A RIPPLING RELATABLENESS IN REALITY

by James B. Ashbrook

Abstract. I describe my development as a thinker from that of simple pragmatism to applied theory. My style is that of discerning a rippling relatedness in the various dimensions of reality. I respond to five specific themes raised by colleagues: what it means to be human; the relation of whole to parts; the various methodological melodies; a relational view of reality; and ethical imperatives in the descriptive indicatives.

Keywords: anthropology; brain-mind; ethics; knowledge; neurotheology; theology.

I find myself located on a glorious yet perilous precipice of knowledge. Here I am, the subject of a Profile in *Zygon.* In my journey, I have searched out and marked some handholds on reality, which others now will test.

In my explorations, I have scaled no towering Himalayan peaks of philosophical insight. From where I now stand, however, I realize that I have been forging an offbeat trail. I have been graced with what some critics have referred to as an "odd" vision of God and humanity. Others, like contributors to *Zygon,* who cannot stay within the bounds of conventional disciplines, are forging similar trails. Some who resist compartmentalizing reality, like MacLean and Holmes, are voicing a vision of "so human a brain" (Harrington 1992). A few, like Vaux and Greenfield, are reconnoitering the trail I am forging in exploring the humanizing brain as a locus for knowing God and soul.

Such efforts are turning my trail into a more beaten path. It is still far from being a main thoroughfare. My "response," therefore, orbits around (1) the papers in this issue; (2) the issues addressed in the symposium about my work, cosponsored on 25 January 1995 by the Center for Ethics, Garrett-Evangelical Theological Seminary, and the Chicago

James B. Ashbrook is Senior Scholar in, and former Professor of, Religion and Personality, Garrett-Evangelical Theological Seminary, 2121 Sheridan Road, Evanston, IL 60201.

[*Zygon,* vol. 31, no. 3 (September 1996).]
© 1996 by the Joint Publication Board of *Zygon.* ISSN 0591-2385

Center for Religion and Science; and (3) ongoing conversations with neuroscientists and theologians about these ideas.

I organize my response around my development as a thinker and five issues raised by Holmes, Greenfield, Vaux, and MacLean.

MY DEVELOPMENT AS A THINKER

During the first decade of my professional life I immersed myself in parish ministry. What mattered to me was knowing what made a difference in specific situations for specific individuals. I was practical, pragmatic—almost to the point of being cavalier. Albert Schweitzer characterized such an approach as people taking pieces of fruit from the tree of truth and tying them back onto that tree, as though that would give validity and viability to the pieces of truth they had picked. What worked mattered; why it worked was secondary.

Some "grace-filled" part of me never settled for simple pragmatism. An invitation to become a seminary professor accelerated what I later came to realize was my predisposition to be a "reflective practitioner" (Schon 1983). From the late 1950s on, my teaching, ministering, writing, and speaking disclosed my reflecting on the pragmatic demands of people struggling with the meaning of their lives (see the partial list of my publications on pp. 483–85 and also Ashbrook 1995). Some students from those years still insist that I am "a theologian." My reflecting, for them, put what we do in the larger context that surrounds and supports us all, namely, God. I say more of that later.

My graduate work in psychology immersed me in a scientific approach to knowledge. So, part of me continued to express and explore what I could learn from "practice." Another part, by virtue of the necessity of a graduate program, struggled to accommodate and assimilate what "theory" and "research" offered to living. Increasingly, I found myself prefacing observations with the comments "Theory suggests . . ." or "Research has demonstrated . . .".

By the 1970s I regarded myself as "an applied theoretician." I continually juxtaposed concrete situations and systematic formulations. But that very self-definition reflects my own compartmentalizing of the domains of knowledge—applied versus theoretical, whether scientific or theological. Gradually, imperceptibly, yet increasingly explicitly, my neurotheological approach bypassed those arbitrary and artificial distinctions. In these later years I find myself wandering in and wondering about the *whole* of reality. Domains of discourse are entry points of curiosity and exploration, not permanent dwelling places.

