NEUROTHEOLOGY: THE WORKING BRAIN AND THE WORK OF THEOLOGY

by James B. Ashbrook

Abstract. Because the mind is the significance of the brain and God is the significance of the mind, the concept "mind" bridges how the brain works and traditional patterns of belief. The left mind, which utilizes rational vigilance and the imperative instructions of proclamation, names and analyzes the urgently right. The right mind, which discloses the relational responsiveness of numinous presence and natural symbolism, is immersed in and integrates the ultimately real. Together they provide a typology of mind-states with which to assess regressive, functional, and creative patterns. Hand dominance, gender differences, and cultural bias qualify the use of the metaphor.

Can knowledge of neuropsychology contribute to ways God has been understood theologically? The loose interface between subjective experience and objective sensory input supplies a key. Here we deal with mind (Taylor 1979). As such it provides a conceptual bridge between the specifics of how the brain works and traditional patterns of belief.

The brain-mind can be viewed as both a whole and a part (Livingston 1978, 2). Taken as an organized whole the brain is a closed system, coordinating and governing lower levels of neural and endocrine activity. We can analyze predictable regularities through its parts. In contrast mind presents emergent features. It cannot be understood by itself since it reflects an expanding universe of influences; its activity cannot be predicted by lower levels of analysis. How the whole emerges from the parts defies explanation (Uttal 1978, 694) even as it invites exploration.

Just as mind is the human significance of the brain (Polanyi 1968a, 39-40), so I propose that God is the theological significance of mind.

James B. Ashbrook is professor of religion and personality at Garrett-Evangelical Theological Seminary, 2121 Sheridan Road, Evanston, Illinois 60201, and an advisory member of the graduate faculty, Northwestern University. An expanded version of this article is being published in his book, *The Human Mind and the Mind of God: Theological Promise in Brain Research* (Lanham, Md.: Univ. Press of America, in press).

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Without reducing mind to brain, neuropsychology anchors the meaning of mind in the empirical. At the same time, without equating mind with God, the functioning mind allows intimations of what matters most to the humanness of human beings. To state the relationship between brain and theology cautiously: patterns of belief are the meaning of mind. Here is "a pathway to God" (Walaskay 1979).

I sketch what we know of the working brain and patterns of belief in order to suggest what, for want of a simpler term, I call neurotheological mind-sets. These constellations of brain and belief enable us to assess how adequately our own minds function and how fully we perceive the divine.

The Working Brain

The brain is complex beyond description. Even so we can say simply that it is divided (Wittrock 1977): two nervous systems connecting outer and inner reality, two hemispheres working step-by-step and all-at-once, and two systems taking information in and sending messages out. Though distinguishable these systems and spheres overlap. Our one brain has two minds.

We characterize how the brain works by identifying which half takes the lead over the other (Levy 1980; Bever 1975). Although each side can engage in similar activities, each develops its own specialized capacity (Sperry 1982). The result is that different work is left to the other side most of the time. The left brain works by a process of conceptual categorization, that is, item-by-item and step-by-step, and the right brain works by a process of discerning association through similarity, that is, all-at-once and imaginative leaps of connectedness. Whether people use the right or the left brain strategy depends on their expectation of the task (Levy and Trevarthen 1976; Levy 1974b, 164-66). Which side takes the lead is more a matter of disposition than aptitude. "How" one acts seems "to depend on constraints imposed by values, knowledge, expectations, and intentions." These are "metacontrol programs" which operate differently from "what a hemisphere does and how it responds once it is in control" (Levy 1982).

Considerable evidence supports both left and right brain patterns (Gazzaniga 1974; Springer and Deutsch 1981, 45; Levy 1974b). The general features of the left brain are well documented. The individual takes charge (Berlucchi 1974, 68; Broadbent 1974, 34-40). The personality is keen (Ferris and Dorsen 1975). Attention is focused (Luria 1973, 197-99). Distracting or irrelevant stimuli are ignored (Eccles 1973, 143-44). Speech is precise. The left brain maintains an eagle-eyed vigilance (Dimond and Beaumont 1974, 66-69), explaining everything it observes (Gazzaniga 1970, 107). Even when it does not understand it

still acts as though it does (Nebes 1974; Gazzaniga and LeDoux 1978, 146-50, 155).

