THE TRANSCENDENT FUNCTION OF THE *BILATERAL BRAIN*

by Virginia Ross

Abstract. A "transcendent function," which integrates conscious and unconscious elements, can be characterized for the human mind. From Carl Jung's model of four basic functions of the psyche—thinking, feeling, sensation, and intuition—a modified compass of the psyche is constructed to conform to the neurobiological structure of the bilateral brain. The transcendent function can be correlated with the principal states of consciousness existent between waking and sleep. Dreams, myth, and the experience of deity, of related unconscious content, are manifest in hybrid states of consciousness. The exercise of the transcendent function is of creative value in the arts and sciences and paramount to human survival.

In the human mind there exists the faculty of a "transcendent function" that is operative in relaxed, hypnagogic, or sleep-wake states of consciousness. Acting on this premise, it should be possible to construct a causeway linking neurobiological structures of the brain and psychoanalytical experience. The hope is that a paradigm shall emerge to elucidate the creation of dreams, myth (ritual), and ultimately the experience of the *imago dei.*

The Nature of the Transcendent Function

The term *transcendental* was originally formulated by Immanuel Kant to describe nonsensory and intuitive manifestations of mind (Kant 1781). Mathematically the transcendent function pertains to the sum of real and imaginary numbers. Utilizing the concept, Carl Jung defined another transcendent function of a psychological nature that "arises from the union of conscious and unconscious contents" of the mind

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(Jung [1916] 1960, 8:69). The psychological transcendent function, therefore, operates to integrate rational and imaginal thought. In 1977, Ernest Rossi correlated Jung's transcendent function with the "actual process of integrating left and right (cerebral) hemispheres" (Rossi 1977, 45). James P. Henry, in a subsequent commentary, implicated the transcendent function with "transcallosal interaction"—referring to the corpus callosum, the connecting fibers of the bilateral brain (Henry 1977, 52).

The bilateral brain. Neurological observations by Roger Sperry and colleagues of patients who have undergone commissurotomy, the surgical sectioning of the fibers of the corpus callosum, have tended to indicate the presence of two separate, hemispheric minds in the brain with independent perceptual, learning, and memory functions (Sperry 1982; Gazzaniga 1967). In normal subjects analytical and semantic capabilities of the left hemisphere appear to be counterbalanced by synthetic, visuo-spatial functions of the right hemisphere. Stated more simply, the left brain tends to perform like a digital computer in logical, sequential operations while the right brain acts in an analogical or metaphorical style.

The abnormal brain, characterized by psychopathological symptoms, has also been viewed from the perspective of cerebral lateralization with concomitant structural and activation asymmetries (Galin 1974). Pierre Flor-Henry has defined a continuous spectrum of mental disorders ranging from manic-depressive psychosis to schizophrenia with mania linking the depressed and psychotic maladies (Flor-Henry 1983). Both mania and schizophrenia are characterized by left-hemispherical variances while melancholia appears to involve right-hemispheric dysfunction. The asymmetries are gender related: males exhibit a higher susceptibility to schizophrenia and females a greater preponderance of affective illness. The neurophysiological model of the psychopathologies is incomplete and requires further definition in terms of hemispheric activation, inhibition, and coupling. In addition to structural parameters, there are associated metabolic and neurotransmitter imbalances complicating clinical diagnoses.

The conceptual model of the "triune brain," proposed by Paul MacLean, is comprised of base-reptilian and overlying paleo- and neomammalian structures (MacLean 1973). There are also neuronal pathways linking the emotional (limbic) system of the paleomammalian brain with the parietal and frontal lobes of the right hemisphere (Schwartz, Davidson & Maer 1975). The latter affectional system is under the control of the left frontal cortex (Flor-Henry 1976). In the higher primates, Jonathan Winson has discovered that the

hippocampus of the midbrain processes the stored memory of the frontal lobes and emotions of the limbic area in dream sleep (Winson 1978).