More particularly, I have avoided—unconsciously—being wedded to any particular academic discipline. That may reflect my diffidence about accountability. It may also reflect my resistance to being confined to

what I regard as a ghetto existence, either personally or professionally. I do not easily identify myself as a pastor, an educator, a clinician, a psychologist, or even a "neurotheological thinker." (Philosopher Patricia Smith Churchland [1986] would be shocked by Greenfield's suggestion of my "neurophilosophical contributions . . . [proving] more satisfying . . . [and my] neurotheological contributions more suggestive.") Instead, I am about the task of "making sense of making sense," as Greenfield suggests.

More pointedly, I am characterized by style, not role, a way of coming at issues, not a discipline or even disciplines. I discern in immediate experience *and* empirical evidence what Neal Fisher, theologian and president of Garrett-Evangelical Seminary, describes as "hints and embodiments of the ultimate." As he notes, my expressions impress the reader or hearer "with their vividness or strangeness. . . . Who else, for example, would have employed architecture—Chartres and Hagia Sophia—to illustrate two lobes of the brain [left analytic and right impressionistic] or two approaches to theology [proclamation and manifestation?" (Fisher 1995).

The cover of my latest book, *Minding the Soul: Pastoral Counseling as Remembering* (1966), is an M. C. Escher print entitled "Ripple." It silhouettes trees surrounding water that ripples in two concentric circles across a landscape/mindscape. Such "rippling" reflects my incorrigible proclivity to expansively "relate" everything with everything. I find little that stands alone, isolated from the human experience of discerning and making meaning.

In the mid-1950s I was undergoing intense interpersonal psychodynamic psychotherapy. In an uninhibited expression of *hubris,* I told my analyst, "I want to make a contribution to knowledge." The real demands of scholarship, coupled with my own limitations, quickly imposed some realistic boundaries on such ambitions; yet a more modest drive to make a difference in how people live has continued. What I now understand is this:

> KNOWLEDGE IS FOR KNOWING,
> KNOWING IS FOR LIVING,
>
> LIVING IS KNOWING,
> KNOWING IS KNOWLEDGE,
> KNOWLEDGE IS LIVING.

This is the hermeneutical circle in which I find myself. I have made, and am making, a contribution to living—my own life as well as the lives of others.

Greenfield identifies my "career" and "vocation" as "negotiator," that is, "both as arbitrator and pathbreaker." From a childhood family-of-origin

dynamic of "negotiating between mother and father to being a 'corpus callosum' negotiating a novel way through conflicting positions of inherited theology and scientific inquiry" constitutes a monumental leap of connection. However, I resonate with that inference. I have always experienced myself—my self-chosen role—as making sense by making connections for the sake of making possibilities possible.

To know is to be, and to be is to belong. Knowing is for living. Adequate information makes for evolutionary adaptation.

As I respond to issues of theology and neuroscience as reflected in Holmes, Greenfield, MacLean, and Vaux, I do so from the context of this development of my curiosity and convictions about what matters in our being the human beings that we are. I discuss five themes: what it means to be human, different methodological melodies, the interaction of whole and part, a relational view of reality, and the imperative aspect of indicatives.

WHAT IT MEANS TO BE HUMAN

Holmes addresses an issue that is gaining momentum within the academy in its theoretical ramifications and in society at large in its practical implications. I put the issue this way:

> How do we relate what we know at the molecular and cellular levels with what we know at the levels of the social sciences and the humanities, of which religion and theology are a part?[1] How can knowledge of the working brain make for a more human and humane world? Holmes asks the most radical question of all, namely, "What does it mean to be human?" (Holmes 1992, 104)

This brings me to a crucial issue Vaux raises about my work and one that is central in Greenfield's reading, namely, the nature of human nature. It involves what we technically know as theological anthropology.

Vaux expresses his own position on theological anthropology in his cryptic reference to "[his] Barthian brain." A "discontinuity" between God and humanity qualifies "the organic reciprocity of God and the human mental structure." For Vaux, "the diabolic *is as real as* the symbolic" (emphasis added).

