

BRAIN, SYMBOL, & EXPERIENCE:
A PSYCHIATRIC AND THEOLOGICAL
DIALOGUE

by *Mary Lynn Dell*

Abstract. *Brain, Symbol & Experience* attempts to solidify the authors' work in the fields of neurophenomenology and consciousness. The interdisciplinary nature of the work dictates less than extensive discussions of individual academic topics, but it does facilitate the identification of mutual points of interest for future pluralistic dialogues. This paper explores the implications of Laughlin, McManus, and d'Aquili for the neurosciences, psychopathology, psychotherapy, contemporary literature, theology, and faith development theory. Suggestions for specific interdisciplinary conversations are offered.

Keywords: anthropology; Robert Bly; consciousness; contemplation; cosmology; dissociative disorders; faith development; James Fowler; Matthew Fox; monasticism; myth; neuroanatomy; neurology; neuroscience; psychiatry; psychology; psychopathology; symbolism.

Charles Laughlin, Jr., John McManus, and Eugene d'Aquili have contributed a work that may indeed be the epitome of interdisciplinary theorization and academic thought. *Brain, Symbol & Experience: Toward a Neurophenomenology of Human Consciousness* is a commendable effort to integrate the normally diverse studies of neuroanatomy, physiology, anthropology, and, secondarily, the less scientific areas of symbolism and mythology via their relationships to consciousness. As in any endeavor of this nature, some aspects of the work are stronger than others, but the sum of the book invites conversation with all thinkers concerned with any discipline touched by the authors. I read *Brain, Symbol & Experience* from the perspectives

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of a child and adolescent psychiatrist, a physician with concentrated training in neurology and development, and as a student of theology. Therefore, this paper will address the continuum from pure science to theological reflection, moving from neuroanatomy and physiology to anthropology, psychopathology, and psychotherapy, to the implications of contemplation for theology and faith formation. I hope to suggest other disciplines and individual thinkers who would be interesting dialogue partners with Laughlin, McManus, and d'Aquili.

The authors clearly state in the book's introduction that the approach to the study of consciousness will be strongly anthropological, but informed by other areas of study as well. "It is our conviction that a reasonably satisfactory account of consciousness by science requires at a minimum the serious consideration of all appropriate data bases and observationally grounded points of view available to our inquiry. This conviction means that we must take a multidisciplinary approach" (Laughlin, McManus, and d'Aquili [1990] 1992, 4). The authors acknowledge the pitfalls both of the dualism of science and of more subjective, less data-dependent perspectives, and they inform readers that the goal of this treatise on consciousness is to integrate and synthesize structure, function, and psychology into one unified concept of consciousness. Biogenetic structuralism, the term coined for this nondualistic synthesis, "specifically holds that 'mind' and 'brain' are two views of the same reality—mind is how brain experiences its own functioning, and brain provides the structure of the mind . . . this is not an identity theory, for neither the social and psychological sciences nor the neurosciences can be considered to be complete accounts of consciousness" (Laughlin, McManus, and d'Aquili [1990] 1992, 13). However, before this unified theory of consciousness can be accomplished, the authors are obliged to discuss basic principles of neuroanatomy and physiology.

I must admit I was not favorably impressed on my first reading of "The Nature of Neurognosis," the authors' effort to encapsulate all of neuroscience relative to consciousness into one small chapter. As a biology major and medical student, I learned somewhat different definitions of neurons and organisms, and would have explained the concepts of neuronal depolarization and hyperpolarization differently. The best diagrams of brain anatomy come after the discussion of the structures' functions (diagrams on pages 126 and 127 are satisfactory but tardy). I was caught off guard by references to Piaget in material that is rightfully the domain of Alf Brodal. The content seemed skeletal, lacking the flesh to properly set the stage for even a cursory understanding of the neurological components of

consciousness. I wondered how anyone without the benefit of courses in zoology, embryology, comparative vertebrate anatomy, histology, and neurology could adequately grasp the breadth of this material.