Whether dealing with auditory (Efron 1963; Bever, Hurtig, and Handel 1976; Zaidel 1976), visual (Oscar-Berman, Blumstein, and DeCusa 1976; Carmon 1978), or tactile (Zaidel cited by Gordon 1974, 134) information, the left brain handles it rationally. From what it observes it builds an orderly world, a world that makes sense and can be explained logically. It develops "an attitudinal view . . . involving beliefs and values" (Gazzaniga and LeDoux 1978, 155). This view becomes "a dominant theme." Everything is reasonable in its own eyes.

The left hemisphere takes the lead from the right in anything which requires or permits step-by-step analysis. This applies to input and output alike (see table 1). The back of the hemisphere works with concepts, that is, separate, discrete, abstract labels. It comprehends this conceptual reality in a coherent way. That means it observes from a fixed position, in a stable structure, through inductive reasoning. The front of the hemisphere organizes what we intend to happen, that is, consciously, deliberately, purposefully. It acts according to the logic of principles, through formal procedures, with deductive reasoning.

We describe what the right brain does with less certainty (Luria 1973, 238) but increasing confidence (Levy 1983; Perecman 1983; Zaidel 1983). It responds rapidly (Kimura 1973, 72-73; Gazzaniga and LeDoux 1978, 48). Impressions are immediate, expressions heightened, emotional richness greater. A dream-like state (Zangwill 1974, 273; Bakan 1976) weaves everything into a mosaic which integrates the diverse elements (Semmes 1968; Gardner [1974] 1976, 379). Quite simply the right brain responds directly to what is around.

Such evidence suggests the right hemisphere is a concrete synthesizer (Levy 1974a, 180; Nebes 1974, 13), regardless of auditory (Kelly and Orton 1979, Bever 1975, 254-58), visual (Paivio 1971), or tactile (Teuber 1962, 136) systems. It hears, sees, and senses more than the left brain so that it ascertains the felt-meaning of situations more accurately (Geshwind 1965, 256; Heilman, Scholes, and Watson, 1978). In brief it responds to the broad features of situations from the inside as it were (Mountcastle 1976, 41).

The right hemisphere takes the lead in activity which eludes classification. This includes both input and output. The back half processes impressions as an everchanging kaleidescopic-stereophonic-mosaic of patterns. Because it stands inside a changing scene, everything is personal. Nothing remains objective. Impressions are associated in terms of their tangible or symbolic features. The front of the hemisphere intuits the felt-meaning of the whole. It grasps what is going on or what to do with an object like a fork even though it cannot put that into words

(Nathan 1969, 276). Because of its responsiveness (Sperry 1974, 11-12) it relies on a trial-and-error approach to whatever works.

TABLE 1

MAJOR FEATURES OF THE WORKING BRAIN

	Left Brain	Right Brain
GENERAL FEATURES		
*Source of responses:	The individual	The environment
*Oriented to:	Concepts	Impressions
*Type of thinking:	Logical	Associative
*Attentional direction:	Narrow focus	Broad range
*Interest value:	Specific and realistic	Tangible and symbolic
SPECIFIC FEATURES		
*Input:	Analytic, i.e., (i) Observer −detached perspective −sequential and serial method (ii) Temporal analysis −abstracts parts −categorizes with concepts −generalizes	Impressionistic, i.e., (i) Participant −personal position −simultaneous and parallel method (ii) Spatial synthesis −attends to patterns −identifies with images −unifies
*Output:	Exact, i.e., (i) Deliberate responses −slow −controlled −convergent −fixed structure, i.e., procedures and principles (ii) Language style −formal −conceptual	Expressionistic, i.e., (i) Varied responses −rapid −spontaneous −divergent −flexible approach, i.e., trial-and-error and pragmatic (ii) Language style −informal −imaginative
*Controls:	Right side ear/eye and hand/foot	Left side ear/eye and hand/foot
Takes the lead in:	Rational strategy item-by-item step-by-step	Relational strategy all-at-once leaps of imagination

Neither brain works by itself; full functioning requires both (Zaidel 1983, 545). Under normal conditions one side takes the lead, responding milliseconds faster than the other. Further, when one half is activated the other is suspended (Galin [1976] 1977, 42-45). When the connecting fibers of the corpus callosum are cut, the two sides work independently (Gazzaniga 1970). Split-brain consciousness leaves people "more at the mercy of uncontrollable surges of hemispheric

preponderance and to that extent [people] are handicapped in [their] ability to select strategies to fit a given situation." They are left with "an extreme and rigid right or left hemispheric approach" (Kinsbourne and Smith 1974, 288-89).

