support, intimacy, freedom or inclusion? What core organizing beliefs (Kurtz, 1990) would account for her present presentation and distress?

Non-linear Organization & Emergence

Whatever Margurite needs, we know she is not like a machine, even an information processing one, where one input will result in a predictable deterministic output. Here is where computer models and terminologies are suspect. LeShan (1990, p. 137) notes that there may one day be a computer that can write decent poetry, though he doubts it, but that there will never be a time when one computer wants to give roses to another and run off to live with it forever.

Morgan suggests that understanding the brain and mind in terms of “linear thinking involving cause and effect is inadequate. The brain is the most complex structure known in the universe. The human being is way too complex for simple logic. We need to turn to complexity theory for a better understanding” (Morgan, 2006, p. 14). While Bateson talks of living organic systems, others term this science “the study of dynamic, synergetic, dissipative, nonlinear, self-organizing, or chaotic systems” (Thelen & Smith, 2002, p. 50). John Holland (1995), in line with the work of the Santa Fe Institute (Morowitz & Singer, 1995, Cowan, Pines, & Meltzer, 1994), uses the term complex adaptive systems (CAS). Laszlo (2004) speaks of adaptive self-regulating systems, and Varela, Thompson, and Rosch (1991), dynamical systems. Since these ways of understanding are relatively new and use technical language not always familiar to psychology readers, specialized terms are italicized. The following discussion compresses a wide amount of material. The reader is referred to the references for more complete expositions.

All these frameworks refer “to a class of systems that are both *complex* and that exist *far from thermal equilibrium*” (Thelen & Smith, 2002, p. 51). They are *open dissipative* systems since they continuously interact with their environments, taking in energy and matter to fuel their work, and dissipating some back to the environment. They display a capacity for self-transcendence, symmetry breaks, creativity or *emergent transformation* into new wholes with new forms of *agency and communion* (Wilber, 1995). This reflects the *nonlinear* character of systems.

Holons emerge in unprecedented ways not determinable from knowledge of component parts. Growth implies *indeterminacy*. Ernst Mayr (1982, p. 63) writes that “the characteristics of the whole cannot (even in theory) be deduced from the most complete knowledge of the components, taken separately or in other partial combinations. . . . As Popper said, ‘We live in a universe of emergent novelty.’” In terms of scientific inquiry in general, determinism, or *predictive power* is an insufficient and inadequate guiding principle.

Older theories of maturationism, environmentalism, or interactionism between genes and environment are inadequate to account for “problems of emergent order and complexity” (Thelen & Smith, 2002, p. xiii), namely how new structures, patterns, or core narratives arise. These

older theories basically note the eventual outcome or product of where people end up, but “take no account of process . . . the route by which the organism moves from an earlier state to a more mature state” (p. xvi). To put it another way:

The grand sweep of development seems neatly rule-driven. In detail, however, development is messy. As we turn up the magnification of our microscope, we see that our visions of linearity, uniformity, inevitable sequencing, and even irreversibility break down. What looks like a cohesive, orchestrated process from afar takes on the flavor of a more exploratory, opportunistic, syncretic, and function-driven process in its instantiation (Thelen & Smith, 2002, p. xvi).

Soft-Assembly, Attractors, and Not Knowing

If we assume that Margurite’s present organization and situation is multiply rather than absolutely determined, and we can not make discreet deterministic interventions, then how do we proceed? Siegel (1999, p. 218) suggests: “Every moment, in fact, is the emergence of a unique pattern of activity in a world that is similar but never identical to a past moment in time.” As therapists, we must affirm we enter into a mysterious place of not knowing, and not controlling (Sorajjakool, 2009) when we work with others (Johanson & Kurtz, 1991, pp. 4-8), which is a vote for collaborating closely with Margurite’s own inner organic wisdom and creative intelligence.

Schwartz (1995) finds it helpful to think of organization in terms of an inner ecology of *parts*, which is the language commonly used by clients. Parts imply a system characterized by multiplicity (Rowan & Cooper, 1999). Systems can be studied for “the way energy flows through” and coordinates the components (Thelen & Smith, 2002, p. 52). As Peterfreund (1971, p. 119) says: “All structure involves information; indeed, it is information that truly marks our identity. As Norbert Wiener writes (1950, p. 96), ‘We, are not stuff that abides, but patterns that perpetuate themselves.’”

Margurite and all of us perpetuate ourselves through multiple patterns that evolve over time. Self-organizing systems begin with many parts with large *degrees of initial freedom* that are then “compressed to produce more patterned behavior” (Thelen & Smith, 2002, p. 51). “In self-organization, the system selects or is attracted to one preferred configuration out of many possible states, but behavioral variability is an essential precursor” (Thelen & Smith, 2002, p. 55). Nonlinear means order out of chaos.

In Schwartz’s terms, many different patterns of parts can be Self-led and/or blend or fuse with consciousness at any given time to lead a person in many directions. This accounts for Margurite presenting in many guises: Successful non-profit consultant – energetic lover uneasy about intimacy – generous giver, less adept at receiving - good competitor who likes to celebrate accomplishments of others – dutiful helpful daughter who lives 1,000 miles away – one who likes to help people, but gravitates towards individual sports like bike riding and running – and more.

Which part-pattern of Margurite that emerges depends on the interactions of her internal parts, and their perception of what is happening in the external world. Neurologically, the activation of one pattern often corresponds to the inhibition of another (Siegel, 2006).

Under different conditions the components are free to assemble into other stable behavioral modes, and it is indeed this ability of multi-component systems to “*soft-assemble*” that both provides the enormous flexibility of biological systems and explains some of the most persistent puzzles of development (Thelen & Smith, 2002, p. 60).