At that point, I consulted some standard neurological and psychiatric textbooks for medicine's perspectives on brain structure and function. "The two hemispheres process information differently and have different functional specializations. The dominant hemisphere processes information in a sequential, analytic, linear fashion and is particularly efficient at processing language and other symbolic information. The nondominant hemisphere processes information in a Gestaltic, holistic, parallel fashion and is particularly efficient at processing visuospatial information. Anatomical and biochemical asymmetries underlie these functional differences" (Taylor, Sierles, and Abrams 1987, 4). "The problems (regarding reticular formation) are extremely complex, and it is probably right to say that no clear conception can as yet be formulated. The only safe conclusion which can be drawn from all of these observations is that a number of brain regions are of importance for consciousness, even for its simplest aspect, its level—a conclusion in agreement with clinical observations" (Brodal [1948] 1981, 442). Normal consciousness is "the condition of the normal person when awake. In this state the individual is fully responsive to stimuli and indicates by behavior and speech the same awareness of self and environment as the examiner. This normal state may fluctuate during the course of the day from keen alertness or deep concentration with a marked constriction of the field of attention, to mild general inattentiveness and drowsiness" (Adams and Victor [1977] 1985, 255–56. Other relevant references include: Alheid, van Hoesen, and Heimer [1967] 1989, 51–52; Anderson and Cohen 1991, 28–38; Leckman 1991, 3–11; Moore, Karacan, and Morihisa [1967] 1989, 86–92; Ornitz 1991, 38–51; Rakic 1991, 11–28; and Werry 1991, 76–86).

Alas, the medical textbook definitions may be more familiar, but they certainly offer no significant advantages for interdisciplinary dialogue than those offered by the authors. In the strict scientific sense, the sections on the limbic system, sleep physiology, and prefrontal cortex can certainly be made more detailed and rigorously accurate, but is that the purpose of a pioneer work of an interdisciplinary nature? I suspect not. The explanations provided are probably aimed at the appropriate level for an interdisciplinary audience, sending some to a dictionary, but with most comprehending the basics. I realize that my criticisms, though they have validity, reflect on a minor scale the academic territoriality that

historically has prevented the interdisciplinary endeavors and inquiries this work attempts to foster. This kind of insight and attitude must be achieved as a prelude to learning and understanding.

CONSCIOUSNESS, PSYCHOPATHOLOGY, AND PSYCHOTHERAPY

Brain, Symbol & Experience begins its true integrative purpose in the sections establishing the basics of consciousness: "Consciousness and the Cognized Environment," "Intentionality and the Sensorium," and "Phases of Consciousness." Whereas definitions of consciousness in the medical textbooks are succinct, the complexity of consciousness is here fully acknowledged:

"A fundamental difficulty in scientifically approaching consciousness is that the term is largely experiential, belonging to that long list of terms like sensation, feeling, pain, mind, joy, etc. which denote aspects of direct experience without reference either to the neurocognitive structure's mediating experience or to objects outside the being. There are really only two ways to obtain information about consciousness—directly through introspection and indirectly through others, experimentation on other beings presumed to be conscious, observation of the physical and symbolic concomitants of consciousness (i.e., aspects of the body or artifacts produced by conscious beings)." (Laughlin, McManus, and d'Aquili [1990] 1992, 76)

This quotation captures three pathways of informing or developing consciousness: direct experience from outside events; direct experience from introspection; and learning from the experiences of other humans, either by report or observation. Direct experience from the outside is mediated through the senses and is subject to the accepted paradigms of classical and operant conditioning, learning, and behavioral theories. Direct experience from introspection refers to contemplation, which I will return to later. Learning from the experiences of others, by report or observation, can refer to anthropological findings on a societal level or interpersonal relationships on an individual level. The authors introduce a number of useful definitions in this section, including intentionality, perception, will, concentration, psychic energy, environment, adaptation, and fragmentation. Please refer to the text for these discussions. However, I mention these in relation to pathways of informing consciousness because of their implications for psychopathology, psychotherapy, and other treatment modalities, topics touched upon by the authors and worthy of further development.