Here the basic human issue discloses itself. The tension between my position affirming the goodness of creation—with its implication of the godlike being known through the humanlike and the humanlike reflecting the godlike—contrasts with Vaux's position of the ambiguity of creation—with its implication of the humanlike being unlike the godlike. In the early 1930s Karl Barth clashed with Emil Brunner over the issue of the *imago Dei.* Barth believed the image of God was completely destroyed in humanity; Brunner insisted the image of God was damaged yet not destroyed. Our current discussion reflects those contrasting perspectives.

The Protestant Reformed tradition has always insisted on the fallen nature of the world, especially of humanity itself. In what I take as its ideological rigidity, the position claims there is nothing we can know of God through the world of nature or in the presence of humanity. God is other than anything we can know—except as we know God as the Incarnate Word in Jesus the Christ.

Further, by virtue of humanity's refusal to acknowledge its dependence upon God, anything we can say of God is only the distorted projection of our own self-serving illusion of being autonomous. Sin is rampant. There is no part of us that is not distorted. There is no part of us that does not distort the really real. There is no part of us upon which we can rely and trust. Truth can come only with God's revelation from beyond, outside the realm of human experience.

At its best, I align myself with the Reformed tradition in terms that Tillich identified as "the Protestant Principle" (1948, 161–81). No part of the whole—even the crucified Christ—is capable of expressing the whole of the whole. This stance, of course, is not confined to Protestantism. It is central to the biblical tradition, explicit in the criterion of the Christ giving up every claim to recognition in the self-emptying act of crucifixion (Phil. 2 : 5–8).

Thus, there *is* a basic discontinuity between what we know in any particular aspect of reality and the context of which that aspect is an expression. I avoid a simplistic pantheism that equates God and world or God and humanity. The world is *not* God; humanity is *not* divinity.

A hermeneutic of suspicion must be part of every affirmation of truth. It is akin to the humility that is integral to scientific investigation. Without that reservation we confuse our culturally conditioned perspectives with the inexhaustible and unapproachable depth of life itself. No culture has privileged access to what it means to be human.

Thinkers have elaborated such qualifications on truth in the movement known as postmodernism. Social and political location—class, race, ethnicity, sex-gender—shape what we know and how we know. A neurobiology of meaning helps me acknowledge such limitations on knowing what it means to be human even as it recognizes the godlike presence of imaginative possibilities.

Theologians, however, often use the explanation of "sin" as a rationale for doing nothing to ease the human condition. Scientists, on the other hand, usually think more strategically. For instance, psychologist Paul Kimmel, an expert on intercultural communications, offers, in my mind, a more balanced view of human nature. "There's a human potential for just about anything, including aggression, dehumanization, and ethnocentricism. . . . But that doesn't mean that any of these behaviors *have* to happen" (quoted by Sleek 1996, 1).

Theologians have identified this ambiguous potential, maintaining that sin is "inevitable but not necessary." We cannot avoid sin, evil, and tragedy, yet neither are we beholden to the diabolic. Vaux would concur. My question to him, however, would be: If the diabolic is as basic as the symbolic, wherein lies our hope?

The example of a cup of milk at the halfway point allows us to perceive it as half full or half empty or both. Each perspective leads to significantly different implications. An emphasis on sin and guilt can so oppress people's ability to respond as to paralyze them in their inability to manifest the *imago Dei*. The past negates the future. In contrast, an emphasis on responsibility and participation recognizes Luther's insistence that no one can live, believe, and die for us—these most personal experiences are ours alone. So, too, no matter what influenced the way we are, we are still the ones who respond. We are still the ones who determine the meaning of what is happening. In our ability to respond—which is the basis of responsibility—we *participate* in making real that which matters most.

In what I regard as a very focused analysis of "what it means to be human," MacLean links "a sense of 'responsibility' . . . with the [mother's] instinct to feed her young and . . . a sense generalized psychologically to include others and become what we call 'conscience.'" Attachment, empathy, and altruism, he suggests, are primarily mediated through the female of the species. He speculates that from an emergent evolutionary perspective, "thanks in large part to the attitudes of women, we are witnessing for the first time . . . the development of beings with a concern for the suffering and dying not only of their own kind but also of all living things."