Patterns of Belief

Just as the brain is divided so belief is divided. God has been perceived, particularly in the West, in terms very like the two halves of the brain. Theologians have distinguished God's redeeming or world-transforming activity and God's creating or world-affirming activity (Hanson 1982; Harvey 1984, 62-64, 201-2).

When the Lord God confronted Moses at the burning bush, this twofold emphasis in the Godhead was revealed (Exod. 3:3-14; Anderson 1962; Abba 1962). The name "Yahweh" disclosed reality undefined and unexplained: "I Am who I Am" transcends every name as Alpha and Omega (Rev. 21:6), the beginning and the end. Yet the Reality that *is* also was ever and always the Reality that *acts*. "I have witnessed the way the Egyptians oppress my people, so come, I send you to Pharoah to bring them out of bondage" (Exod. 3:9-10 JB). The very name of God reveals the very nature of God: "I am the Reality that acts. I act to relieve suffering (Exod. 3:7-8) and to create community" (Exod. 20:1-20; 21:1ff; 34:1-35:29).

Such characterization suggests two aspects of God. "I am" reflects creative presence, an attending process of affirming what is. "I act" conveys ruling power, an abstracting process identifying what ought to be. In essence a creating aspect and a redeeming aspect. The ultimately Real of creation combines with the urgently Right of redemption (Ashbrook and Walaskay 1977, 116-26).

Formally stated, Paul Ricoeur identified two shapes of religious consciousness (Ricoeur 1978), and David Tracy called these "family resemblances," "trajectories" of belief (1981, 202-18, 376-89): the phenomenology of manifestation and the hermeneutics of proclamation. As manifestation, God has been perceived in mystical-priestly-metaphysical-aesthetic ways. People see and sense what God discloses nonconceptually. In proclamation, God has revealed prophetic-ethical-historical-doctrinal emphases. People hear and heed what God declares explicitly. These patterns distinguish God's ways of being God, providing contrasts of focal meaning comparable to brain contrasts of cognitive processing.

These perceptions sharpen ways that people construe reality. Theologies of proclamation parallel left brain activity because of language. Theologies of manifestation parallel right brain activity because of symbolic meaningfulness. Based on the input/output systems of the

working brain I propose a fourfold typology of mind-states (see table 2). The tendency to receive life through sensory input may show itself as either a naming or an immersed mind. The tendency to act upon life through motor output appears as either an analyzing or an imaginative mind. Although the patterns are set out as an ascending order of consciousness and responsibility (Polanyi 1968b), each reflects fully functioning consciousness.

TABLE 2

FUNCTIONING MIND-STATES

The Redeeming Mind of the Left Brain	The Creating Mind of the Right Brain
Vigilant Rational	Responsive Relational
THEOLOGICAL EMPHASES	
Word and history Proclamation and redemption Obedience and integrity	Awesome power-and-natural symbolism Manifestation and creation Trust and involvement
SIMPLE INPUT	
A Mind that Names	*An Immersed Mind*
*Conceptual orientation –labels –little ambiguity –independent of context	*Perceptual orientation –direct –much ambiguity –dependent on context
*Abstract operation –objective –simple cause-and-effect	*Concrete operation –personal –multiple causation
*The map is the territory –differences sharpened –permanence established	*The mosaic is the territory –similarities identified –patterns vary
COMPLEX OUTPUT	
A Mind that Analyzes	*An Imaginative Mind*
*Analytic approach –underlying principles –standard procedures –developed plans	*Associative approach –personal values –pragmatic procedures –emerging plans
*Systematic intent –explicit assumptions –basic rationale –precision –delayed satisfaction	*Wholistic intent –shared values –basic constellations –metaphoric –present satisfaction
*The right map maps the territory –proper order –true reality –the urgently right	*Many mosaics present the territory –meaningful ordering –trustworthy reality –the ultimately real

These "minds" are metaphors of meaning. They crystallize universes of relationships, levels of complexity which range from cognitive processes through socio-historical patterns to cultural-theological expressions. Genetic inheritance, social influence, and cultural circumstances combine to shape the central features of each.

Functioning Mind-States

THE REDEEMING MIND OF THE LEFT BRAIN. The hermeneutics of proclamation is a technical way of referring to the redeeming activity of God. As Ricoeur demonstrated, the "emergence of the word from the numinous is . . . the primordial trait" that differentiates the trajectories of proclamation and manifestation (Ricoeur 1978, 21). For this mind word and deed are primary.