The authors offer a perspective on psychopathology that, if not original, still deserves further exploration. The conscious undergoes fragmentation and alteration in the processes of unlearning,

learning, sleep, meditation, and various religious experiences. Forms of alteration of consciousness that are seen as symptoms in several psychiatric disorders, at times as adaptive reactions to stressful events, or perhaps as normal psychic experiences in the absence of pathology or stress, include dissociation, derealization, and depersonalization. Dissociation is “the splitting off from one another of ordinarily closely connected behaviors, thoughts, or feelings.” Depersonalization “refers to the experiences of being estranged from one’s self, one’s body, and the environment. The person observes occurrences involving the self from the perspective of a detached outsider.” Derealization occurs when a feeling exists that events are unreal, yet the “sense of self is preserved” (Yager [1967] 1989, 566–67). Trances, fugues, memory blackouts or amnesia, somnambulism or sleepwalking, and certain automatic behaviors are other alterations of consciousness that vary in their degree of pathology. These phenomena may be culturally acceptable in some settings, especially when involved with religious practices. Indeed, the practices of the shaman, referred to quite frequently by the authors, incorporate these states both intentionally and unintentionally.

Alternative states of consciousness are manifested to the most pathological extreme in multiple personality disorder. For much of the modern psychiatric era, the illness was thought to be extremely rare, if it existed at all. Interest has resurged in the last decade, and multiple personality disorder research has shown strong associations of this type of dissociative disorder with sexual abuse, abnormal EEG findings in the absence of seizures, pseudoseizures, genetic diathesis, and perhaps even religious backgrounds. Still, many mental health professionals do not recognize this disorder and pronounce its sufferers to be misdiagnosed borderline personality disorders, malingers, and even psychotic individuals. The authors of *Brain, Symbol & Experience* address this issue in the following manner:

We suspect that the difficulty many scientists and others have had in accepting the existence of this syndrome and of empathizing with its consequences derives ultimately from a lack of experience of themselves as fragmented consciousnesses. That is, most people—and scientists included—do not question the reality of their cognized selves, their empirical egos. It is the rare observer who directly experiences his pure ego and cognizes himself as a multiplicity of consciousness. Yet . . . such experience is the inevitable consequence of intensive, long term, mature contemplation, be that by any route to self-knowledge that results in personal involvement in one’s own individuation in the Jungian sense.” (Laughlin, McManus, and d’Aquili [1990] 1992, 137)

This is a charged statement that contains an implicit challenge to all professionals working with patients suffering from disorders involving alternative states of consciousness. It is also quite likely that psychiatric researchers in the field are coincidentally working with similar issues raised by the terms "neurophenomenology of consciousness." Dialogues between Laughlin, McManus, and d'Aquili and leading psychiatric researchers and educators in dissociative disorders (such as Philip Coons, Bennett Braun, Frank Putnam, Elizabeth Bowman, and others) would be at least very interesting, and could lead to further developments in the realm of neuroconsciousness.

Brain, Symbol & Experience brushes on the topic of psychotherapies on brief occasions, mainly to note how their theory of consciousness fits comfortably with some schools of therapy. Due to the limited attention to this topic, it is unclear if comments on consciousness and therapy were meant to acknowledge that mutuality of interests exists or to point out what contributions neuroconscious theory might make to psychotherapy. Regarding cognitive therapy, the authors note that "Via the process of recovery, expansion into awareness, and evaluation, the now cognized automatic thought is transformed into a phase of consciousness, and the client thereafter gains a greater measure of control over mood states" (Laughlin, McManus, and d'Aquili 1990, 145). In the seminal work *Cognitive Therapy of Depression* (Aaron T. Beck et al. 1979), the philosophical origins of cognitive therapy are credited to Stoic philosophers and Eastern philosophies such as Taoism and Buddhism. Kant, Heidegger, and Husserl are acknowledged for providing an emphasis on conscious subjective experience that is fundamental to the cognitive model (Aaron T. Beck, et al. 1979, 89). Modern hypnotherapy, Gestalt therapy, certain behavioral therapies, and therapies based on the healing qualities of rituals and enhanced awareness are keenly dependent on states and levels of consciousness. This suggests that the underlying observations which serve as a basis for the "neurophenomenology of consciousness" are shared by psychoanalysis, psychodynamic psychotherapy, cognitive therapy, and other treatment modalities. The language and methods may differ at times, but psychotherapists and analysts have historically studied the same processes, functions, and behaviors as the neurophysiologists, anthropologists, and psychologists now conceptualizing this integrative theory of neuroconsciousness.