Siegel (1999) describes “the brain as an anticipatory machine” (Morgan, 2006, p. 15). Out of our experience we develop what Kurtz calls core organizing beliefs that provide the core narrative structure of our stories, and shape the way we tend to assemble our characteristic guises in the world (Shoda, Mischel & Wright, 1994).

As the emotional responses of the beliefs become engrained patterns of neural firing (Schoener & Kelson, 1988), Siegel (1999, p. 218) observes that they come to function as *attractor states* that “help the system organize itself and achieve stability. Attractor states lend a degree of continuity to the infinitely possible options for activation profiles.” Laszlo (1987, p. 70) maintains that “the principal features of dynamic systems are the attractors; they characterize the long-run behavior of the systems.” *Static attractors* govern evolution when system states are relatively at rest; *periodic attractors* govern those systems that go through periodic repetitions of the same cycle; and *chaotic attractors* influence the organization of seemingly irregular, random, unpredictable systems (Barton, 1994; Gallistel, 1980; Nowak & Vallacher, 1998; Vallacher & Nowak, 1994).

Core Organizing Beliefs, Fluctuation, and Flexibility

Siegel makes the point that new adaptations to new attractors form the foundation upon which increased complexity can build. Nowak & Vallacher (1998) explain that

in nonlinear dynamical systems, small incremental changes in the value of *control parameters* [external variables that influence behavior] may led to dramatic, qualitative changes in behavior, such as a change in the number and type of attractors. Radical changes in a pattern of behavior are usually *bifurcations*, although they are sometimes referred to as dynamical *phase transitions* and critical phenomena. Bifurcations represent qualitative changes in a system’s dynamics and thus are revealed by noteworthy changes in the values of the system’s *order parameters* [internal variables or attractors that organize behavior] (p. 61).

Out of multiple possibilities for the soft assembly of parts, the system organizes around a particular one.

Whereas before the elements acted independently, now certain configurations or collective actions of the individual elements increase until they appear to dominate and govern the behavior of the system. Haken (1977) refers to these dominant modes as the *order parameters*, which are capable of slaving all other modes of the system. The system can be described, therefore, in terms of one or a few-order parameters, or collective variables, rather than by the individual

elements. The order parameter acts to constrain or compress the degrees of freedom available to the elemental components (Thelen & Smith, 2002, p. 55).

Order parameters correspond to core organizing beliefs. Taking in or experiencing Margurite from the outside, it appears she is struggling with some core beliefs related to support. She supports others, but has a hard time receiving support, while often engaging in a lot of self-reliant behavior. As a hypothesis, she might have some order parameter in play that tells her there is something dangerous about counting on the support of others.

When systems self-organize under the influence of an *order parameter*, they “settle into” one or a few modes of behavior that the system prefers over all the possible modes. In dynamic terminology, this behavior mode is an *attractor state*. The system prefers a certain topology in its *state space*. The state space of a dynamic system is an abstract construct of a space whose coordinates define the components of the system; they define the degrees of freedom of the system’s behavior (Thelen & Smith, 2002, p. 56).

Thelen and Smith (2002, p. 62) make it clear that the “control parameter does not control the system in any conventional sense; it is only the variable or parameter that [disposes] the system [toward] one or another attractor regime.” Margurite can manifest fear, a disposition to withdraw, an offer of help, or the face of defensive anger. Persons can show variable forms of attachment in relation to different persons (Siegel, 1999). “The concept that a system can assume different collective states through the action of a quite nonspecific control parameter is a powerful challenge to more accepted machine and computer metaphors of biological order” (Thelen & Smith, 2002, p. 62).

Thus, the order that emerges “is created in the process of the action” (Thelen & Smith, 2002, p. 63). Action is understood in terms of *stability and fluctuation*, and not simply schemata, filters, maps, programs, beliefs, and such. As stated above, a stable state where the system settles into a relative equilibrium “can be thought of as an ‘attractor’ state” (Thelen & Smith, 2002, p. 52), another term for order parameter.

Stability and fluctuation can also be thought of in terms of *continuity and flexibility*: Siegel (1999) argues that:

Complexity does not come from random activation, but instead is enhanced by a balance between the continuity and flexibility of the system. “Continuity” refers to the strength of previously achieved states, and therefore the probability of their repetition; it implies sameness, familiarity, and predictability. “Flexibility” indicates the system’s degree of sensitivity to environmental conditions; it involves the capacity for variability, novelty, and uncertainty. The ability to produce new variations allows the system to adapt to the environment. However, excessive variation or flexibility leads toward random activation. On the other hand, rigid adherence to previously engrained states produces excessive continuity and minimizes the system’s ability to adapt and change (cf. Fogel et al., 1997) (p. 219).

Piaget talked about these issues developmentally in terms of “assimilating” new experience into previous structures of organization, as opposed to “accommodating” to new experience by modifying and expanding the schemata or maps, and thus incorporating increased complexity (Horner, 1974, pp. 9-10).

Attractors can have varying degrees of stability and instability, continuity and flexibility depending on the reinforcement of learned response schemas to anticipated events. Siegel (1999) notes that neural nets that fire together tend to wire together. Schwartz’s ecology of inner parts can be understood in terms of a CAS having “two or more attractors with different basins of attraction coexisting, . . . *multistable modes* which are discrete areas in the state space” (Thelen & Smith, 2002, p. 61). Again, a person can act in varying ways, depending on the context, though Freud’s repetition compulsion speaks to the relative stability of an inner ecology of attractors (Johanson, 2002).