Whether the medium of communication is speaking or writing, the interpreted word is the basic feature. The auditory sensory system of the left brain takes the lead since instruction and transformation are more important than appreciating and affirming: "Hear, O Israel . . ." (Deut. 5:1) or "You have heard it said . . . but I say unto you . . ." (Matt. 5:21-22). Theology, as the articulated conceptions of God, is "organized around certain fundamental discourses" such as the story of Exodus, the teaching of the Torah, and the prophetic sayings. Each deals with imperatives which arise out of the tradition.

Like the word and its interpretation, the direction of history also organizes cognitive processes. Whether the end is apocalyptic destruction of all that distorts God-given reality or realized fulfillment of all that discloses God-given reality, history means uprooting. Life is pilgrimage, a going out from an encapsulated Ur of the Chaldeans (Heb. 11) or a deliverance from Egyptian slavery, a movement toward a yet-to-be realized consummation (Ps. 68; Eph. 4:18).

Consider the ritual behavior which accompanies this mind-state. Instead of the repetitive cycle of the natural order—spring, summer, fall, winter—the rhythm is historical remembrance. People recite the special events that interrupt the cycle of the seasons (Turner and Turner 1978). It is the passover meal (Exod. 12:8) in which the Jews tell how Yahweh brought *them* "out of Egypt" (Deut. 6:20-25). It is the worship of Christians on the first day of the week because that is when God raised Christ from the dead (Matt. 28:1). Special days are recalled because of special events that carry meaning beyond the moment.

This pattern of cognition is rational. Its logic rejects a sacred environment by questioning the apparent validity of every structure. Nothing is regarded as ultimately significant, not nature (Isa. 44:9-20), not the family (Matt. 10:34-36; Mark 3:31-33), not established government (Deut. 5:2-3 and the covenant centered institutions of the confederacy;

Rabinowitz 1962), not even religion itself (Jer. 7:1-11; Heb. 9:1-14; Rev. 21:22). It demands obedience to what is still to come, insisting upon what is urgently right: the day of "righting" all relationships (Jenni 1962). Here is the left brain with its right ear and right hand (Hertz 1973). It is aroused to redeem humanity from its denial of what is right and to act to establish what is meant to be.

I distinguish two mind-sets in this rational mind—a naming mind and an analyzing one. Both construe reality as fixed and stable. Further, it suggests the vigilance of the adrenosympathetic nervous system which alerts the body to what is both interesting and dangerous in the environment (Nathan 1969, 206-9). God speaks and God acts.

A Naming Mind. If the left mind takes in more than it puts out, I call it a naming mind. The following features are evident.

First, reality is received in terms of concepts. That means input is labelled, specified, named. This reduces ambiguity and permits what is known technically as habituation. The context is less important than the concepts. In biblical imagery it is Yahweh God bringing before Adam all the wild beasts and birds "to see what he would call them; each one was to bear the name the man would give it" (Gen. 2:19-20 JB). This is an anthropocentric universe with humanity at the center (Gen. 2:4b-3:24; Ashbrook 1973, 146-58).

Second, just as input is conceptualized so it is organized according to abstract explanations. In other words what comes in is processed objectively, taken out of its network of relationships and put into a formal schema. Simple cause-and-effect sequences and separate spheres construct a rational reality. In biblical imagery it is God shaping order out of disorder—distinguishing light and darkness, earth and sky, water and land, fish and birds, plants and animals, and conscious humanity "*at the pinnacle of the creation pyramid*" (Gen. 1:1-2:4a; Ashbrook 1973, 145).

Because of the conceptual-abstract way of thinking, words are regarded as reality. In its simpler form the left mind takes everything literally. The map is the territory. Those in exile could not sing the Lord's song in a strange land (Ps. 137:1-5).

Think of the naming mind as active. It looks for differences and sets them up as distinct entities and spheres. It stabilizes flux by ignoring the passing and isolating the permanent, item-by-item.

An Analyzing Mind. If the left mind puts out more than it takes in, I regard it as an analyzing mind. The following features are evident.