More directed study of the art and practice of psychotherapy would add depth and dimension to this interdisciplinary work. *Persuasion and Healing: A Comparative Study of Psychotherapy* by Jerome D. Frank

(Professor of Psychiatry at the Johns Hopkins University School of Medicine and Director of the Johns Hopkins Psychotherapy Research Unit) was first published in 1961. Consider this excerpt from *Persuasion and Healing*:

All practitioners of nonmedical healing, who, incidentally, minister to many more sufferers throughout the world than do physicians, see illness as a disorder of the total person, involving not only his body but his image of himself and his relations to his group; instead of emphasizing conquest of the disease, they focus on stimulating or strengthening the patient's natural healing powers. They believe that this can be done by the ministrations of a healer who, whatever his methods, enters into an intense relationship with the patient. In contrast with scientific medicine which, while paying copious lip service to the doctor-patient relationship, in actuality largely ignores it, all nonmedical healing methods attach great importance to it. Those operating in a religious context, which includes all forms of healing in primitive societies and faith healing in industrial ones, also see themselves as bringing supernatural forces to bear on the patient with healer acting primarily as a conduit for them. (Frank [1961] 1974, 47)

Frank shares several observations and concerns with the authors of *Brain, Symbol & Experience*. First, he recognizes the limitations of a single discipline when dealing with an entire human being. He does not withhold criticisms of scientific medicine. Secondly, he acknowledges the importance of self-image and relationships with other humans, aspects Laughlin, McManus, and d'Aquili include in their discussion of consciousness, its determinants, and influences. Next, Frank is most aware and appreciative of other cultures and the potential contributions of anthropology to psychotherapy, psychiatry, medicine in a broader sphere, and healing in general. Frank denotes a substantial portion of his book for nonmedical healing and the role of the shaman in primitive societies, then proceeds to develop these themes and integrate unscientific beliefs and rituals into an anthropological, more eclectic perspective of consciousness in psychotherapy. Finally, *Persuasion and Healing* is one of the first works by a psychotherapist of Frank's stature to go beyond a negative, devaluing, or even neutral stance on religion and to actually embrace the power of faith in nonmedical healing of organic illness and see it as "grist for the mill" in holistic approaches to medicine, psychiatry, and psychotherapy. Frank's work should be commended to theorists of neuroconsciousness.

Other prominent psychiatrists, psychotherapists, and educators have recognized the roles of consciousness, philosophy, and religion in psychotherapeutic theory and technique, and have deemed these perspectives weighty enough to include in classic textbooks. In the fourth edition of *The Technique of Psychotherapy*, Lewis R. Wolberg

devotes a significant number of pages to philosophical, mystic, and Eastern and Western religious approaches to personality, psychopathology, psychotherapy, and awareness; i.e., levels of consciousness. Cultic and existential theories are also examined (Wolberg 1988, 205–23). Robert Langs, in volume two of *The Technique of Psychoanalytic Psychotherapy*, explores the meaning and function of the therapist's self-awareness and consciousness in the therapeutic or healing process:

. . . the therapist's constructive utilization of self-awareness—be it of technical errors, countertransference fantasies or behaviors, or fantasies appropriate to the therapy. Fantasies and feelings toward the patient are inevitable. They range from appropriate reactions or minor annoyances, boredom and distractions, to less appropriate—countertransference-based—resentments and erotic fantasies. Whatever the emotion or response, it should be used to understand the patient. Even with essentially idiosyncratic, primarily countertransference-based fantasies in which the inner needs of the therapist prevail, there is always a reality stimulus; other reactions may be quite appropriate to the reality of the situation with the patient. Thus, self-awareness always contains a clue to the fantasies, conflicts, and behavior of the patient—the kernel of truth . . . in essence, everything within the realm of the therapist's subjective awareness can be utilized in the therapy. . . . (Langs [1974] 1989, 375)