Perturbations, Bifurcations & Transformation

In terms of transformation in psychotherapy we know that, “nonlinear phase shifts or phase transitions are highly characteristic of nonequilibrium systems and are the very source of new forms” (Thelen & Smith, 2002, p. 62). What leads to shifts or transitions is *fluctuations*, “the inevitable accompaniment of complex systems. It is these fluctuations that are the source of new forms in behavior and development and that account for the nonlinearity of much of the natural world” (Thelen & Smith, p. 63). “Change or transformation is the transition from one stable state or attractor to another” (Thelen & Smith, p. 63).

Transformational changes are fostered when “inherent fluctuations act like continuous *perturbations* in the form of noise on the collective behavior of the system. Within ranges of the control parameter, the system maintains its preferred behavioral pattern despite the noise” (Thelen & Smith, 2002, p. 63). However, when the internal and/or external perturbations sufficiently shake the system’s ability to satisfyingly operate out of old order parameters, it can come to a *critical or bifurcation point* where transformation to new attractor states becomes possible.

There are an endless number of perturbations that can drive a system to fluctuating enough for someone to enter therapy: Spouses or friends confronting the client saying certain behaviors are enough to threaten the relationship; bosses saying addictions are getting out of hand; unhappiness growing through an inability to get beyond predictable, unsatisfying interactions; longings for more meaning than what is being met through work or possessions; children being born or leaving the home; one’s once solid pension being reneged, or decent paying job being outsourced, etc.

In Margurite’s case, she was experiencing a high level of distress in her increasingly intimate relationship with her boyfriend Rolf. The ambiguity of feeling her longing for a mutually satisfying relationship alongside her fear of allowing herself to fully rest in Rolf’s offer of support and comfort was producing a lot of anxiety (noisy perturbations) in her. At the same time Rolf’s own issues of never feeling good enough to be fully included were activated when Margurite subtly maintained a distance, and he too was bringing more anxiety and distress to the relationship. Thus, the noise was being amped up in a mutually reinforcing relational system of pursuit and distancing (Fisher, 2002, pp. 109-121).

With the emphasis on *complex* in complex adaptive systems, how is a therapist to helpfully collaborate with Margurite in relation to such a dynamic, non-linear system? A simple, though paradoxically powerful approach, is to encourage mindfulness. Among the many aspects of mindfulness (Johanson, 2006a) there are two that can be touched upon here.

One, is that mindfulness can allow Margurite to get some distance on the way she is automatically driven or activated by her present organization (Khong, 2004). She can move from being her symptoms to having symptoms, making in Kegan's (1982) sense of the evolving self what was once subject, now object. Or, in Hayes' (2005) phrase, get more out of her mind and into her life. As Segal, Williams, and Teasdale (2002) discovered in their work researching cognitive-behavioral methods for depression relapse, what is most clinically helpful is that the patient's relationship to negative thoughts and feelings is altered (Segal, Williams, and Teasdale, pp. 38 ff.). It is the distancing or de-centering aspect of cognitive work, namely the mindful aspect, which proves helpful through allowing one to shift perspective and view negativities as passing events rather than abiding realities.

Secondly, mindfulness can also become the premiere tool for studying the organization of her experience, thus discovering core organizers in implicit memory where they can then become available for explicit reorganization (Kurtz, 1990, 2008). For Germer (2005, p. 6), this is employing mindfulness as "a psychological process (being mindful)," described by Baer (2003, p. 125) as "the nonjudgmental observation of the ongoing stream of internal and external stimuli as they arise."

When therapists help clients become mindful about what they are experiencing in the ongoing stream, a number of possibilities are brought into play. Nyanaponika Thera (1972, p. 46) notes that "the detrimental effect of habitual, spontaneous reactions . . . manifest in what is called, in a derogative sense, the 'force of habit'[with] its deadening, stultifying and narrowing influence, productive of [identifying] with one's so-called character or personality" (stable attractors) may be studied. To do this "we must step out of the ruts for awhile, regain a direct vision of things and make a fresh appraisal of them in the light of that vision. . . . [The insight from mindfulness] is helpful in discovering false conceptions due to misdirected associative thinking or misapplied analogies" (p. 52).

False conceptions are often perpetuated because "on receiving a first signal from his perceptions, man rushes into hasty or habitual reactions which so often commit him to the . . . misapprehensions of reality (Nyanaponika, 1972, p. 33)." To counteract this,

in practicing bare attention, we keep still at the mental and spatial place of observation. . . . There is . . . the capacity of deferring action and applying the brake . . . of suspending judgment while pausing for observation of facts and wise reflection on them. There is also a wholesome slowing down in the impetuosity of thought, speech and action. [This is] the restraining power of mindfulness (Nyanaponika, 1972, p. 25).

Thich Nhat Hanh (1976, pp. 10-11) adds:

Bare attention identifies and pursues the single threads of that closely interwoven tissue of our habits. . . . Bare attention lays open the minute crevices in the seemingly impenetrable structure of unquestioned mental processes. . . . If the

inner connections between the single parts of a seemingly compact whole become intelligible, then it ceases to be inaccessible. . . . If the facts and details of the conditioned nature become known, there is a chance of effecting fundamental changes in it.

Mindful therapy, which studies the organization of experience, may begin then by taking some aspect of what we have created (sensations, feelings, memories, etc) and mindfully following the thread back to the level of the creator (core organizing beliefs or order parameters). Nyanaponika (1972, p. 61) suggests, “[use] your own state of mind as meditation’s subject. Such meditation reveals and heals. . . . The sadness (or whatever has caused the pain) can be used as a means of liberation from torment and suffering, like using a thorn to remove a thorn.” In clinical practice, an implication here is that mindful attention to one’s present moment experience goes beyond free association (Kris, 1982). When there is Bateson’s trust in the organic wisdom of the system always moving toward self-correction, disciplined attention to the seemingly chaotic thread of the ongoing stream of internal stimuli that arises inevitably leads to an underlying need to reorganize that makes eminent sense.