I believe MacLean overemphasizes the "more balanced brain" of women. While the female of the species seems to take the lead in this regard, the male is not excluded. As neurologist Antonio R. Damasio elaborates: "There appears to be a collection of *systems in the human brain* consistently dedicated to the goal-oriented thinking process we call reasoning, and to the response selection we call decision making, *with a special emphasis on the personal and social domain*" (Damasio 1994, 70; emphases added).

From a biblical perspective, it is the *species*, not any individual male *or* female, that carries the *imago Dei* (Gen. 1 : 27). Neither a female-related tendency for attachment nor a male-related tendency for autonomy is better; both are basic to our being human; both are part of every human being. MacLean's use of "more balanced" for the brain of women carries a value-laden connotation of "better than" the "less balanced" brain of men. Both the more symmetrical brain of females and the more lateralized brain of males are necessary for full human life.

When physical or psychic disturbance compromises emotion/feeling, attention, and working memory, we act in less humane and rational ways (Damasio 1994). The diabolic *is* everywhere apparent, yet even it is an expression, distorted as it is, of the symbolic. The capacity for feeling and relatedness—linked with our capacities for memory, reason, and goal-seeking—makes us human! The integrated whole forms the basis "for what humans have described for millennia as the human soul or spirit" (Damasio 1994, xvi). That wholeness depends upon the proper functioning of the whole brain—the limbic system and "the agency of prefrontal and of somatosensory cortices" (Damasio 1994, 134). Except for genetic and environmental anomalies, every human being enters the world with all that basic equipment.

THE RELATION OF WHOLE AND PARTS

We can only know the whole through the parts, yet the parts can never contain the whole. This is true of the universe and God as well as humanity and soul. I understand God and soul to be expressions of "the whole" even as I understand universe and humanity to be expressions of "the parts."

The tension between whole and part in theology is analogous to the tension in neuroscience between the globalists and the localists (Kolb and Whishaw [1980] 1985, 304–17). When these significant analytic distinctions become ontological realities, then we have lost the dynamic integrity of reality itself. We must not confuse the whole of a phenomenon with its separate component parts.

Interdisciplinary collaboration or conversation must take account of different levels of organizational complexity (see Cacioppo and Berntson 1992; Sarter, Berntson, and Cacioppo 1996). Greenfield rightly points out that "the neurosciences cannot stand alone as a source of 'making sense' of reality." Basic to both religion and science is the active presence of intentional subjectivity. MacLean underscores my discussion of differences in beliefs by affirming that "there is nothing we can believe in except our own subjective experience, [but] there can be the subjective satisfaction in believing in our unmeasurable subjective human values." "We are," contends Damasio, "and then we think, and we think only inasmuch as we are, since thinking is indeed caused by the structures and operations of being" (Damasio 1994, 248).

DIFFERENT METHODOLOGICAL MELODIES

Recently, Harvard University created an interfaculty initiative known as Mind, Brain, and Behavior, or MBB for short. Its task reflects the task that Holmes sketches and with which I struggle. Anne Harrington,

member of MBB, the Kahn Associate Professor of the History of Science, and participant in the Ashbrook symposium, characterizes the task of struggling with different levels of analysis as analogous to a symphony orchestra with its individual players. A recognition of levels of analysis and discourse "allows us," she notes, "to raise questions that everyone is interested in and makes it possible to move up or down [among the levels] without saying what's on top or what's on the bottom. Levels," she concludes, "function like a symphony—the truth at each level sings its own melody" (Harrington 1992).

What Harrington left unsaid and what needs to be added is that as each level—discipline—sings its own melody, the singing generates a symphony of human music expressing the wondrousness of life itself. In relating Holmes's argument for *Homo religiosus* and my emphasis on the *humanizing brain*, I direct attention to what each of us is about.

