

THOUGHTS ON THE PSYCHOBIOLOGY OF RELIGION AND THE NEUROBIOLOGY OF ARCHETYPAL EXPERIENCE

by Anthony Stevens

Abstract. There is good reason to suppose that religious belief and ritual are manifestations of the archetypal blueprint for human existence encoded in the genetic structure of our species. As a consequence, religion has become a focus of study for psychobiologists and neuroscientists. However, scientific explanations of religious experience do not “explain away” such experience nor are they substitutes for the experience itself. On the contrary, scientific discoveries may be seen as corroboration of religious insights into the *unus mundus*, the essential oneness of *all* experience, which links human nature with the nature of the cosmos.

I am very honored to have been asked to participate in the conference that produced this issue of *Zygon* in memory of Victor Turner. I cannot be sure, of course, but I imagine that the reason why I was invited to take part was because Victor Turner was kind enough to mention my book *Archetypes* (1982) in his paper “Body, Brain, and Culture in the Ritual Process” (1983). Surprisingly, he did not seem adverse to the suggestion which I develop in my book that essential features of the human life cycle are predetermined from the moment of conception—not only anatomically and physiologically, but psychologically as well. That so eminent an anthropologist should not be outraged by such an idea was source of delight and encouragement to me.

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THE INTERDISCIPLINARY APPROACH: ARCHETYPES AND THE NEW SYNTHESIS

As Turner himself observed, my view ran contrary to a major prejudice which has prevailed in the human sciences for the greater part of this century—namely, the unquestioned conviction that all human behavior and all human experience is the result of social and environmental conditioning. Instead, I rejected the fashionable conception of the human individual as a psychic *tabula rasa*, a blank slate capable only of passively recording the experiences which lie inscribed on it, and argued that the human personality is not the mere result of conditioning any more than our bodies are purely the product of the food we eat.

Towards the end of his life, Turner came to share this view, and this forced him, as he confessed, “to submit to question” the axioms which anthropologists of his generation “were taught to hallow” (Turner 1983, 221). While none of his contemporaries had labored under any doubt that the *physical aspect of the human life cycle* was preordained and proceeded under genetic control through the usual sequence (interuterine life, infancy, childhood, puberty, adolescence, maturity, senescence, senility, death), few, if any, of them shared my belief that the *psychosocial aspect of the life cycle* is also subject to genetic influences and that it passes through the same preordained sequence in everyone, except when subjected to pathogenic influences. In *Archetypes* I attempted to examine some of the ways in which the microhistory of the individual human being may be grafted, so to speak, onto the macrohistory of the species, and I suggested that the process occurs through a number of preestablished or “archetypally determined” stages—the stages of life. My development of these themes evidently intrigued Turner because what I had to say was in close agreement with his views on the role played by ritual in the cultural life of humankind, namely, that “performances of ritual are distinctive phases in the social process, whereby groups and individuals adjust to internal changes and adapt to their external environment” (Turner 1983, 223).

Turner’s doubts about anthropology’s rejection of genetic controls as having any cultural implications for human beings began to arise when he attended a conference in London in 1965 on “Ritualization of Behavior in Animals and Man,” where he was first exposed to the argument advanced by the ethologists (biologists who study the behavior of animals in their natural environments) that ritual represents *an adaptive form of behavior* in human beings no less than animals, that it is neurophysiologically motivated, and that it is subject to evolution through natural selection. As the years passed he was impressed by the possible consequences for his own discipline of findings coming not only from ethology but from genetics and neurology as well. He found

himself wondering with Ronald Grimes (1982) how much longer anthropology might expect to escape the responsibility of taking into account the autonomous "rhythms and structures" of "our own bodies and psyches."

As a result, Turner began to reexamine his knowledge of ritual, myth, and religion in the light of R. W. Sperry's work on the lateralization of function in commissurotomed patients, Paul MacLean's concept of a "triune brain," the views of Eugene d'Aquili and Charles Laughlin concerning the "ergotropic" functions served by the left cerebral hemisphere and sympathetic nervous system in contrast to the "trophotropic" functions of the right hemisphere and parasympathetic system, and the speculations of Ernest Rossi, Jim Henry, and myself about the possible neurological bases for Carl Jung's theory of archetypes. Turner died before he could present any coherent integration of these approaches, but his description of some of the elements involved, together with his stimulating conjectures as to how they might be interrelated, provided sufficient impetus to stimulate the discussion resulting in this and the next issue of *Zygon*.