The locus of the transcendent function. The brain is the vehicle of the mind, and dualistic philosophers would argue that the mind is more than the brain in opposition to neurophysiological reductionistic perspectives. Wilder Penfield, on the basis of studies of epileptic automatons and brain-damaged patients, has implied that consciousness is derived from the "centrencephalic-integrative-action" of the upper brainstem (Penfield 1975, 37-45). The late Canadian neurosurgeon in advanced life adopted a monistic viewpoint concerning the mystery of the mind. The locus of the transcendent function or higher consciousness in Homo sapiens appears not to be limited to the neocortex; it also involves the pathways of the limbic midbrain and brainstem area. Transcendent states are known to overwhelm the emotions and higher yogic states are enhanced by vertebral alignment.

The Typology of Personality and States of Transcendence

Jung's typology. According to Jung, individual personality may be characterized by the attitudes of extra- and introversion relative to four functions of the psyche (Jung [1921] 1971, 6:330-407). The four functions of personality type have been characterized as: thinking (T), feeling (F), sensation (S), and intuition (I). In defining personality type the four functions have been arranged in the Jungian Gray-Wheelwright type-survey in the form of a compass in which thinking is opposite to feeling and sensation is antipodal to intuition (Jung 1964, 60-61; Gray & Wheelwright [1940] 1964; Myers 1962). Each individual, on the basis of a questionnaire, is ranked on an extra-introversion scale and assigned one dominant, one inferior, and two auxiliary functional modes. For example, an extraverted male thinking-sensate type might be characterized as having moderate intuition and minimal feeling. In contrast, an introverted female feeling-intuitive type might possess an inferior thinking function. The development of all four functions, particularly the inferior function, according to M. L. von Franz, leads toward psychic wholeness, an enlarged consciousness, and new attitudes (von Franz & Hillman 1971). The early twentieth-century stereotyping of personality is therefore not without merit. The major problems associated with the typology involve the polarities of the functions and Jung's definition of *feeling* as a "judgemental" or "rational function" which does not accord with modern usage of the term (Jung [1921] 1971, 6:354-58; Fordham 1953; Reymert 1950; Singer & Loomis 1984). There have been ambiguities in distinguishing between

affect and emotion and between intuition and valuation—particularly with regard to the way in which Jung believed that women think or "do not think" (Jung [1921] 1971, 6:357). Although Jung was probably the first major psychologist to recognize the importance of the feminine consciousness, the confusion may have developed from his own inferior feeling function and Victorian philosophic stereotypes of women (McMillan 1982). Of importance is the fact that modern psychiatry was founded in response to repressed feelings or emotion. In accord with modern usage, feeling is the capacity to respond emotionally. Within the full spectrum of emotion feeling may range from simple sentiment to modified emotion and ultimately to intense emotion that is aroused in the passionate instincts.

The modified Jungian psychic compass. The "psychic compass," a modification of Jung's compass of the psyche, is a simple model of an inner psychological compass that is in general accord with psychological function and neurobiological structure. (The attitudinal typology has been omitted from the model to eliminate confusion with the four functions.) In the revised model, *thinking* (T) and *intuition* (I) have been positioned at the poles of the *horizontal cognitive axis*. *Feeling* (F) and *sensation* (S) have been arranged in opposition along the *vertical perceptual axis*. (In the Jungian model thinking and feeling are at opposite poles.) This permutation of Jung's model has been rotated ninety degrees and superimposed on a horizontal midsection of the bilateral brain (see fig. 1). On the modified Jungian compass, rational thought lies in the province of the left cortical hemisphere and intuition is in the realm of the right hemisphere. Sensation is associated with the sensory operations of the cortex such as visual, auditory, and tactile responses. Feeling, emotion, and instinct have been relegated to the depths of the limbic system. The upper left quadrant, λ, is synonymous with logos or logical functioning and the lower right quadrant, ϵ, pertains to the realm of eros or orphic inspiration. To a limited degree consciousness and the unconscious may be correlated respectively with logos and eros. In the jargon of analytical psychology, masculine and feminine consciousness may also be characterized respectively in terms of logos and eros orientation. The gender dichotomy has been corroborated by Elizabeth Hirschman, who observed males to be more externally and left-hemispherically active and females more internally and right-hemispherically oriented (Hirschman 1983). In the theological vein of Martin Buber, "I and Thou" voices may be associated respectively with the fields of logos and eros in correspondence to the ego and the greater Self (Buber [1923] 1970). The two mentalities are also manifest in Suzanne Langer's "discursive language" and "presentational art forms" (Langer 1942, 79-102).