If the dynamics of the therapist-patient relationship are formulated to acknowledge the implicit but undeniable imbalance of power and authority in that relationship, and if that power and authority discrepancy is searched for in other interpersonal exchanges, one can see that certain aspects of the therapist-patient relationship are generalizable to many dyads outside the treatment setting. Power and authority gradations are present and may be the blessings or curses of parent-child, teacher-student, mentor-apprentice, husband-wife, employer-employee, clergy-layperson relationships. Certainly, then, Langs's words about the “constructive utilization of self-awareness” are applicable for most or all interactions between two or more individuals or groups, nations or cultures. To combine these viewpoints on self-awareness and consciousness with the multi-sensory, multimodality, neurophenomenological thrust found in *Brain, Symbol & Experience* would be quite thought provoking.

BLY, MYTH, AND SYMBOLISM

Perhaps no contemporary thinker has capitalized on the human primal fascinations with myth and symbolism as has the poet Robert Bly. The author of several books and a prolific speaker and workshop leader, Bly almost single-handedly launched the Men's Movement of the late eighties and early nineties. At the core of this movement

is the exhortation for males of all ages, backgrounds, and orientations to acknowledge the primal, collective anthropological aspects of their physical and emotional natures, and to access true affect and to discern instinct and ever-fluctuating levels of awareness or consciousness in themselves and others. Bly particularly emphasizes these factors in male-to-male relationships, although not to the exclusion of male-female dynamics. Instead of confining himself to strictly scientific, anthropological, psychological, or theological venues, he chooses the richness and universality of symbol to convey his message. Symbol is integral to myth and story, modalities unique in the capacity to converse freely and meaningfully with science, anthropology, psychology, and theology.

The knowledge of how to build a nest in a bare tree, how to fly to the wintering place, how to perform the mating dance—all of this information is stored in the reservoirs of the bird's instinctual brain. But human beings, sensing how much flexibility they might need in meeting new situations, decided to store this sort of knowledge outside the instinctual system; they stored it in stories. Stories, then—fairy stories, legends, myths, hearth stories—amount to a reservoir where we keep new ways of responding that we can adopt when the conventional and current ways wear out. (Bly 1990, xxi)

Compare Bly's work with these excerpts from *Brain, Symbol & Experience*:

In myths and fairy tales, legends and stories, contact with and concern for dreams and dream imagery and their import continues. As the ego emerges into reason and forgets the other aspects of the overall structuring process, so civilization arose leaving similar material to its own periphery, denying and denigrating it just as the ego does its challenging complexes. In both cases, however, pressure from the periphery continues to penetrate. In both cases the holistic imperative to unitary intentionality is influenced and thwarted by the neglected aspects of the being. Nevertheless, for ego and Western civilization, the world of myth and dream continues to penetrate, erupt, and draw the attention of consciousness toward it. (Laughlin, McManus, and d'Aquili 1990, 268-69)

Some of the most revealing descriptions of consciousness and its concomitants available to us can frequently be found in the cosmological and religious symbolism of the many peoples of the world. The nature of consciousness and its relationship to the world is danced, sung, chanted, painted, enacted, and mimed." (Laughlin, McManus, and d'Aquili 1990, 79)

Bly, his colleagues and disciples in the men's movement, and their counterparts in feminism and the women's movement appear to be obvious conversation partners with neurophenomenologists. Common interests in anthropology, religious thought, cosmology, symbolism, language, and verbal and nonverbal communication are quite apparent. Gender differences and selective influences on

neurophenomenology represent a frontier limitless in opportunities for exploration. Do different pathways of entrainment exist for males and females? Are myths, symbols, emotions, and behaviors preferentially or selectively processed in the two sexes on a biological basis? What are the embryological, prenatal, neuroendocrine, neuroimmunological, and gonadotropic hormonal aspects and implications for consciousness and thought? Much has been written on the societal and parental influences and expectations for gender behavior, but how do these considerations fit in with the anatomical, physiological, and even intentional components of consciousness and neurophenomenology? Most individuals have a personal, professional, or intellectual curiosity in gender and sexuality, and this type of approach to neurophenomenology may truly be on the cutting edge of interdisciplinary work.