In Margurite’s case, since she presented with a sense of sadness, the therapist invited her to slow down, be curious about it, and study it without preconceptions. Being mindful of the sadness clarified that it had a sense of grief. Maintaining a mindful state by befriending the grief, led to a mixed sense of anger and hurt, like something had been taken away.

At this point awareness did not seem to be deepening, so the therapist suggested they do an experiment in awareness. To have an experimental attitude means to be open to any result, and to consider any result a valid part of the experiment that expresses organic wisdom (Kurtz, 2008). To experiment in awareness means to maintain a mindful state of consciousness. Although it is true that experience and expression is automatically or unconsciously organized before it comes into our ordinary consciousness, mindfulness allows us to stand back a step and study how our organization responds to internal or external stimuli.

The hypothesis that Margurite’s therapist had developed through his experience of her to this point was that some of her core organizers, parts, or order parameters were afraid to make her vulnerable to taking in support. This seemed to be where her system manifested the most continuity and least flexibility. Since sharing this interpretation in ordinary consciousness would have little or no effect, he thought of verbal and non-verbal experiments that might help her deepen into her own curiosity and wisdom. He decided to try an experiment with words, namely, “It is okay to take in support” (Kurtz, 1990, pp. 89 ff.). If he was right, the experiment should evoke barriers to this belief, which are a therapeutically rich place to explore. If he was wrong, or off somehow, whatever the experiment yielded would guide them to the next step. As Gendlin (1992) suggests, the next step always evolves, but not until we have taken the step just before it.

So, the therapist asked Margurite if she was willing to do a verbal experiment, and she agreed. The therapist then did a little induction into mindfulness that could later be streamlined when Margurite understood the process better. Slowing down, calming himself, finding that place of compassion for whatever might arise, the therapist modeled mindfulness through his voice and pacing (Porges, 1995) saying: “Okay. Let me invite you to turn your awareness inward where you can pay attention to your present felt experience. If you are comfortable closing you eyes, it may help you focus more on your own experience -- not having the distractions of the outer environment here. Now then, notice whatever comes up spontaneously,

without you having to effort or produce anything . . . any sensations, tensions, thoughts, feelings or memories . . . when you hear me say these words . . . (pause to allow the ripples in Margurite's pond of consciousness to subside from the instructions themselves) . . . 'It is okay to take in support.'" After a few moments, the therapist inquired, "What did you notice in terms of the first instantaneous reactions? We normally pile on secondary stuff a moment later."

Margurite: "Yes, I simultaneously felt a sensation in my heart, and a rush in my sternum."

Therapist: "Good witnessing. And, it is also good if you can stay with your experience as you name it. You don't have to come out of it to tell me about it (an attempt to help her learn how to maintain mindful intrapsychic focus without defaulting to the normally expected interpersonal focus of therapy.) So, a sensation in the heart and also the sternum, huh? Which one has the energy . . . the one you seem to be most curious about?"

Margurite: "The sternum."

Therapist: "Okay. Let's stay mindful about that. Simply being present to it . . . what is the quality of the rush?"

Margurite: "Scary"

Therapist: "Uh huh. Scary like . . .?"

Margurite: "Scary like . . . you might be getting ready to . . . do something dangerous."

Therapist: "Yes, dangerous. So let's hang out with this sense of danger, and see if it will tell us more about itself."

Margurite: "I don't know why, but all of a sudden I'm getting the smell of apple blossoms, and I'm not too happy about it."

Therapist: "Apple blossoms ((?))"

The ((?)) symbol indicates a certain implication in the therapist's voice that attempts to communicate: "Oh, apple blossoms. Isn't that interesting? How about we hang out with that longer, be curious, and see where it leads?" This general implication in the voice tone has been there throughout. Doing this form of therapy involves inviting and following the client's curiosity, as opposed to the therapist's, which means encouraging ongoing mindfulness on the part of the client of their own process (Johanson, 1988).

Mindfulness of the Body

The reader might notice that mindfulness in the above case verbatim is brought to bear on bodily aspects of Margurite's experience. In general, this is because the therapy is not directed at the content, the stories people tell, so much as the storyteller (Kurtz, 1990). Stories can go on forever with infinite variations on a theme. Therapeutic work happens at the level of the order parameters that translate into core narrative beliefs that inform the themes that give rise to the story. To put it another way, since we organize our experience, it is the experience that is already organized that we need to be mindful and curious about, so that it can lead us to the level of the core organizers.

The body reflects mental life (Dychtwald, 1987; Kurtz & Prester, 1976; Marlock & Weiss, 2006b). The voluntary musculature is under cortical control. The protein receptors of every cell membrane of the body receive signals about the environment from the brain, informed by the mind, that activate growth or withdrawal responses (Lipton, 2005). Order parameters that lead to perceptions of the world such as "life is a fight and you have to be ready to win at all times" or "life is a wonder to be enjoyed" mobilize the body in different ways that are congruent with these differing beliefs. The mind-body interface can be used in both directions, studying what mental-

emotional material is evoked when we do body-centered interventions, or noticing how the body organizes in response to some mental-emotional experiment (Fisher, 2002, pp. 69-96).