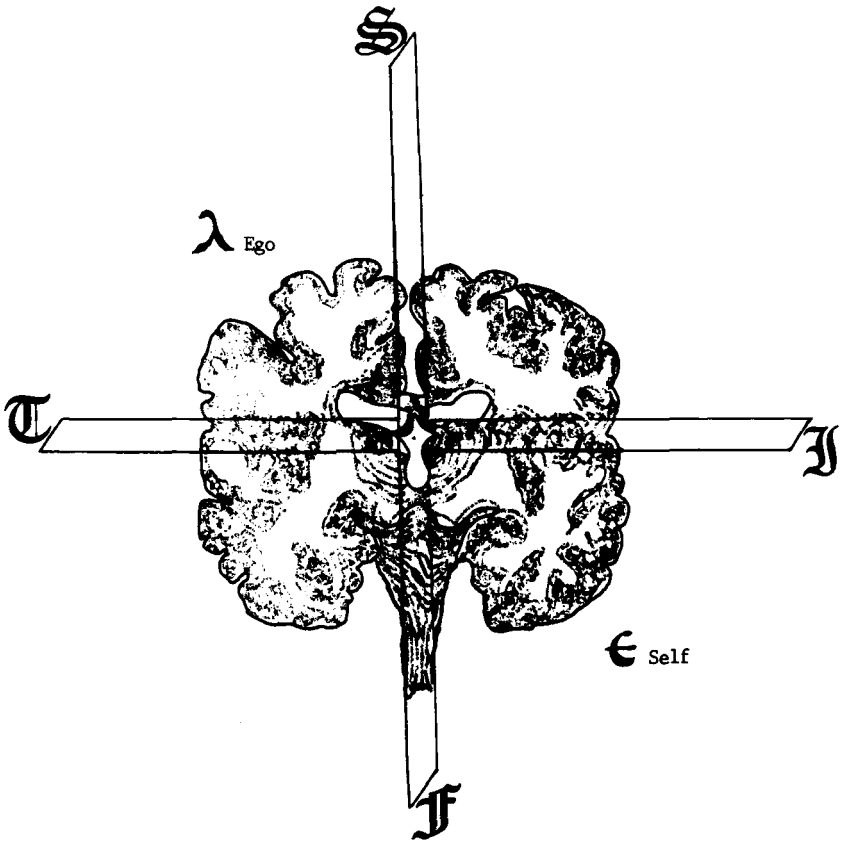

FIG. 1.—The modified Jungian psychic compass superimposed on a theoretical section of the midbrain. In this model the horizontal cognate axis of thinking and intuition lies in the plane of the cerebral hemispheres. The vertical perceptual axis of sensation and feeling bisects the hemispheres, passes through the limbic system, and terminates in the brainstem.

The transcendence equation. The combined realms of logos and eros, in addition to defining the real world and the haunts of the imagination, serve to characterize states of transcendence. States of transcendence are highly subjective experiences that lie at the boundary of consciousness and the unconscious. The highly charged emotional experience may be diffuse or focused involving all four functions simultaneously. While the reaction may be instantaneous, the effects are apt to be sustained over a lifetime. On researching transcendent phenomena, the nebulous area that exists between the psychological experience and the detailed, neurological fine structure should contract and be defined by appropriate parameters. At this stage of human

scientific development a simple formulation of the equation for the transcendent function (TF) must suffice:

$$TF = \Sigma(\lambda + \epsilon)$$

and the state of transcendence (T):

$$T \sim f(T \cdot I) / (F \cdot S)$$

ideally approaches unity. Expressed nonmathematically, the transcendent function is the sum of conscious and unconscious parameters of mind—involving all four functions: thinking, feeling, intuition, and sensation of the compass of the psyche. The process of individuation, characterized by Jung and Jolande Jacobi, stresses the development of all four functions and is in essence a prescription for transcendence and unity of mind (Jung [1939] 1959, 9.1:275-354; Jacobi 1967). The imprint of the fourfold compass is manifest in the sacred art of the world's major religions as cruciform or mandala figures (Jung [1939] 1959, 9.1:355-90). Among primitive cultures the same motifs are commonly encountered, for example, in the Aztec calendar and Navajo sand paintings depicting the four directions of the spiritual world.

Hybrid States of Consciousness and the Transcendent Function

Principal and alternate states. The principal states of consciousness are waking and sleeping, corresponding respectively to dominant activity of the left- and right-cerebral hemispheres. Sigmund Freud implied the existence of an almost infinite number of states, while William James referred to mystical and hypnotic states of consciousness (Freud [1920] 1966; James [1890] 1950). The concept of alternate states of consciousness was popularly introduced by Norman Zinberg in 1974 to describe the progression of waking to daydreaming and reversion to alert, waking consciousness (Zinberg 1977). Superimposed on the major wake-sleep circadian rhythm, Peretz Lavie and Daniel Kripke have characterized ultradian cycling occurring at ninety to one-hundred minute intervals (Lavie & Kripke 1975). The latter impose rest and fantasy states on humans during waking and REM (rapid eye movement) states during sleep. The alternation of hemispheric activity may be related to conservation of energy, the turnover of neurotransmitters, memory storage and retrieval, and the synthesis of new neural patterns (Hartmann 1973).

On characterizing states of consciousness some distinction must be drawn between naturally occurring and artificially or chemically induced conditions (Tart 1969). Although phenomenologically similar in

certain cases, the latter altered states involve more complex changes in brain chemistry. Caryl Marsh, in describing subjective states of consciousness, has listed such familiar states as daydreaming, meditation, mystical, hypnotic, and REM sleep states involving an interior focusing of attention (Marsh 1977, 121-43). Jung has referred to the existence of "hypnagogic" and "hypnapompic" states, that is, leading to and from sleep (Jung [1902] 1970, 1:59-60). A more complete tabulation of states of consciousness must include lucid dreaming, religious visions, excited trances, so-called psychopathic hallucinations, and so on. Between waking and sleeping there are apparently many discrete states possible in the spectrum of human consciousness.

Map of the hybrid states of consciousness. The map of the "hybrid states of consciousness" is a schematic attempt to illustrate the brain's hemispheric activity in specific or alternate modes of consciousness (see fig. 2). The term *hybrid* refers to any one of many possible states of consciousness or unconsciousness in the spectrum between waking and sleep. The subclassification of hybrid states includes normal, calm, ultracalm, and excited phases involving alternate or parallel activation of the cerebral hemispheres. Activation and deactivation of the two hemispheres has been described by Barbara Lex using W. R. Hess's model of energy expanding (ergotropic) and energy conserving (trophotropic) systems of the autonomic nervous system (Lex 1979, 125; Hess 1925). The calm phases associated with prayer, meditation, hypnosis, and active imagination are trophotropic in comparison to the ergotropic, excited states common to rhythmic trances and psychoses induced by stimulatory drugs. In the latter states there appears to be an energetic "spill-over" effect that counters the normal parasympathetic inhibitory systems. Eugene d'Aquili has suggested that sexual orgasm is a response to continuous driving of the autonomic subsystems (d'Aquili 1978, 262-65). In both calm and excited phases, both active and passive modes, some degree of hemispheric equilibration is attainable. States of hemispheric equilibration may be accompanied by the discharge of resonant energy and transcendental experience. Additional permutations of hybrid states are encountered during the various sleep-ascending and descending stages and the twilight zones of daily life. A lucid dream, in which the subject is aware of being in the dream state, appears to be related to sleeping as a vision might appear to the waking mind. In the various hybrid states described there may be involvement of the entire central nervous system in powerful emotional responses. Included are such phenomena as paranormal sensations and automatic behaviors.