Because Holmes is a neurophysiologist with specialized expertise in science, his knowledge of the foreground of life leads him to seek contact with the background of life, namely, the mystery at the heart of the universe. He refers to that mystery in his own pursuit of understanding human beings as religious creatures. As an applied theoretician with specialized expertise in religion, I have knowledge of the background of life that leads me to seek contact with the foreground of life, namely, the human brain as the locus of all we seek to know and understand—the mystery of the humanizing face of reality. In a simplified way, we can say that Holmes moves from the concrete to the imaginative; in contrast, I move from the imaginative to the concrete.

To conceptualize a whole, as Holmes notes in a footnote, requires holistic thinking, or the ability to form gestalts. His exposition of human beings as religious creatures assumes an imagined whole, a gestalt of grace, if you will, a God-beyond-God that is whole-making. Holmes's story moves from the brain as a part of the evolutionary process to the search for religious meaning as the whole.

So, too, my exploration of God as reflected in and mirrored by the humanizing brain assumes a "whole" present in "the parts." My story moves from religious meaning as a whole to a search of the brain as the part. Although my professional theological efforts may be only "suggestive," as Greenfield indicates, my theological convictions are central. I *do* make "a defining theological move," to refer to Greenfield's analysis, by attributing "meaning-making" to the evolutionary process and not simply to the individual self.

The bidirectionality of Holmes's and my thinking involves both simultaneous and sequential processing. No part is without the whole; no whole is without its parts. Together, whether as neurophysiologist or applied theoretician, we are making sense of—interpreting—the realities of reality—mate-

rial, psychosocial, metaphysical—in terms of "the largest possible whole," as Holmes contends. The humanizing brain is the origin of *Homo religiosus*. We cannot understand particulars without a relation to the whole.

Neither Holmes nor I—nor anyone engaged in pursuit of Truth—rests content with where we are and what we know. Each of us seeks that which complements and completes our particular realm of knowledge. Whether we start with the brain, as Holmes does, or from God, as I do, we find ourselves sharing the human space of making sense of what matters to our life on this planet.

We tell the stories of our search. According to Holmes, stories are that mode of communication that connects us with each other. Our storytelling derives from our mammalian origin of the separation cry, a crying out when we are in danger of becoming cut off from those who sustain life, as MacLean has explored in such detail (MacLean 1990). Emergent evolution transforms our mammalian cry into our human cry for meaning (Frankl 1978) and our human cry for God (Boyce 1988).

God alone is our strength and our salvation (Ps. 89 : 26). God alone is the rock of reality from which we are honed and the rock upon which we depend (Deut. 32:18; Isa. 51 : 1). That "rock," I contend and Holmes implies, is apprehended by the humanizing brain. He calls us *Homo religiosus* because we derive from *Homo sapiens*. Because of its origin and destiny, the thinking brain turns out to be the religious brain, the meaning-making brain, the brain that encounters every particular through the lens of the whole and the whole through every encounter with the particular. Only thus do we exhibit wisdom and behave in ways that make for life for all.

In an essay entitled "What Is the Ethical Context of the Neurosciences?" Holmes wrote: "Whether many penetrating formulations are described as mere 'folk psychology' [which too often happens] or are integrated within the new system so as to optimize the value of [neuroscientific] knowledge may well depend upon" our directing "serious attention" to "so human a brain" (Holmes 1992, 107).

These papers of Holmes, Greenfield, MacLean, and Vaux and of mine are directing serious attention to the humanizing brain so as to optimize the values of both the empirical and the experiential dimensions of humanity.

A Relational Reality

The humanizing brain provides a basis for a conviction of the continuity between matter and meaning, humanity and divinity. Once the leap of faith allows for a symbolic, metaphoric, perspectival understanding of humanity, the act of reason or making sense follows. With that interpretive rationality comes a conceptual, analogic specifying of the relatedness of the whole in a more systematic way.

From a cognitive point of view we know *Homo sapiens* as a meaning-making and a meaning-discerning creature. We construct the context in which we live and the meaning of that context for what matters to us. However, we never do that alone, isolated from other human beings. Knowing, living, making sense—these require participating in a relational reality. Initially, we depend upon our interaction with a significant care giver to establish the basis for knowing what we need to know to survive and thrive (Bowlby 1969, 1973, 1980; MacLean 1990; Trevarthen 1986, 1990). The imaginative capacity of the human mammal awakens the imaginative intentionality of those it cares about. We are, in the words of theologian Philip Hefner (1993), "co-creators" with God.