NEUROPHENOMENOLOGY, THEOLOGY, AND FAITH FORMATION

With thorough research, an entree can be found for the establishment of dialogue and debate around the concepts of virtually any historical or contemporary theologian and those offered in *Brain, Symbol & Experience*. Although I will not develop such dialogues in any detail here, three specific scholars immediately jump to the forefront of my consciousness as stimulating conversation partners for Laughlin, McManus, and d'Aquili. The first is Matthew Fox, Catholic theologian, author, and director of the Institute in Culture and Creation Spirituality at Holy Names College in Oakland, California. In his book *The Coming of the Cosmic Christ*, Fox attempted to unite Christianity, cosmology, and anthropomorphic symbolisms of nature. He devoted a large portion of his book to mysticism as expressed universally in history, but also as applied to New Testament scripture. The concerns of Fox and Laughlin, McManus, and d'Aquili meet in their writings on contemplation, myth, and symbol, and on the twentieth-century worship of technology and science that has mercilessly excluded the scientifically illiterate and pillaged the planet earth.

The theologian and philosopher William Placher, in *Unapologetic Theology: A Christian Voice in a Pluralistic Conversation*, discusses the woes of our machinery-dependent culture, the exclusion of emotion and affect from science, and outlines the characteristics of religion and science that have impeded conversation and cooperation. Placher's writings are paralleled in the last chapter of *Brain, Symbol, & Experience*, particularly in the subsections "The Fallacious Dualism between Science and Contemplation" and "Uniting Science and

Contemplation.” A major portion of Laughlin, McManus, and d’Aquili’s book concerns the shamanistic principle and contemplation. The most disciplined masters of contemplation in the history of Christianity were perhaps the Desert Abbas and Ammas of the Monastic Movement in the third, fourth, and fifth centuries. Roberta Bondi, in her books *To Love as God Loves* and *To Pray and to Love*, provides insights into these Christian embodiments of exemplary living and what they and their students experienced and valued in this very disciplined form of contemplation. Obviously, Bondi and neurophenomenologists would share interests in the physiological, emotional, and spiritual transformations that occur in contemplation.

Finally, neurophenomenology should be introduced and incorporated into the framework and understanding of James W. Fowler’s faith development theory. Fowler’s work is anchored in Jean Piaget (as well as Erik Erikson and Lawrence Kohlberg) and has been influenced by Daniel Levinson, Robert Selman, Robert Kegan, Paul Tillich, Richard Niebuhr, and Wilfred Cantwell Smith, among others. More difficult to estimate are the numbers of theologians, psychologists, and pastors who have been touched by the thought of Fowler. The fact that *Brain, Symbol & Experience* and faith development theory both rely so heavily on Piaget, epistemic process, and anthropological facts makes the two systems very compatible.

Briefly, faith development theory can be summarized as follows. The prestage called undifferentiated faith exists in infancy. This corresponds with Erikson’s basic trust vs. mistrust stage and Piaget’s sensorimotor stage. Fowler has also called this stage primal faith. Stage one, intuitive-projective faith, is typical in children three to seven years of age and corresponds to Piaget’s preoperational stage. Stage two is called mythic-literal faith, in which symbols are thought to be literal and stored in narrative fashion for the integration of experience. Mythic-literal faith occurs in Piaget’s concrete operational phase. Stage three is synthetic-conventional faith, occurring when an individual reaches Piaget’s early formal operations. Stage four is individuating-reflective faith and may occur in the transition from late adolescence to young adulthood if the dichotomizing phase of Piaget’s formal operations is attained. Stage five is conjunctive faith, corresponding to the dialectical phase of Piaget’s formal operations, in which an individual becomes comfortable and acceptive of a world in which opposites can coexist and symbols are multidimensional. Lastly, stage six is universalizing faith, achieved by few and related to Piaget’s synthetic stage of formal operations.