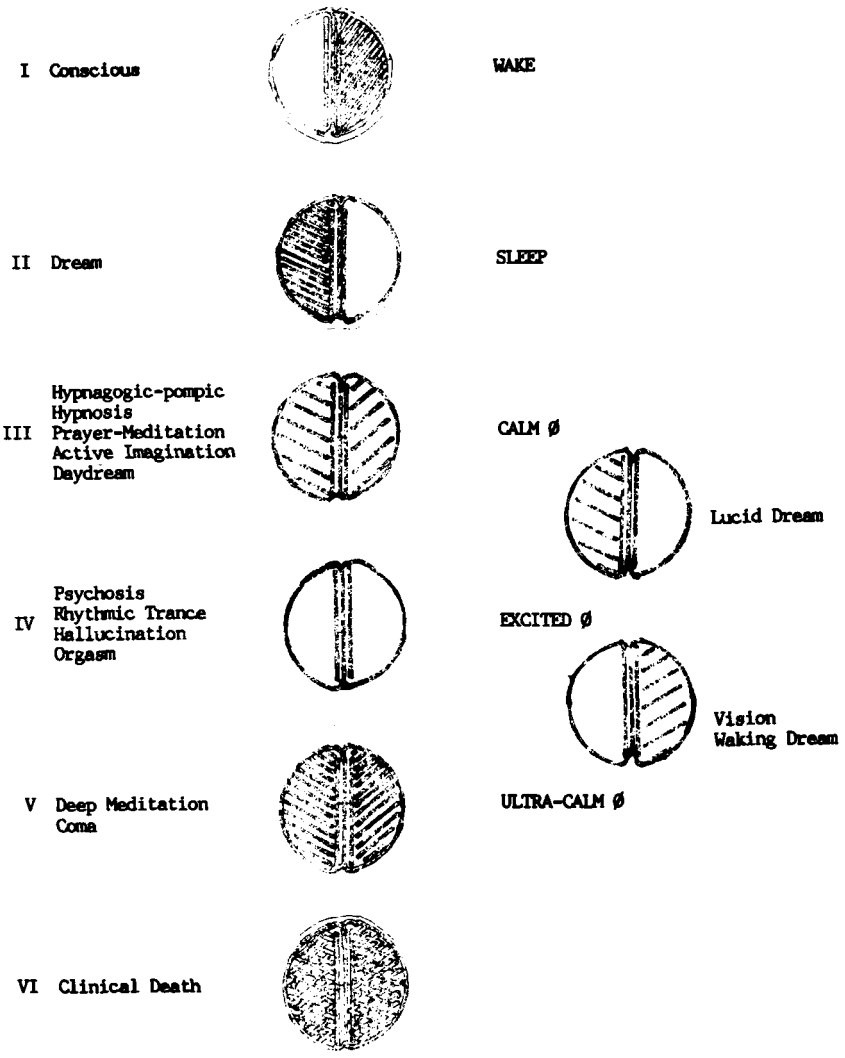

FIG. 2.—Hybrid states of consciousness. The light and dark areas correspond to varying degrees of activation and nonactivation, respectively, of the left and right cerebral hemispheres of the brain. Ø = phase.

The transcendent function and hybrid states of consciousness. The operation of the transcendent function in conferring transcendence in hybrid states involves more than crossing the threshold of the corpus callosum and coupling the two hemispheres. All four functions—thinking, feeling, sensation, and intuition—come into play with heightened awareness and the emotions associated with the "mys-

terium tremendum" (Otto [1917] 1981, 12-40). The transcendent function apparently controls the synergistic action of coupled hemispheres that must resonate in intimate association with the limbic system and brainstem. In a limited thermodynamic sense, the higher organizational capacity of the brain may be entropy reducing, yielding newly found energy.