Nothing, thereby, exists in itself alone; everything becomes a bearer of meaning, capable of being construed as assisting or restricting our becoming. The metaphoric power of human consciousness is a linguistic analogue of the fact that we live by faith and not by sight (Heb. 11 : 1–3). We always bring to our experience something *more than* is present in that experience. The symbolic comes from and goes beyond the sensory. "There is more to vision than meets the eye" (Wächtershäuser 1987, 137).

I identify that "something more" as a discontinuity, an emergent feature of all that we know. It can be diabolic, as Vaux reminds us. We have plenty of evidence to support that skewing of human imagination. But I contend that that "something more" is more basically "symbolic" than Vaux seems to imply. It expresses the godlike in humanity itself—the *imago Dei*—the combining of intention and imagination. Intentional imagination marks our transcendence, the presence of the *imago Dei* in humanity as a whole and in each of us individually.

I have always puzzled over the belief that revelation must come from outside. I have never understood that *everything* human only distorts reality. How, then, can we know anything? How, then, can we know that we know? How, then, can we arrive at any intersubjective consensus? If our receiving mechanisms do not work, we cannot receive anything real.

For some people, to recognize cultural particularity negates abiding truth, as though "abiding truth" were absolute, immutable, eternal, fixed, final. A Christian eschatology points to an open future in contrast to a static Platonic realm of pure essence and unchangeability. God leads us into a novel and open future, not a static and closed present locked into a limited and limiting past. I assume the relatedness of ecological regularities and a relatability of emerging possibilities.

We live in an open system, self-organizing in its creative processing of complexity (Davies [1987] 1989, 1992; Kauffman 1995). And the human brain itself is an open system, self-organizing in its creative processing of complexity (Hobson 1988, 1994). An open system is dynamic.

That openness includes Greenfield's suggestion that "chance based on random mutation and natural selection" is present. Life systems, especially the one of which we are an emergent part, are characterized by an imaginative intentionality that integrates the expected and the novel in unanticipated patterning.

Contrary to Greenfield's insistence, the affinity between brain and universe does allow "attributing the same meaning-making and purposeful activity" I identify in the brain-mind with "the divine reality." We never finally fix particular formulations, patterns, propositions, or truth. Revelation, thereby, is the process of participating in an evolving and emerging patterning. It is not the disclosure of propositional facts. It is an emerging adaptive knowing. The origin is in nonconscious processing of what matters to our survival as a species.

Sir Charles Sherrington, the great British neurophysiologist of the early part of this century, spoke of the brain as "an enchanted loom" ever weaving "a dissolving pattern, though never an abiding one; a shifting harmony of subpatterns" (1951, 184). We are ever creating meaning in an open and dynamic way.

How can we know that we do not know unless some part of us "knows what we do not know"? The limitation of any particular brain-mind is not the same as the inability of every particular brain-mind to glimpse universal meaning-making. I turn to Tillich for a more precise theological formulation:

> Nobody can anticipate the ultimate without being touched by it, and nobody can pronounce that the Kingdom of God is at hand who is not already drawn into it. On the other hand, nobody can have the ultimate, nothing conditioned can possess the unconditional. And nobody can localize the divine that transcends space and time. (Tillich 1948, 171)

Everyone begins with a leap of imagination. I regard such "leaps" as acts of faith.

The metaphoric starting point of knowing recognizes a discontinuity between sensory reality and symbolic reality. In other words, faith can make life sensible, but faith is never proof of the existence of God. The Protestant Principle abides as a check on an idolatrous elevation of any system to the whole. The analogical use of the brain reflects a sacramental view of the world. God is manifest in the parts, and the parts carry the presence of God. Thus there is a continuity between whole and part. This is a subtle form of an argument for understanding God based on the assumption that the creation works as a direction expression of the Creator.