First, reality is shaped analytically. That means it develops a rational schema with fundamental principles, standard procedures, and care-

fully developed plans. In biblical imagery it is spelling out the Covenant between Yahweh God and the Israelites at Sinai (Exod. 19ff; Lev.). The regulations about stealing, cursing, coveting, farming, and real estate or about borrowing, sacrificing, courtesy to strangers, and truth-telling or about building and furnishing the sanctuary, investing priests, offering sacrifices for sins, and separating the clean from the unclean (see Douglas [1966] 1980) all reflect the organization of reality for responsible accountability.

Second, the analytic approach is processed systematically. Assumptions are explicit. Rationale or theory is crucial. Language has a structure which frees ideas from being enmeshed in immediate social structures (Bernstein 1971). The systematic elaboration postpones satisfaction or fulfillment until everything is in place. In biblical imagery it is the prophetic discernment of the Lord Yahweh showing Amos a man standing by a wall, plumb line in hand, "Look, I am going to measure my people Israel by plumb line; no longer will I overlook their offences" (Amos 7:7-9). Life is assessed as it is meant to be (Hos. 4:1-3).

Because of the analytic-systematic way of thinking, the elaboration of precise steps results in correct procedures. In this more complex yet simplified form the left mind incorporates input into explicit pieces of information. Precision reduces the surplus meaning with which facts are surrounded. Among the many maps of the territory one follows the only map that maps accurately.

The analyzing mind develops a sharp ear and a focused eye. It works with differences in order to build true reality. It redeems what is out of order by putting it in proper order. It reforms and re-formulates what appears to be according to what actually is intended (Hanson 1982).

THE CREATING MIND OF THE RIGHT BRAIN. The phenomenology of the sacred is a technical way of identifying the creating activity of God. Its nonlinguistic quality, an unmediated presence if you will, clearly distinguishes the trajectory of manifestation from that of proclamation. For this mind-set numinous power and natural symbols are primary.

Awesome presence never passes over completely into articulation. In Mircea Eliade's phrase, God is ever appearing in *hierophanies* or sacred mysteries (Eliade [1957] 1961). One's imagination is intensified, seeing and hearing and sensing something more than ordinary in the ordinary. "The heavens declare the glory of God, the vault of heaven proclaims his handiwork" (Ps. 19:1 JB). The transcendent appears through such natural symbols as sky, earth, air, fire, and water. Ritual behavior expresses more of the rhythmic pattern of nature's cycles than the remembrance of historical events (d'Aquili and Laughlin

1979; d'Aquili 1983; Turner 1969; 1983). The eye and the body, the visual and kinesthetic sensory systems of the right brain, take the lead since imaginative meaningfulness preempts exact certainty.

This pattern is relational. Life is known by its connectedness (cf. Gen. 35:9-15 and Jacob's becoming Israel). It flows out everywhere and anywhere. By celebrating the worthwhileness of all that is, a stone, a tree, a circle, a cross, a labyrinth, a festival, each calls for personal involvement. Everything is hallowed (John 1:1-4)—the natural world (Ps. 104; Job 38ff), the family (Gen. 1:28; 9:1; Deut. 5:16; Ecclus. 7:27-28), established government (2 Sam. 5:1-3 and Israelite monarchies; Mark 12:17; John 19:11; Rom. 13:2-7), the religious institution itself (1 Cor. 12:27). It assumes trust in what is here right now. "Ever since God created the world his everlasting power and deity—however invisible—have been there for the mind to see in the things he has made" (Rom. 1:20 JB). And what Paul had pointed to in the natural world becomes more explicit in the Pauline poetry of Colossians (1:15-17 JB) where Christ "is the image of the unseen God for in him were created . . . everything visible and invisible . . . and he holds all things in unity." Here is the right brain responding to the inexhaustible manifestations of meaning. God creates a cosmos that vibrates with visions of the real.

I distinguish two mind-sets in this relational mind—an immersed mind and an imaginative one. Both process reality as appearing and reappearing presence. Further, it suggests the responsiveness of the parasympathetic nervous system which relaxes bodily processes in adapting to the environment (Nathan 1969, 209). God creates and re-creates.

An Immersed Mind. If the right mind takes in more than it puts out, it is an immersed mind. The following features are evident.

First, reality is received perceptually. That means input is direct, tangible, unnamed, all-of-a-piece. Because of its ambiguity one needs the context to know what is being conveyed, whether that is a gesture or a word. In biblical imagery it is shepherds going to Bethlehem, the city associated with the Davidic tradition, to understand what had appeared to them and then returning to and remaining in the same context (Luke 2:8-20).