Dreams, Myth, Deity, and Ritual

Inherent to the present thesis is the concept that dreams, myth, the experience of deity, and ritual share common origins in the brain.

The functions of dreaming. In the practices of Freudian, Jungian, and Gestalt psychotherapies, there is emphasis on and valuing of dream interpretation as expressions of unconscious content. While Freud treated dreams as manifestations of repressed wishes and sexuality in the treatment of neuroses, Jung discovered specific themes or "archetypal motifs" recurring in the life course of dream analysis (Freud [1920] 1966, 83-227; Jung [1939] 1959, 9.1:40-41). The repeated themes are naturally and continuously integrated in the process of individuation that is characterized by spiritual and psychic growth. Interpreting Jung, Maria Mahoney has considered the prime purpose of dreaming to be the attainment of psychic equilibrium through compensation (Mahoney [1966] 1980). She has recognized dreams to be "complementary, reductive, reactive, prospective, somatic, telepathic" as well as "archetypal." The term *archetype* is derived from the Greek word meaning *ancient imprint*. In analytical psychology the archetypes are conceived as inherited, primordial images or patterns constellated in the human mind that influence thought, feeling, and behavior (Jung [1939] 1959, 9.1:79). Henry has suggested that the archetypes are rooted in the subcortical limbic system of the paleo-mammalian brain and brainstem (Henry 1977, 54-55). The nebulous subject of the archetypes has been coherently amplified and rendered very plausible in the scholarly work of Anthony Stevens in a book of that name (Stevens 1983). There appears to be an ontological hierarchy of archetypes in the mind ranging from the primitive-instinctual to the higher-ethical (Jung [1911-12] 1967, 5:7-33). More often than not, archetypal experience is associated with the expression of strong or powerful emotions.

There is a wide spectrum of thought regarding the function of dreaming which ranges from the purely psychological to physiological. Dreaming is apparently vital: the prolonged deprivation of REM dream sleep can lead to depression, psychosis, and ultimately death (Hartmann 1973, 40-46). There are four to five stages of dream sleep per night although most subjects tend to remember only nightmares

and dreams interrupted by waking. Also, dream content appears absurd or bizarre. This has led Francis Crick and Graeme Mitchison to speculate that dreams are meaningless and designed to be forgotten, that is, they are a form of "reverse learning" that erases undesirable memories and improves rational processes (Crick & Mitchison 1983, 111-14). In general, the mechanistic theories of dream function are based upon the inability to comprehend the meaning of dreams. Dreams are an expression of primary-process thought, that is, preverbal imagery, which is metaphorical in nature. The interpretation of dreams has been the province of prophets, poets, and shamans over several millennia of human history. It is the right visuo-spatial brain that is the dreamer according to Paul Bakan, based upon the heightened EEG activity of the right hemisphere during REM dream sleep (Bakan 1976). There is ample neurophysiological evidence that the limbic system and brainstem are also involved in dreaming and the production of catecholamine neurotransmitters (Jouvet 1967; Hartmann 1973). Utilizing affective-perceptual pathways, the brain enacts a drama that is woven from images of daily thoughts, feelings, and anxieties. The monitoring of dreams over the course of a single night has indicated that anxieties and problems tend to be resolved in a series of stages. Not only is there a strong emotional (feeling) component of dreams, but intuitive processes are at play. In terms of the psychic compass, the dream world is manifest in the field of eros and the Self counterbalancing the ego's logic and sensation. In the process of dreaming the mundane images appear to interact with the unconscious archetypes in the synthesis of meaningful connections.