Greenfield rightly underscores my argument that even "the inherited sources" of revelation "are constitutively embodied in the whole brain, and that the whole brain participates in the ecological character of the

world." We are able to operate in the world precisely because of a built-in understanding of the basic workings of the universe.

The humanizing brain is a humanized brain. It creates *and* reflects a universe in which information is conveyed in a way that places the brain-mind in the center of knowing. It is the subjective brain of the species and not simply any single individual male or female, as MacLean's article develops, that receives, analyzes, and aspires to what matters most in the world in which we find ourselves. It is Trevarthen's "human communal mind" (1986).

The mind of God, therefore, expresses *and* reflects the intentionality to which we aspire in our most human and humane ways. The heart of God expresses *and* reflects the empathic caring that is both the means and the meaning of what it is to know what matters to us as we discern our place in the cosmos. The relationality of all that is carries with it a sacredness in all we do.

UNAVOIDABLE ETHICAL IMPERATIVES

That sacred relatedness carries ethical imperatives. Vaux suggests that I have contributed to "neuroethical theology." That comes as a shock. It is not that I have thought I was "unethical," though I have managed to confound life in ways I wish I had not. But I have never thought of myself as an "ethicist"—much more a "neuroethical theologian." The "naming" heightens my awareness of what I have been about. This brings me to Vaux's conclusion: "Ashbrook's own life project is shaped by this ethic of [his of] life-affirmation." Similarly, Greenfield contends that in my role of "negotiator" I "continue to be an inspiration and a model."

My drive for descriptive and explanatory adequacy has always carried an implicit assumption. Much of the time I have not identified it; occasionally, I have made it specific. That assumption is this: to identify "what is" leads to acting on "what might be." Every indicative carries an imperative. "This do and you shall live."

To frame my cancer as a metaphor of my having pushed all my growing edges and one grew too much, as I did in my first encounter with it, required that I "stop pushing, let up, stop driving . . . [and] savor" life. That subtle intertwining of the indicative and the imperative does characterize my approach to knowledge: knowing is living/living is knowing.

In neurotheology I am discerning—discovering, I hope and believe—the logos of theos, the ordering of God and God's ways of being God, the meaning of our life made known. While we mammals are curious creatures, sniffing and snooping around simply to find out what's there, we are also survival-oriented creatures. Our knowing is for living.

I take my clue from Tillich's view of "ethics in a changing world," namely, ethics express "the ways in which love embodies itself and life is

maintained and saved" (Tillich 1948, 160). All my searching to "make sense" expresses my conviction that what we know is for the purpose of maintaining and enhancing what is genuinely human in ourselves and others.

CONCLUSION

My "rippling" style of thinking moves between and overlaps the various levels of reality. My thought has moved from a simple pragmatism to that of an applied theoretician. My colleagues have helped me explore what it means to be human, the relationship of whole and part, the various methodological melodies, a relational view of reality, and the ethical imperative in all knowledge. Neurotheology, in sum, is enabling me to rediscover God and soul—to know, as Vaux puts it, that God is great and God is good, and I thank God for this life!

NOTE

1. The concept of religion represents the broadest generic expression of meaning-making. It undergirds and transcends every particular institutional expression as well as the multitude of individual expressions. At the same time, the concept *religion* is more organized and less privatized than the experiential concept *spirituality*. Theology implies a more confessional view as mediated through various faith communities. It tends to be more systematic and stabilized than the fluidity of spiritual experiences and the variety of religious practices. In claiming that a neurobiology of meaning and a neurotheology of religion tend to be more universal and inclusive than any particular religion or spiritual exploration, I recognize that I myself am located primarily in a white, male, Western, Protestant-influenced religious life and practice.

REFERENCES

Ashbrook, James B. 1995. "The More Things Change: Learning to Know What I Already Knew." *Journal of Supervision and Training in Ministry* 16: 77–92.

_______. 1996. *Minding the Soul: Pastoral Counseling as Remembering*. Minneapolis: Fortress Press.

Bowlby, John. 1969. *Attachment*. New York: Basic Books.