The verbatim of Margurite's case also illustrates that right brain questions ("What is the quality of the rush?") and/or directives ("So let's hang out with this sense of danger") that require the client to reference her experience to discover a response, supports mindful inquiry. This support is more so than left brain questions that tend to ask for a theory about one's experience (Why is there a rush? Why do you suppose a sense of danger is happening?) The actual right brain query a therapist might use is not that important, except that it functions to keep the client mindfully attuned to her experience longer, so that the transformational capacity of the unconscious (Fosha, 2000, 2003) has the time and space to lead the process to unfinished business or unprocessed memories it wants to deal with. This approach embodies trust in Bateson's proposition of a self-correcting system.

Processing in this manner is necessary for the fluctuations and perturbations in Margurite to actually lead beyond disturbance to a phase shift where she can transform and organize in the attractor of Rolf's offer of support. The way the case example is progressing indicates that there is the safety and trust present in the therapeutic alliance and the process itself that the cooperation of Margurite's unconscious has been gained (Kurtz, 1990, pp. 57-59). With other clients, other things might need to be done to attain the necessary safety and trust.

The emphasis on experience here is in line with Stern's work (2004) on the importance of the present moment that questions associative work that moves too quickly away from "the exploration of the experienced-as-lived" (p. 38). In rushing toward meaning Stern notes that, "We forget that there is a difference between meaning, in the sense of understanding enough to explain it, and experiencing something more and more deeply" (p. 140).

Morgan (forthcoming) writes that centering on experience is also in line with the "role of the body in self-awareness, relationship, life satisfaction, and therapeutic change now supported by a growing body of writing and research in neuroscience and attachment" (Cozolino, 2006). We are finally overcoming what Damasio (1994) calls the abyssal separation between body and mind. However, there is a long and substantial tradition of somatic psychology that has realized the inseparability of mind and body, and the ability of the body to be a royal road to the unconscious that should not be forgotten (Kurtz & Prester, 1976; Marlock & Weiss, 2006; Johanson, 2006b; Goodrich-Dunn & Greene, 2002). *The USA Body Psychotherapy Journal* currently provides a window into the field. Morgan (2006, p. 17) summarizes a wealth of recent research also chronicled by LaPierre (2004, 2005, 2006).

Mindfulness calms the system, allows the person to *focus attention*. The . . . quality present in [a] mindfulness induction has been shown to heighten mental imagery, disconnect attention from external senses and increase the blood flow to the anterior cingulate cortex. This is the brain area that allows attention to be focused on internal events. Candace Pert (1999), in her discussion on neuropeptides, talks of the system being able to digest information when there is focused attention on the body. This allows information to flow upwards, be filtered, and be processed. When the client *reports experience* to the therapist the verbal areas are kept active, which will help balance the two hemispheres. Memory fragments are gathered by the hippocampus, and the frontal lobes so these fragments can be brought together in a meaningful way. Movement between the left and right hemispheres is crucial for memory consolidation. This

could involve a process of feeling something, speaking about it, expressing emotion, linking this to a remembered event, feeling the body, or making some sense of the feeling. Freezing in the body [when there is trauma] can then melt, and energy can then be released in movement, heat and trembling. Going slowly, mindfully gives time for these processes to sequence through and complete.

Likewise with mindfulness the

attention is taken inwards, and time is spent in quieting the internal “noise.” Scanning body sensations lowers arousal and allows more subtle signals to come to awareness. Body signals are usually missed when the attention is in outer, task focused mode or sufficient time is not given. Signals may be changes in the felt sense of the body, impulses, small movements, and tension in the muscles. These can evoke words, images, memories, and so on. Candace Pert suggests that paying mindful attention to an aspect of body experience releases molecules in that area that are carriers of information upwards to the brain (Morgan, forthcoming).

In terms of the signal to noise ratio, mindfulness serves to lower the back ground noise so that the signals related to additional attractors can be more clearly noticed (Austin, 1998, p. 658).

Damasio’s research (1999, pp. 40-42) suggests these signals originate in part from our life experiences that generate sensations through the emotional brain that he terms *somatic markers* that then inform us of the significance of whatever we are considering. Normally these somatic markers work on our decisions below consciousness, supplying us preverbal intuitions of “right” or “not right” about doing something. Mindfully attending to these felt bodily senses, as in Gendlin’s (1996) work, brings their messages and memories into consciousness.

Margurite mindfully following the thread of signals and sensations her unconscious was offering to the sense of smelling apple blossoms indeed led her next to core formative memories. The therapist asked her for details of the smell that served to stabilize the memory that was emerging.

Therapist: “Does it seem like you are by an apple blossom tree or in a florist shop or something else . . . ?”

Margurite: “I’m feeling younger . . . and it seems I’m out of doors . . .”

Therapist: “Oh, out of doors ((?)) . . . uh, day time or night time?”

Margurite: “Day time . . . getting towards dusk, I think . . . Oh my God!” (followed by spontaneous tears and holding herself in.)

Therapist: “A really emotional memory comes up, huh?” (while supporting and allowing the emotional release through dyadic regulation) (Fosha, 2003).

Margurite: “YES! (crying) it was the final time he didn’t show up, and I knew!”

Therapist: “Oh, you were waiting for someone, and were disappointed when he didn’t come?”

From here the therapist talks with Margurite as the seven year old child she was in this memory, and much more memory surfaces. Margurite’s dad was a life-long, everyday, after work hard drinker. He was so good at it he could drink others under the table and walk away in a straight line, which meant it wasn’t always easy to tell if he was under the influence or not. But, as Margurite grew, she discovered little clues. For instance, when he was driving, he would pull

out too fast into traffic, and when Margurite or her mother would exclaim, “Father!” he would retort with belligerence, “They have brakes!”