Myth and ritual. Myth, derived from the Greek *mythos*, refers to parables, fables, tales, and fairy tales of historical origin that offer rationales for belief, practice, institution, or natural phenomena. A special faculty of the mind must exist for the creation of myth which is indigenous to all humankind. The proposal has been made by d'Aquili that six cognitive operators are involved in the generation and structuring of myth. Four operators—causal, abstract, binary, and quantitative—have been assigned to the dominant left hemisphere; a fifth, value-judgment, has been relegated to the neocortical-limbic systems, and the sixth, holistic, has been associated with the parietal-occipital lobes of the nondominant, right hemisphere (d'Aquili 1983). The reduction of mythopoesis to these formal operations of the brain may be premature. At issue is the assumption that myth making is the result of inherently conscious processes such as the causal and abstract. The binary (polarity) operator may not be independent of the valuing operator since judgment is involved in the recognition of comparatives.

There is also some association between the holistic and the formal quantitative operators that is manifest, for example, in topology and crystallography. The d'Aquili model may be more appropriately related to the verbal (left-hemispheric) conceptualizations of myth. The abstracting operator must derive from the integration function of the bilateral brain in what portends to be a more complex model of myth making. When focusing on content, it is apparent that the archetypal nature of myth cannot be structured by the left hemisphere.

Mythic themes often tend to be cloaked in grotesque characters with unfamiliar speech. In this regard myth shares much in common with the metaphor and allegory of dreams (Henderson 1964). There are god-men, god-mothers, solar god-heroes, monsters, and androgynes in endless and impossible quests. The sacred myths worldwide share elaborate cosmogonies and violent apocalypses (Eliade 1954). Myths commonly involve themes of sacrifice and salvation, initiation and transformation that are common to the rites of passage. A. Radcliffe-Brown has conceived that myths fulfill their function not by appeal to reason but by imagination and through affectation (Radcliffe-Brown 1922). The sacred myths, in particular, owe their power and endurance to associated strong emotional responses.

Ancient myths and modern dreams were found by Jung to contain the same universal symbols and motifs (Jung 1964). The inherent archetypal themes and characters common to myths and dreams imply a similar origin in the perceptual-affective pathways of the nondominant hemisphere. Dreams and myth are a priori manifestations of mind, and the consensus among analytical psychologists is that myths are derived from dreams or related unconscious contents. The boundaries between biblical myth and dreams is often diffuse and veiled in unconscious imagery (Kelsey 1968; Westman 1983). As an embodiment of myth, ritual justifies the moral and social order necessary for survival. The enactment of myth as religious ritual binds individuals to groups and reinforces behavior, according to Ralph Burhoe and Victor Turner (Burhoe 1977; Turner 1983). Mircea Eliade, in reference to myth as "exemplar history" has stated that "every ritual, and every meaningful act that man performs, repeats a mythical archetype" (Eliade 1958, 429). The collective myth creates civilization.

Deity and transcendence. The manifestations of religious experience (that which evokes divine messages and sacred imagery) in calm, excited, and affective states specify a transcendent function that integrates not only the cerebral hemispheres but also involves pathways of the limbic system and brainstem. In states of *unio mystico* or nirvana—the sense of union with the divine is simultaneously one in which both

space and time are transcended. The state of unity is achieved when both conscious and unconscious brains are in harmony and one glimpses and comprehends the universe. When all the polarities are conjuncted, the left and right brains are in perfect phase. The equilibration of the brain's hemispheres produces an aura of timelessness and relationship to the Whole, the All, the Absolute, and Eternal Mind. D'Aquili has equated the experience of unity with the nearly pure functioning of a holistic operator residing in the parietal-occipital area of the right brain (d'Aquili 1978, 257-75). The parietal lobe is the spatial processor of the brain. The American Indian shaman, John Lame Deer, has indicated that his inner sight during trance appears towards the left of the center field of vision—which is controlled by the right occipital lobe (Lame Deer & Erdoes 1972). Hyperreligiosity has been associated with temporal lobe epilepsy (Duffy 1984). Auditory religious experience has the semblance of originating from behind the right ear. From the foregoing observations, there is a high probability that the transcendent function resides close to the juncture of the supratemporal-parietal-limbic areas of the right brain. The transcendent function may be ultimately controlled by the "centrencephalic-integrative-action" of the upper brainstem (Penfield 1975).