Sadly for me, Turner and I never met. But I believe that we shared a similar disenchantment with the theoretical assumptions on which our respective disciplines were based, and that we held a similar conviction that to accept uncritically an academic prejudice is to become its puppet, to lose one's intellectual vitality, and to surrender all capacity for originality or growth. We both saw that psychology and psychiatry, as well as sociology and anthropology, were in danger of becoming self-serving and sterile because of a form of selective myopia which resulted in a refusal to examine their data in a biological or phylogenetic perspective. By denying the phylogenetic dimension they rendered themselves incapable of seeing the wood for the trees. They could not perceive the phenomena of human life *sub specie aeternitatis*.

Since the late nineteenth century, psychology and psychiatry have attempted to explain their observations in terms of the individual's *personal* history, with little or no reference to the history of nature of the species. In the same way, anthropology has been obsessed with the details of how one culture differs from another, seeing each culture as a law unto itself and entirely determined by variations in local climate, geology, and child-rearing practices. Until very recently anthropologists seem to have forgotten Adolf Bastian's teaching that, although local customs may differ, all human cultures have more in common than differences between them. Apart from Jung, Robin Fox, Lionel Tiger, and a few others, hardly anyone in the twentieth century has concerned himself with those things which all men and women in all cultures have in common, or has asked to what extent these univer-

sal features might be susceptible to a purely biological explanation. Everyone else has overlooked the simple fact that the forms that human cultures adopt are themselves archetypally determined. As any Martian anthropologist studying us from his or her spaceship could tell you, all cultures, whatever their geographical location or historical era, display a large number of social traits which are themselves diagnostic of a specifically human culture.

Knowledge is, after all, a matter of imposing order on chaos. All scientific advances come from seeing relations between things, for example, from the use of the comparative method to discover homologous structures and functions throughout nature. Systematic application of the comparative method enabled Charles Darwin to find homologues in anatomy, Konrad Lorenz (1977) to demonstrate homologues in behavior, Fox (1980) to examine homologues in kinship patterns, and Jung to trace homologues in symbols. It was the universal occurrence of homologous symbols and mythologems that convinced Jung of the existence of universal structures in the human mind, what he called the archetypes of the collective unconscious.

The archetypal hypothesis proposes that we possess innate neuropsychic centers which have the capacity to initiate, control, and mediate the common behavioral characteristics and typical experiences of all human beings irrespective of race, culture, or creed. The archetypal endowment with which each of us is born presupposes the natural life cycle of our species—being mothered, exploring the environment, playing in the peer group, puberty, adolescence, being initiated, establishing a place in the social hierarchy, courting, marrying, child-rearing, hunting, gathering, fighting, participating in religious rituals, assuming the cultural responsibilities of advanced maturity, senility, and preparation for death.

This theory of human ontogeny is in some ways akin to Jean Piaget's notion that mental development proceeds on the basis of an innate series of stages, Fox's idea that there exists in every individual an inbuilt program for learning, H. F. and M. K. Harlow's belief that social development depends on the maturation of a sequence of affectional systems (Harlow & Harlow 1965), and so on. What we are all saying in our different ways is that the human being may be conceived of as a psychophysical system with a built-in "biological clock": the structure, function, and life cycle of the system are predetermined by the evolutionary history of its genes. As the biological clock ticks away and the life cycle unfolds, so the system accepts and incorporates into itself the life-experience of the individual. But what you and I experience as the whole process is, in fact, only the end result. We are aware only of the ontogenetic (personal developmental) aspects of our own maturation,

and we are largely unconscious of the phylogenetic blueprint on whose basis it proceeds. This goes a long way towards explaining our readiness to give credence to behaviorist and learning theorist accounts of human psychology, which look no further than the conditioning to which each individual has been subjected in his lifetime.

It is characteristic of all archetypal notions that they recur in different places, at different times, and in different guises; and it is not surprising that this also applies to the theory of archetypes itself. Thus, the theory has been rediscovered and propounded in different terminologies by the ethologists (Lorenz's innate releasing mechanisms), Gestalt psychologists (Wolfgang Kohler's isomorphs), developmental psychologists (John Bowlby's behavioral systems), biologists (Ernst Mayr's open programs), anthropologists (Fox's biogrammar), and psycholinguists (Noam Chomsky's language acquisition device). It seems highly probable to me that neurobiology can make a valuable contribution to the achievement of a synthesis between these different approaches to archetypal processes and, ultimately, to the foundation of a unified science of humanity. A start has already been made in this direction with the advancement of suggestions as to the possible neurological loci for archetypal functioning (Henry & Stephens 1977; MacLean 1975; Stevens 1982) and the neurological role of dreaming in integrating the ontogenetic and phylogenetic elements of the psyche (Jouvet 1975; Smith et al. 1974; Winson 1978).