Second, since reality is received directly, it is organized concretely or wholistically. Because of nuances words require knowing the context to be understood. In fact words serve a double purpose: "They convey information" and "they also express the social structure, embellish and reinforce it" (Douglas [1970, 1973] 1982, 23). In biblical imagery it is the experience of Yahweh as the good shepherd and generous host (Ps.

23:1-4, 5-6) which becomes the sacramental context of baptism and eucharist.

Because of the perceptual-concrete way of thinking, the tangible or symbolic is taken as reality. In its simpler form the right mind experiences being immersed in an encompassing environment. Mosaic impressions are the territory. God-and-government together.

Think of the immersed mind as receptive. It sees commonalities and experiences a coherence between outer forms and inner meanings. Within its assumptive context it permits variations, all-at-once.

An Imaginative Mind. If the right mind puts out more than it takes in, I consider it an imaginative mind. The following features are evident.

First, reality is shaped imaginatively. That means personal values, pragmatic procedures, and plans emerge as a uniquely woven tapestry. Multiple causations reveal a relational reality. In biblical imagery it is knowing that "the earth is the Lord's" (Ps. 24:1 KJ) and that humanity's dominion derives from the relationship (Ps. 8).

Second, the imaginative approach is processed wholistically. Assumptions are implicit. Connections are basic. Language opens itself to multiple meanings—metaphorical, figurative, suggestive (Watzlawick 1978). In biblical imagery it is affirming that "we are already the children of God but what we are to be in the future has not yet been revealed; all we know is that when it is revealed we shall be like [God] because we shall see [God] as [God] really is" (1 John 3:2 JB).

Because of the imaginative-wholistic way of thinking, impressions are varied. In this more complex yet unified form the right mind transforms everything into images. For instance, Meister Eckhart declared that "the eye with which I see God is the same eye with which God sees me . . . one vision or seeing, and one knowing and loving" (Blakney [1941] 1957, 288). Everything bears larger meaning, surplus nuances, intimations that put us into multiple realities. All the mosaics of the territory are real. As Eckhart put it: "God never tied [our] salvation to any pattern. Whatever possibilities inhere in any pattern of life inhere in all, because God has given it so and denied it to none" (Blakney [1941] 1957, 23).

The imaginative mind cultivates sensitive eyes and ears. It processes relationships by generating a trustworthy reality. It shows forth what is in all its sublety and splendor.

Let me summarize the functioning mind-states. Vigilant in intent, the redeeming mind stresses obedience to the proclamation of word-and-deed. It may deal more with naming the urgently right or systematically analyzing the one right way. In parallel fashion, the respon-

sive creating mind opens up trust by celebrating the manifestations of awesome power in natural symbols. It may stay immersed in a single mosaic of the ultimately real or integrate many mosaics in an ever-emerging wholeness. The rational mind redeems what has been lost. This mode is the "I act" of power. The relational mind creates what is being realized. This mode is the "I am" of presence. Together they re-present and express metaphorically the one mind of God in the one mind of humanity. Just as God acts to make real what is right, so we are meant to make real what is right.

Assessing Adequacy

Under normal circumstances each mind acts as the whole mind, engaging both brains and drawing upon every sensory system. As the experience of Pentecost suggests, the people heard and saw and felt (Acts 2:1-4). Every mind, any mind, each mind, can enter into and be the bearer of God (cf., Rev. 21:12, 21). We are to love *all* with *the all* that we are (Mark 12:28-34; Ashbrook 1979).

From a theological point of view the uttered word of proclamation needs the renewing power of presence if the word is not to become merely "abstract and cerebral." Only the incarnation, concrete sensory input to make the analogy explicit, "ceaselessly reinterpreted gives this word something to say." That immediate "something," in Ricoeur's view, is addressed to "our imagination and our heart" as much as to "our understanding and will . . . in short, to the whole human being" (Ricoeur 1978, 35).

Like the two halves of the head, these poles of proclamation and manifestation do not constitute "a simply identity" nor "a sterile antinomy" nor yet "an unmediated dichotomy." Ricoeur (1978, 13, 31-32) argues for "some meditation" between the phenomenology of the sacred and the hermeneutics of the kerygmatic. Humanity requires sacred presence, that otherness of meaning which manifests itself in privileged places and people, in special times and rituals. Like the left brain's observing and explaining right brain activity, proclamation derives its power from the fact that it reflects, reconstitutes, and reaffirms the sacred wholeness of our human setting. Word and manifestation are reconciled and reunited in the affirmation that "the Word became flesh and we beheld his glory" (John 1:14).