More personally, Margurite was suffering an ongoing series of disappointments when dad wouldn’t come through with things promised. She had an “ah hah” experience one time that gave her some young insight. One night (after her father had some shots and beer chasers, but was talking in a very present, logical manner) she showed him her doll house and asked if they could go into the shop and do some modifications to the roof and rooms. Her father answered in a very confident manner, “Sure, we can do that. You bet.” When she brought it up the next morning, father said, “What? Redo the roof line? Are you kidding? That would be way too complicated.” Margurite was stunned by the sure knowledge her father didn’t remember a thing he had said the previous night. He couldn’t be counted on for dependable support. She felt sick and hurt, like throwing up.

Then there was incident in the apple orchard. Despite ongoing disappointments, Margurite was still tempted to hope for more from her father, especially since he could come on with such confident, charming promises of fun and connection. One thing they liked to do with each other was ride bikes. There was a wonderful road to ride along this apple orchard, though her parents told her she was not supposed to ride it alone without one of them with her. One day when Margurite was looking down a little, Dad said, “Let’s make a date to ride bikes down the orchard road tomorrow. I’ll meet you there after work at five-fifteen! Okay Pumpkin!”

The next day Margurite was there at the apple orchard road corner by 5:00 p.m. sharp while her father dropped by the tavern after work, forgetting the date completely. At 6:15 p.m. she knew she had been forgotten and abandoned as the anger, hurt, and disappointment welled up within her. The incident became a lightning rod for all her previous disappointments, and solidified a core belief that you can’t count on others to support you. This included Mom, who was nice, but too busy to pay much attention with three other children, plus working longer hours than she would like in order to pick up the slack from Dad frequently getting fired and needing to find new jobs.

Margurite peddled determinedly down the road by herself, with her tears, but certain in her new life strategy that if you can’t count on others to support you, you better take care of yourself. Both parents were angry with her when she got home for heading out on her own without permission, but she didn’t care. She was unwavering in seeking to be as self-reliant as possible. Even though she cared for her parents, leaning on them for anything was a recipe for deep hurt that she did not want to experience again. All of this, of course, was not so clearly a rationally thought out process, but the end result was a powerful order parameter that would influence all her subsequent relationships.

Not Knowing, Transformation, and the Bridge

Not Knowing

Margurite’s session to this point is an example of non-linear unfolding. No expert, no textbook could have predicted that becoming mindful of her initial report of sadness would have led to sensing apple blossoms and evoking formative childhood memories.

What therapists can know and trust is that important experiences in both implicit and explicit memory are embedded in emotion as Morgan (forthcoming) points out, “and emotion arises in the body. Damasio differentiates between *emotion* as bodily response, and *feeling* as

conscious perception of the emotion. Emotions play out in the theatre of the body. Feelings play out in the theatre of the mind.” Further:

When the client focuses on the body, in the present moment, unconscious material can surface into awareness. Implicit memory doesn’t feel like memory; it is perceived in the present. Unconscious memory related to core material seems to come in *packages*, similar to the complexes described by Carl Jung, and COEX systems detailed by Stanislav Grof (1975). . . . Touch one aspect of the package, use mindful attention and hang out with the experience, and the rest will emerge into awareness. Often it is experiencing the somatic marker that is the doorway opening to awareness and change.

To trust the wisdom of organic unfolding moving towards increasing levels of wholeness implies that the therapist must proceed in a disciplined way in terms of process, and a radically non-directive way in terms of taking cues from the client (Weiss, 2008). The best leader follows was the ancient wisdom of Lao Tzu (Johanson & Kurtz, 1991), echoed in contemporary times by D. W. Winnicott (1982) who affirmed that it doesn’t matter how much therapists know, as long as they can keep it to themselves.

Transformation

More good news for psychotherapy is that Siegel (2007, p. 31) reports, “Experience can create structural changes in the brain.” This is the basis for interpersonal neurobiology that demonstrates how the mind shapes the brain (Gallese, 2001; Lewis et al., 2000; Lipton, 2005; Siegel, 1999). Experiences change neural firing that changes neural connections. Siegel (2007, p. 31) then goes on to say, “mindful awareness is a form of experience that seems to promote neural plasticity.”

The notion of *neural plasticity* (Schwartz & Begley, 2002) is also supported by the work of Lynn Nadel (1994) on the hippocampus, memory, and brain structure. In particular, when working in the here and now evokes a memory, for a short time that memory is available for re-coding before it is restored. When the memory is present as a felt-sense phenomena (as opposed to an ordinary consciousness recollection), it is possible to introduce what Kurtz & Minton (1997) term a *missing experience* (not merely an insight); a cortico-limbic emotionally corrective experience (Fosha, 2003, p. 245).

This happened for Margurite on a number of levels. When she was deeply regressed into the experience of the distraught seven year old, the therapist acted as if he were present with her in the old memory as a *magical stranger* (Kurtz, 1990, p. 131), and helped her understand things that only an older, wiser, compassionate adult could. Specifically, he let her know that yes, there were people in the world, like her father, who could disappoint and not support her, and that it was good to be able to be self-reliant and be careful about letting herself in for further disappointment, because that hurts so much. And, when she got older, she would find other people in her life that could and would support her in important ways. So, she would need to learn how to study closely which persons she could trust to help her, and which ones to be careful of trusting too much. The little, inner child Margurite received this news in a demonstrably meaningful way that shown in her body and breathing relaxing, as well as her giving ascent to understanding. Later, in the integration phase of this session, the therapist had

Margarite mindfully observe this younger self from her Self (Schwartz, 1995) or core state (Fosha, 2000) position, and lovingly tell her the same message, and agree to touch base with her in the coming days.