THE RELIGIOUS ARCHETYPE

The archetype of central interest for us in this essay is that of religion, and the question which must preoccupy us is to what extent this archetype is susceptible to biological study. There is a growing body of opinion that religions can be studied as psychobiological phenomena. And like other biological phenomena they can be seen to evolve in directions which enhance the welfare of those who have them. E. O. Wilson (1978), the sociobiologist, believes that elementary religions give way to more sophisticated ones through a sort of cultural Darwinism: those which promote survival gain adherents and grow; less successful religions lose adherents and disappear.

It may be objected that selection operates on individuals and not on groups, but it is undeniable that most animals live in groups which retain a corporate identity, that this corporate identity survives through comparatively long periods of time, and that it is in the context of the group that the genes of individuals are selected. Moreover, while it is true that in human groups religions play a vital role in maintaining group identity and cohesion, religions also speak directly to individuals and profoundly influence their behavior no less than their beliefs.

In their book *The Biology of Religion*, Vernon Reynolds and Ralph Tanner (1983) argue that cultural evolution operates through an interactive process which involves both cultural selection (through human choices) and natural selection (through reproductive success). Thus, religions instruct people to behave in specific ways which result in them having more or fewer children, catching or avoiding certain diseases, marrying early or late, practicing celibacy or polygamy, and so on. Such intimately personal matters are of major biological significance for the survival of the group, and yet they are understood by individual men and women purely in terms of conformity to or deviance from the dictates of their religion.

That religion does possess an archetypal basis in human nature Jung was in no doubt. His extensive studies in comparative mythology and religion, as well as his clinical insights into the function of religious symbolism in his patients and in himself, convinced him that all religions are true expressions of the biological reality of the Self. (The Self is Jung's term for the central coordinating nucleus of the entire archetypal endowment of the human individual.)

THE PSYCHOBIOLOGICAL FUNCTIONS OF RELIGION

If religions are indeed psychobiological entities, what functions do they perform and why did they evolve in the first place? The following are what I take to be their essential functions.

Mythological/explanatory function. Religion provides believers with a coherent story-explanation as to how things began and how a special relationship came to be formed between the community and its gods.

Sanctification of the ethical code. Religion ensures group cohesion by granting absolute validity to the moral code on which society is based and by inducing individuals to sacrifice their narrow self-interest to the wider interests of the community as a whole. As long as a religion is able to perform this function it promotes the survival of the group which adheres to it.

Ritual function. As Emile Durkheim maintained, religious ritual rejuvenates and reaffirms the morals and beliefs of the collective. By prescribing rites of passage to mark crucial stages in the life cycle of each member of the community—what Arnold van Gennep ([1908] 1960) called the individual's "life crises"—religious rituals linked the individual to the group and the group to the individual, ensured group participation in the great events of the individual's life, heightened consciousness of the transformation the individual was undergoing,

and gave the courage to move on to the next stage ordained for the individual. Thus, in addition to ensuring group cohesion, religious rituals promoted the psychic health of the individual as well as the community. Human cultures before our own have all been alive to the dichotomy of the sacred and the profane—the sacred being a transitional state through which the individual passes at special moments of his life. For as long as one is in this special state one is “sacred” to those remaining in the “profane” mundane state. Once one has passed through the transitional state, one has then to be *incorporated* into a new status and returned to the profane realities of life. At the psychic level, the sacred realm is linked to the activity of the phylogenetic (collective) psyche, and the profane to that of the ontogenetic (personal) psyche: the symbolic, ritual elements of the rite possess intense (sacred) numinosity for the candidate because of the archetypes they constellate in his or her psyche. Religious rituals are, therefore, a powerfully effective means of welding the microhistory of the individual (personal psyche) onto the macrohistory of the species (collective psyche). Dreams perform a similar function.

Spiritual function. In the most advanced cultures, this has been regarded as the most exalted function of religion—the perception of a transcendent meaning, the sense of participating in a higher purpose soaring far above the mundane preoccupations of the purely personal ego, the experience of the *numinosum*, the feeling of awe and wonder, and *participation mystique* in the order of nature and the great dance of the universe.