The neurophenomenology of contemplation elaborated in *Brain*,

Symbol, & Experience and the stage six universalizing faith (and the extraordinary individuals believed to reach that stage) share such rich assumptions and observations that they *must* become associated, if not intimately acquainted. This is what Fowler says about the unique humans who reach stage six universalizing faith:

The persons best described . . . have generated faith compositions in which their felt sense of an ultimate environment is inclusive of all being. They have become incarnations and actualizers of the spirit of an inclusive and fulfilled human community. They are "contagious" in the sense that they create zones of liberation from the social, political, economic and ideological shackles we place and endure on human futurity. Living with felt participation in a power that unifies and transforms the world, Universalizers are often experienced as subversive of the structures (including religious structures) by which we sustain our individual and corporate survival, security and significance. Many . . . die at the hands of those whom they hope to change. Universalizers are often more honored and revered after death than during their lives . . . have a special grace that makes them seem more lucid, more simple, and yet somehow more fully human than the rest of us. Their community is universal in extent. Particularities are cherished because they are vessels of the universal . . . valuable apart from any utilitarian considerations. Life is both loved and held too loosely. Such persons are ready for fellowship with persons at any of the other stages and from any other faith tradition. (Fowler 1981, 200-201)

Compare Fowler's stage six individual with *Brain, Symbol & Experience's* description of Void Consciousness and mature contemplation.

Two of the effects most evident . . . are the loss of ego-centeredness in experience and the loss of the view of the world as a concrete, objective reality. Completely absent is any view of self as permanent, impermeable, seamless entity, or empirical ego. Gone . . . is a cognition grounded in the belief that the phenomenal world is solid or fixed. Awareness is now grounded upon Voidness . . . upon the direct experience of a reality that is beyond transient phenomena, beyond feelings, and beyond concept. All phases of consciousness are experienced . . . as equivalent, and there is no ego-identification with one phase rather than with other phases . . . there is a complete reorganization of operating neural structures . . . (Laughlin, McManus, and d'Aquili [1990] 1992, 333)

Laughlin, McManus, and d'Aquili link contemplation directly to neurophenomenology:

We are suggesting that a singular stage in neurocognitive development exists, the stage of contemplation, which is relatively rare to human experience because it requires a radical returning of ergotropic-trophotropic balance . . . there may arise a variety of so-called mystical experiences, whose phenomenal contents will depend on what is desired by competing networks in the being . . . the cessation . . . of lower-order distractions such as discursive thought and imaginal fantasy, bodily aches and pains, and mundane worries . . . the distinctive clarity of perception, and intense effortless concentration upon whatever

object of contemplation spontaneously arises. . . . (Laughlin, McManus, and d'Aquili [1990] 1992, 324-25)

Fowler, theologian and developmental psychologist by training, may be in the process of recognizing the need to integrate neurology and consciousness into faith development. In 1987, six years after the seminal work *Stages of Faith* was published, he wrote the following: "I have the conviction that as a part of the planfulness and intention manifest in creation, human beings are genetically potentiated for partnership with God . . . we have as part of our creatively evolved biological heritage the generative deep-structural tendencies that make possible our development as partners with one another and with God . . . part of our destiny as created and evolved beings is the genetic potentiation for reflective partnership with one another and with God" (Fowler 1987, 54). In his most recent work, *Weaving the New Creation*, Fowler makes the following observation regarding the power of *leitourgia*, or liturgy:

With liturgy we deal with the kinesthetics of faith. Through the teaching power of sacrament and worship, faith gets into our bodies and bone marrow . . . frequently persons who have had severe strokes and can no longer speak are still able to sing hymns, say The Lord's Prayer, or recite the Twenty-third Psalm. How can that happen? What is it about our brains and our emotional systems that makes that possible? (1991, 181) I predict that soon the neurophenomenology of consciousness, the neurophysiology of sleep and meditation, and the neuroanatomy of learning will find its rightful place in faith development theory.

CONCLUSION

Brain, Symbol & Experience constitutes an interdisciplinary endeavor of considerable thought and effort. It is not exhaustive and technical enough in any one field to fully satisfy the pure neurologist, anatomist, physiologist, psychologist, anthropologist, or theologian. But it nicely highlights mutual interests in intersecting points for dialogue and future cooperative research.

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