Still later, in a group therapy setting, Margarite experimented with literally allowing group members to support her physically. At first, she willingly melted into the support and took in the newness and goodness of the experience. Then, all of a sudden, she popped up and said, “Okay, that’s enough for now.” The therapist contacted her by saying, “Oh, some part pulled you right out of there, huh?” When she nodded, the therapist invited her to slow down, be mindful of the part that pulled out, and what it might be concerned about. She sensed that it was afraid that releasing into support would take away her power to take care of business in the world. The therapist asked her how she might respond to the part’s concern from her center of compassionate witnessing, or what Schwartz (1995) terms the concept of Self. She said the part needed to know that taking in support did not have to mean giving away her power. After she communicated this to her part, the therapist suggested she physicalize this new experience by voluntarily going back and forth from allowing the group to support her and then standing on her own two feet, feeling her power, and walking intentionally around the room. She mindfully enacted this rocking sequence four times, which felt very integrative to her.

Then, in a couple’s session with Rolf, the therapist set up a mindful experiment in awareness where Rolf said to Margarite, “You don’t have to do everything by yourself.” Margarite could witness the part of her that took that in with grateful warmth, and also a little doubt that said, “But you might die.” Rolf responded, “Yes, I can never know when I might die, but until that happens, I can support you like you are willing to support me.” The honesty of the response, which was in such contrast to her father’s shallow, undependable promises, melted her final barrier, and she could feel her heart opening as she released herself to Rolf’s embrace.

Margarite’s process can be considered a transformative phase shift because she has organized in, or accommodated to, a new possibility previously organized out. She has gone through a bifurcation point from an order parameter whose core belief was “nobody can be there for me any of the time,” to “some people can be there for me some of the time.” She is living in a larger, more complex world. Her mind can anticipate more possibilities. Now when her system is in a place of soft assembly with many initial degrees of freedom, there are more modes or attractors available in her multi-modal system. Her early memories of the orchard and the lessons learned then have been modified to a degree through “updating the files” from those places frozen in time when she felt, as only the seven year old could, that there were no other options for her than riding by herself. Damasio (2003) would suggest that integrating these missing experiences provide new positive somatic markers.

In her ongoing life and behavior, the attractor that pulls her toward accepting the possibility of support will be more fully integrated as she encounters situations offering support, is mindful of both her caution and desire, and makes conscious decisions about accepting or rejecting the offers (Khong, 2006, 2007). Neurons that fire together, wire together, as Siegel (2007) suggests. Also, as Nadel’s work (1994) proposes, the hippocampus has created a new memory by integrating additional context and time sequencing to a new present. Two or three months of sleeping and dreaming will give the updated memory more permanent status.

There are two things related to the above description of mindful therapy focused on the bodily based organization of experience that can provide a bridge between the concerns of Eastern and Western therapy (Engler, 1986, 2003). One, the witness in mindfulness is used in the passive sense of bringing bare attention to what is, neither adding nor subtracting to what is observed. In Eastern psychology, this disidentification with ego illusions can eventually lead one to the no-Self of unity consciousness. As noted above, this decentering approach is increasingly valued by Western practitioners as well. However, Margurite's process also called upon active essential qualities, such as understanding, wisdom, curiosity, calm, and compassion to be brought to bear in the service of healing her fragmented, stressed ego-organization that is generally valued in the West.

A valid question to ask about the work outlined here is does it not make the illusions real by taking seriously such ego-based phenomena? Should we not forsake therapy (Reynolds, 1980) that can immerse us in hopeless archeological entanglements, and opt for meditation that simply observes what arises as ethereal clouds, and allows them to pass by?

The answer implied here is that this is a false choice. If one can observe thoughts, name them, and allow them to pass, this is a helpful freeing practice. If the same thought comes distressingly into awareness for the 10,000th time, it might mean it needs a little graceful, compassionate attention, unreal though it might ultimately be. In Buddhist wisdom awareness and compassion, mind and heart are not two. To illustrate, if Thich Nhat Hahn (1976, pp. 61-62), who counsels, "We should treat our anxiety, our pains, our hatred and passion gently, respectfully, not resisting it," came upon a young or old person sitting on the ground in pain because of a thorn in their foot, he would stop and remove the thorn, not simply pass by while suggesting s/he meditate on her/his pain as pain. There is an abundance of inevitable suffering in the world. If we can relieve certain forms of unnecessary pain, as well as help people not be so identified with their perceptions, it is a valid dual calling.

This is the judgment of Wilber (1995, 2000, 2006) who in his many works constantly makes the point that serious meditators/teachers who attain high states of consciousness can still be hurting persons because they have not dealt sufficiently with their shadow, or inner ecology of parts. Likewise, Germer (2006) cautions that there is a danger in that mindfulness is now being manualized for therapeutic applications in a way that leaves out the crucial element of compassion. Brach (2003, pp. 27-31) agrees that healing work must include the wings of both clear mindful awareness, and of compassion that allows for wholehearted acceptance. Kurtz (2008) has taught for many years that cultivating loving presence is essential alongside mindfulness. Schwartz's (1995) concept of the Self includes passive awareness alongside a number of essential qualities that need to be actively employed in healing. Siegel (2007, pp. 16-17) puts it this way:

With mindful awareness we can propose, the mind enters a state of being in which one's here-and-now experiences are sensed directly, accepted for what they are, and acknowledged with kindness and respect. This is the kind of interpersonal attunement that promotes love. And this is, I believe, the intrapersonal attunement that helps us see how mindful awareness can promote love for oneself.