_______. 1973. *Separation: Anxiety and Anger*. New York: Basic Books.

_______. 1980. *Loss: Sadness and Depression*. New York: Basic Books.

Boyce, Richard Nelson. 1988. *The Cry to God in the Old Testament*. Dissertation Series, Society of Biblical Literature, no. 103. Atlanta: Scholars Press.

Cacioppo, J. T., and G. G. Berntson. 1992. "Social Psychological Contributions to the Decade of the Brain: Doctrine of Multilevel Analysis." *American Psychologist* 47: 1019-28.

Churchland, Patricia Smith. 1986. *Neurophilosophy: Toward a Unified Science of the Mind-Brain*. Cambridge: MIT Press, Bradford Books.

Damasio, Antonio R. 1994. *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: Grosset/Putnam.

Davies, Paul. [1987] 1989. *The Cosmic Blueprint: Order and Complexity at the Edge of Chaos*. London: Penguin Books.

_______. 1992. *The Mind of God: The Scientific Basis for a Rational World*. New York: Simon and Schuster, Touchstone.

Fisher, Neal. 1995. "A Tribute to James B. Ashbrook." Paper presented at a symposium honoring James B. Ashbrook, "Toward a Neurotheology of God and Soul," at Garrett-Evangelical Theological Seminary, Evanston, Ill. on 25 January 1995.

Frankl, Victor. 1978. *The Unheard Cry for Meaning : Psychotherapy and Humanism*. New York: Simon and Schuster, Touchstone.

Harrington, Anne, ed. 1992. *So Human a Brain: Knowledge and Values in the Neurosciences.* Boston: Birkhauser.

Hefner, Philip. 1993. *The Human Factor: Evolution, Culture, and Religion.* Minneapolis: Fortress Press.

Hobson, J. Allan. 1988. *The Dreaming Brain.* New York: Basic Books.

_______. 1994. *The Chemistry of Conscious States: How the Brain Changes Its Mind.* Boston: Little, Brown.

Holmes, Rodney. 1992. "What Is the Ethical Context of the Neurosciences?" In *So Human a Brain,* ed. Anne Harrington. Boston: Birkhauser.

Kauffman, Stuart. 1995. *At Home in the Universe: The Search for Laws of Self-Organization and Complexity.* New York: Oxford Univ. Press.

Kolb, Bryan, and Ian Q. Whishaw. [1980] 1985. *Fundamentals of Human Neuropsychology,* 2d ed. New York: Freeman.

MacLean, Paul. 1990. *The Triune Brain in Evolution: Role in Paleocerebral Functions.* New York: Plenum.

Sarter, Martin, Gary G. Berntson, and John T. Cacioppo. 1996. "Brain Imaging and Cognitive Neuroscience: Toward Strong Inference in Attributing Function to Structure." *American Psychologist* 5: 13–21.

Schon, Donald A. 1983. *The Reflective Practitioner: How Professionals Think in Action.* New York: Basic Books.

Sherrington, Charles S., Sir. [1940] 1951. *Man on His Nature: The Gifford Lectures 1937–1938.* Cambridge: Cambridge Univ. Press. Reprint. New York: Doubleday, Anchor.

Sleek, Scott. 1996. "Psychologists Build a Culture of Peace." *The APA Monitor* 27: 1, 33.

Tillich, Paul. 1948. *The Protestant Era.* Trans. and with a concluding essay by James Luther Adams. Chicago: Univ. of Chicago Press.

Trevarthen, Colwyn. 1986. "Brain Sciences and the Human Spirit." *Zygon: Journal of Religion and Science* 21 (June): 161–200.

_______. 1990. "Growth and Education in the Hemispheres." In *Brain Circuits and Functions of the Mind: Essays in Honor of Roger W. Sperry,* ed. Colwyn Trevarthen, pp. 334–63. Cambridge: Cambridge Univ. Press.

Wächtershäuser, Günter. 1987. "Light and Life: On the Nutritional Origins of Sensory Perception." In *Evolutionary Epistemology, Rationality, and the Sociology of Knowledge,* ed. Gerard Radnitzky and W. W. Bartley III, pp. 121–38. LaSalle, Ill.: Open Court.