By including all the sensory systems in both their active and receptive modes we have an analytical tool for assessing the adequacy of various states of mind (see table 3). We can identify regressive, functional, and creative patterns. These reflect how the human mind works and by implication how that mind understands God to work.

TABLE 3

ASSESSING ADEQUACY[1]

Adequacy	Processing Modes all-at-once/step-by-step	Re-presentational Systems auditory, visual, kinesthetic
REGRESSIVE:		
*Deficient	One mode only Other mode ignored At times inappropriate	One system/One map
*Disturbed	One mode avoided Modes compete and/or conflict	Systems/Maps are denied Systems/Maps are dissonant
FUNCTIONAL:	Modes alternate depending on task Modes supplement, complement, and/or contrast	Systems/Maps converge
CREATIVE:	Modes integrated or interchangeable	Systems/Maps are differentiated and synergistic

1. The adequacy of functioning mind-sets can be assessed on a continuum from deficient/disturbed to creative/synergistic.

A mind exhibits *regressive* features in one of two ways. First, it is deficient if it uses only one mode and one system. The other mode and other input/output are neglected. The two modes function as completely separate systems. The resulting mind-set makes activity stilted, mechanical, and at times inappropriate. It insists upon the map or mosaic as the sole way the mind works. Second, it is disturbed if the two modes compete with each other over which takes charge and/or conflict about the task to be handled (Gazzaniga 1970; Gazzaniga and LeDoux 1978, 142-45). Sensory systems map dissonant information. Repression, avoidance, ambivalence, or paralysis can characterize the way the mind works (Grinder and Bandler 1976).

We do not need to have our corpus callosum cut to experience competition for attentional dominance; it happens to everyone. Sometimes we are responding to too many demands, sometimes to conflicting demands, sometimes to too few demands. Split-brain consciousness is a metaphor of the human condition. We can be of two minds—a house divided against itself (Matt. 12:25).

A mind is *functional* if the two modes alternate, depending on the task. At least two of the sensory systems map the environment in ways that are congruent and convergent. The result makes for a conven-

tional realism. While the two brains appear polar, the dominant one draws on the other in ways that supplement, complement, or contrast with its own activity.

A mind functions *creatively* when it combines all input and output synergistically. The two halves and the various sensory systems achieve a reality of which none is capable by itself. Here is the level of shifts in paradigms, such as Martin Luther's insistence on scripture over tradition or quantum physics going beyond Newtonian physics. Both brains and all systems work as one. To use Gregory Bateson's formulation it takes "steps to an ecology of mind."

The key to adequate functioning is partnership, cooperation, noncompeting processing between the two halves and their sensory systems. Either half may be preferred in its simpler or more complex form—receptive input or active output. With the full flow of information the two processes of item-by-item and relational attributes "combine to program a unitary pattern of behavior" (Kinsbourne 1982, 413). People use whatever combinations of strategies and systems best handle the task. Every act is an act of the whole head.

By analogy God acts to make whole what is created whole in two ways. And human beings, made in the image of God (Gen. 1:26), participate in that power of whole-making. The functioning minds manifest the shaping of what matters most. As William James expressed the emerging evolutionary conviction: "Mind and world . . . have evolved together, and in consequence are something of a mental fit. . . . The special interactions between the outer order and the order of consciousness" suggest that "*mental life is primarily teleological*; that is to say, that our various ways of feeling and thinking have grown to be what they are because of their utility in shaping . . . [our] 'adjustment of inner to outer relations'" (James [1892] 1893, 3-4). God is present within the mind of each of us even though our individual minds are incapable of manifesting the full mind of meaning. Only in and through community can the limitations of our minds be discovered and the contributions of our minds be realized.

The concept of two minds, whether in our human processing or in my use of mind as a metaphor of meaning, is more than basic neuroscience. Although intimately related, brain and mind are not equivalent. No electrical stimulation of the cortex causes a person "to believe or to decide" anything (Penfield 1975, 77). The brain is a necessary but insufficient condition for human life. Nor does culture, despite its pervasive influence, exert the last word about cosmic connections. I infer from the double processing of the brain/mind a double processing in the human universe, the world of purposes and meanings.

Qualifications

Speculation about hemisphere specialization requires three qualifications: one related to hand dominance, one associated with gender differences, and one connected with cultural bias.