Siegel's study of interpersonal attunement in relation to attachment issues leads him to suggest "that mindful awareness is a form of intrapersonal attunement. In other words, being mindful is a way of becoming your own best friend" (2007, p. xiv).

Mindful therapy involving the reorganization of our experience optimally involves the therapist making the client the object of his/her meditation, including awareness and compassion. The healing relationship is vital as many texts have suggested (Lewis, Amini & Lannon, 2001; Mahoney, 1991). It is equally optimal to evoke and employ the client's ability to be mindful, curious, and caring in relation to their inner organization in an intra-personal way. When transformative phase shifts occur, the integrative power of inner affirmation and outer confirmation is a powerful combination.

Mindfulness can thus be in the service of actively and compassionately reorganizing deep structures, as well as providing distance and perspective on the inner world of our historically conditioned egos. It can be used as the main therapeutic tool within a session, as well as a life-long practice and skill during and beyond psychotherapy (Khong, 2006). This approach represents a bridge between Western psychology that generally concerns itself with the healing of the fragmented ego, and Eastern psychology that generally assists people in achieving the unity consciousness of the no-self.

Margurite found ego-level healing in the Western sense through employing and receiving the essential qualities of passive mindfulness and active compassion on the part of both herself and her therapist. Plus, she also became more de-centered or unattached to her issues, and attained practice in using mindfulness to distance herself from the immediacy of how she organizes his experience (Coffey, 2008).

Conclusion

We will conclude by reconsidering some of the initial concerns about this subject matter. Overall, it seems that it would be helpful for humanistic psychotherapists to know something about non-linear science, mindfulness, and the body. Working with such concepts as the organization of experience, indeterminacy, multi-modal systems, attractors, order parameters, soft-assembly, fluctuations, bifurcation points, and phase shifts allows for more of the complexity of human-beingness than former models of science, and supports the necessity of collaborating closely with a client's organic wisdom. However, while many psychologists agree on the inadequacy of cause and effect models, and of the necessity of embracing non-linear approaches, the vast majority of contemporary research studies embody the old model (Thelen & Smith, 2002).

Also, while Bateson's propositions, non-linear models, and his own tenets of development are fundamental according to Wilber (1995), they are not what are most significant. As holons we are compound individuals made up of physical and organic parts, as well as wholes capable of evolving capacities for mind and soul in developmental models that acknowledge growth through material, biological, mental, and spiritual phases. See Wilber, (2000) for examples of such multiple models. The theory we have been covering is necessarily addressed to the lowest common denominator that covers physical and biological aspects of our holonic existence. While it can tell us such things as there is emergent transformation and development toward increased complexity, it does not tell us about the other things that life-holons or mind-holons can do, that go beyond their commonality with physical-holons. It informs us that we can count on a force, negentropy (Prigogine & Stengers, 1984), that is moving things toward increasing wholeness, differentiation, and integration, but says nothing about reproduction, dreaming, falling in love, doing art, being curious, building ships, joining committees, writing constitutions, or being moved by Shakespeare or Rap. So, there is a wealth of other material for humanistic

psychotherapists to keep in mind that Wilber (2000, 2003, 2006) outlines in his AQAL theory (all quadrants, all lines, all levels) that includes further reaches of consciousness and behavior in the context of cultural values and social structures.

Thinking of Margurite as a complex adaptive system who might need our assistance in reorganizing her experience is valid then, but an inadequate view of her overall. However, using basic concepts from CASs does not lead to an unacceptable reductionism, and may facilitate a process helpful to her. Consciousness and purpose, an open ended and involved exploration that allows for the art and science of therapy complete with feeling and thinking is within the bounds of this approach. Hands-on practitioners will need to evaluate if the framework of non-linear science helps them in their work or not.

Hopefully, it is clear that psychotherapists need to become increasingly familiar with the mind-body interface. The recent research in interpersonal neurobiology and neuroplasticity are disclosing how the mind shapes the brain (Cozolino, 2002, 2006; Gallese, 2001; Lewis et al., 2000; Lipton, 2005; Siegel, 1999). The progress made in treating trauma (Ogden, Minton & Pain, 2006; Rothschild, 2000; Van der Kolk, 1994) likewise points to the necessity of needing to understand bodily based, bottom up processing that stems from the activation of lower, non-cortical aspects of the brain. Wylie (2003, p. 28) writes, “it is through and in the language of the body that we most fully and completely express our human *being*.” Aron (1998, p. 4), from a relational psychoanalytic perspective on the body, writes:

I believe that research into and clinical study of self-reflexivity [reflecting similarities to mindfulness] (and especially the relationship among self-reflexivity, intersubjectivity, embodiment, and trauma) is among the most promising areas of psychological research and psychoanalytic investigation taking place today.

Mindfulness itself helpfully affects the brain through such things as left prefrontal activation that enables people to not be fused or blended with emotional activation or obsessive-compulsive behaviors (Germer, 2005a, pp. 22-23). Rather, impulses may be witnessed as they arise, and choice introduced in terms of a variety of responses (Austin, 1998; Libet, 1999; Schwartz & Begley, 2002; Schwartz, 1996). It is helpful to be aware of these findings.

Mindfulness, as evidenced by this volume, is generating an increasing body of research (Johanson, 2006c) where it has been employed in numerous clinical situations. We will close with Germer’s (2005a, p. 27) optimistic view of the future of mindfulness in therapy.

To have psychological techniques at our disposal, drawn from a 2,500-year-old tradition, which appear to change the brain, shape our behavior for the better, and offer intuitive insights about how to live life more fully, is an opportunity that may be difficult for psychotherapists to ignore. Only time will tell what we make of it.

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