In assessing the material wellspring of divinity in the human mind, the question must be posed ultimately as to whether the phenomenon is innate or transmitted or both. If the Christian concept of incarnation is accepted literally, there must exist a specific brain structure that is capable of rendering the ego-Self dialogue. The alternative is an inherent receptor organ that is sensitive to the divine frequency. Assuming that there are many levels of consciousness, the possibilities may be limitless and beyond speculation in the context of current knowledge. The archetypal symbols of divinity (*imago dei*) are often manifest through the inner vision as illuminations—as images that must be perceived via oculatory systems characteristic of REM sleep. Our concept of the God-human derives from the experience via transcendent myth and ritual of the archetypes of the greater Self (Zeus, Christ, Atman, Adam-Kadmon, et al.). Eliade has paraphrased: "Thus the Gods acted—thus men act" (Eliade 1958, 417). The transcendent God, according to Jung, is inferred from the immanent God encountered in the archetypes. The task of the individuation process is to raise the God-images to consciousness and to establish a constant dynamic contact between the ego and the Self (Jacobi 1967, 52-55).

Transcendence and Creativity

In art. The twilight zones of consciousness or hypnagogic states of reverie tend to be periods of inspiration for artists, poets, and musi-

cians. In the hybrid states of such relaxed moods, the flow of novel images and of verse and musical compositions is naturally encountered. Artistic emanations of the unconscious are not limited to tranquil phases but also occur in episodes of turmoil as reflected in the works of William Blake, Ludwig von Beethoven, and Vincent van Gogh. The claim is made in a recent theory that the exceptional artistic skills of the retarded or autistic "savants" is due to a defective left hemisphere and exaggerated development of the right brain (Blakeslee 1980; Schmidt 1983). To a lesser degree the mind mirrors literature, including scripture. The orphic voice appears in the poetry of the transcendentalist essays of Ralph Waldo Emerson (Emerson 1904).

In science. Creative problem-solving in scientific research is not always the result of systematic investigation alone. The so-called eureka response is often experienced in moments of idle preoccupation, dreams, and daydreams. Solutions are frequently derived from analogues—products of right-brained, holistic processes—that link extraordinary phenomena. The moment of intuition has been conceptualized by Todd Siler as "cerebral fusion" as opposed to the "cerebral fission" of the analytical mind (Siler 1983). According to Hadi Madjid and John Meyers, all scientific instruments can be reduced in principal to the operations of a ruler and a clock, that is, a measuring and balancing mechanism (Madjid & Meyers 1984). The brain is also an instrument in this sense and all scientific instruments have been created by it. It is truly the "mother of invention."

Conclusion

The generation of artistic creations and scientific insight appears to be a manifestation of cerebral equilibration and the transcendent function of the brain. Just as harmonious states of mind have developed our ethical and legal systems, the wisdom traditions of Western religion have led to the scientific enlightenment. However, since the Cartesian revolution, there has been an emphasis on mentation of the dominant left brain. The current schizoid mentality has led to a dangerous dependence on technological solutions and artificial intelligence.[1] Our survival, facing nuclear apocalypse and environmental toxins, now demands more creative solutions that are manifest in the transcendent function of the whole brain.

Note

1. A note of caution should be exercised regarding the erection of a "deus ex machina" in the brain based upon computer modeling in the place of a transcendent and humanistic deity. Operators of the latter are still veiled in the mystery of the human mind. Nor is it totally wise at this time to fully equate mind with brain in view of the

limitations of designing conclusive behavioral experiments and analyzing extrasensory phenomena objectively. Clearly, a bridge needs to be erected between mind and brain and in order to construct it a series of models will have to be designed using both hemispheres of the source organ (the mind-brain that mirrors itself and the universe in creation).

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