As to hand dominance, the generalization applies only to left hemisphere right-hand dominance. Recent studies (Luria 1973, 78-79; Hicks and Kinsbourne 1978) show that only one-fourth of the population are thoroughly right-handed and slightly more than one-third exhibit marked left hemisphere dominance. About one out of ten people have a complete absence of left hemisphere dominance for language.

As to gender differences, male brains tend to be more asymmetrical than female brains, which implies more specialized functioning by each hemisphere (Wada, Clark, and Hamm 1975; Harris 1978; McGlone 1980; Goy and McEwen 1980; Wittig and Peterson 1979). Males exhibit extreme separation between verbal and nonverbal processes (Levy 1980, 367-71). This results in their being field-independent, less sensitive contextually, and adept at extracting formal principles relevant to spatial or logical organization. Females, in contrast, show greater symmetry with a mixture of verbal and nonverbal processes. This makes for field-dependence, contextual sensitivity, and a responsiveness to subtle experiential variations that interfere with formal structuring of abstract variants. To state the qualification precisely, male and female brains are organized (Durden-Smith 1980) and develop differently (Gilligan [1982] 1983). As a consequence, disturbed and deficient features in historical developments may reflect more of a male-dominated orientation (Mitchell [1974] 1975, 369; Martin and Voorhies 1975, 11-15). Further, women exhibit more varied patterns than men.

Those whose brains are less specialized and more integrated are early maturers (Waber 1976). Although rate of maturation is not gender-specific, as a group girls tend to mature earlier than boys. What is genetically determined and culturally conditioned are hard to separate. Gender differences represent about one-quarter of a standard deviation (Springer and Deutsch 1981, 129), which means that distinguishable differences are of such modest proportions and involve such complex variables that there can be more difference between any two males or any two females than between any particular male and any particular female (Hyde 1981).

As a cautious generalization, men's hemispheres tend to specialize, each handling analytical and perceptual processes separately. In contrast, women's hemispheres tend to function as generalists, each half processing information verbally. These are not so much "absolute categories of reality" as "dynmaic rather than static phenomena" (Martin and Voorhies 1975, 11).

Cultural bias also requires a qualifying caution. The brain seems biased toward left hemisphere dominance. In individual development first claim goes to language, propositional needs, and expressive activity (Geshwind 1972; Heilman 1978; Wada 1977, 372). Culture itself derives from such priority of processing. As the prologue of the Gospel According to John and the first chapter of Genesis affirm: in the beginning is the Word. Yet different cultures reflect different assumptions about left brain steps and right brain relations.

The Judeo-Christian tradition has perceived God in terms of historical activity, most specifically the deliverance from Egyptian oppression and the conquering of the sting of death in the resurrection of Jesus as the Christ. God intends the right order of creation by reordering the disorder of sin and death. This view is biased on the side of human asymmetry. The redeeming mind directs what is to happen based on the creating mind of what has been made.

In contrast, Zen Buddhism rejects the centrality of the conceptual in favor of an original asymmetry which negates every form and formulation (Hisamatsu 1971). It believes that abstractions, in whatever form, are responsible for desires, longings, differentiation, intentions, directions, disturbances, and deficiencies. In short, the left brain makes people anxious to express themselves.

The assumption of *original* asymmetry differs radically from the assumption of *human* asymmetry. In truth, the asymmetries are reversed. Zen negates complexity, because for Zen, only simplicity participates in a unity deeper than distinctions. The Zen word is a Wordless Word.

I point to differences between human and original asymmetry to suggest that each assumption leads to a different theological consciousness. How people value the two modes is predisposed by assumptions about hemisphere specialization. Those assumptions affect not only perceptions about God but also understandings of God as God.

Conclusion

The concept "mind" has linked the human significance of the brain and theological concepts humans have developed in speaking about God. A left mind pattern utilizes rational vigilance and the imperative instructions of proclamation. In so doing it names and analyzes what is urgently right. A right mind pattern shows the relational responsiveness of numinous presence and natural symbolism. This comes about by its being immersed in and imaginatively integrating what is ultimately real.

Together these two patterns provide a typology of mind with which to assess activity as regressive, functional, and creative. Such generali-

zations, however, are qualified by the variations revealed in differences between left and right handers, women and men, and cultural convictions. Even so, the organized regularities of the brain and the emergent features of mind help us understand metaphorically how adequately our minds function and how fully we perceive God's ways of being God.

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