THE RULE-LEARNING DEVICE

That religions clearly possess such critical importance for the survival of human populations would tend to confirm Jung’s belief that they have an archetypal basis in the nature of our species. Indeed, the very universality of religious phenomena, combined with the unquestioning way in which the great majority of individuals have traditionally retained the beliefs of the culture into which they were born, suggests the existence of an innate imperative to learn a whole complex of religious, mythological, political, ethical, and social rules. It may well be that the spur that encourages us to learn and conform to these rules is fear of rejection and abandonment as various schools of analysis maintain, but such sanctions merely serve to affirm an imperative already present in the genome—a phylogenetic instruction *to learn the rules*.

I think it likely that this innately determined “rule-learning device” functions as an “open program” much like Chomsky’s language acquisition device: it is a neurophysiologically based complex primed to be

programmed with the religious/mythological/moral “vocabulary” of the culture. Thus, every child is born with the built-in assumption that his or her community will possess not only a language which he or she will quickly pick up but also an interrelated system of beliefs and values which he or she must acquire and conform to. The survival value of such a rule-learning device is evident. All societies codify themselves, and their success and continuity depends on the readiness of new members to learn the code. The alternative is social anarchy and a collective incapacity for competition or defense. If societies fail to codify themselves efficiently, therefore, or lose faith in their doctrines, they are gravely at risk. For in addition to the social tension that this lack of conviction brings, parents no longer know how to educate their children, and their children, in turn, fail to actualize the religious and ethical potential of the Self.

KNOWLEDGE, TRUTH, AND MEANING

We are invited to consider the question, Does neurobiology matter? At first sight this is an irritating question. Does religion matter? Do the Olympic games matter? Does psychology matter? Does anything matter? I can only answer for myself and say that, for me, neurobiology matters only inasmuch as it contributes to the perception of meaning, only as long as it satisfies the archetypal imperative to comprehend. So, does neurobiology contribute to our perception of meaning? Does it satisfy the age-old need to comprehend? I believe that it does, but only when its findings are related to those of other disciplines. Human consciousness is not a simple, unitary phenomenon which can be assumed to possess a discrete cerebral location; rather it is a richly complex process depending upon a vast network of cortical and sub-cortical structures. Similarly, truth cannot be confined to any one discipline: each must serve interests other than its own if consciousness of our total situation is to be heightened.

My interest is in integration. I am in the business of synthesis. I believe neurobiology can make a major contribution to this synthesis, and it interests me for this reason. Of course, I approach it quite shamelessly from the standpoint of my own discipline, but I imagine I am not alone in this. Perception and understanding are, after all, largely matters of selection and interpretation in the light of archetypal preparation and individual experience. I guess that many readers of *Zygon*—apart from the neurobiologists themselves, I hasten to add—have a touch of the intellectual magpie about them, ready to grab neurobiological loot with which to line their own academic nests. We all of us have an interest to declare, but there is nothing so very wrong with that. It is how percepts are formed and knowledge extended. New

percepts are assessed in the light of already existing knowledge, loaded with affect, and made potentially available to conscious experience: the perceptual-affectual activities of the right hemisphere and midbrain are combined, via the corpus callosum, with the abstract, analytical, verbal activities of the left. These cerebral processes, functioning as an enormously complex and integrated totality, are evidently the very stuff of consciousness; they are the consequence of the brain functioning as a whole rather than of processes occurring in any specific group of neurones (apart from those of the reticular activating system of the brain stem, which seems to be the powerhouse driving the whole complex of systems subserving consciousness). In other words, consciousness consists of "putting things together." So does consciousness of truth or meaning. Human awareness can only advance through a synthesis of many disciplines.

So, let me declare my own interest here and now. My personal concern with neurobiology is to extract what help I can from it to advance my understanding of the archetypal processes which underlie the typical experiences of human life. At the same time, I am glad to feed back to the neurobiologists anything from my own discipline which will advance their understanding of the neurochemical processes which are the focus of their concern. In this way we mutually advance knowledge, approximate closer to truth, and, above all, create meaning. Meaning is essentially the perception of connections between things, understanding how they function in relation to each other, and how they fit in with the universal order. Perception requires light, and the perception of meaning involves casting light in areas previously filled with darkness. Moreover, the perception of meaning is enhanced by throwing different intensities of light on a thing from different angles. Neurobiology is but one source of light. From my point of view, the thing I want neurobiology to illuminate is the archetype. Inasmuch as neurobiology succeeds in doing that, for me it matters.

It was very much in this spirit that I wrote my book on *Archetypes*. The manner in which workers in so many different disciplines were rediscovering the archetypal hypothesis encouraged me to believe that we could be on the brink of establishing a unified science of humanity. However, I entered a fervent plea that the new science should not become the monopoly of the left hemisphere, that its essential humanity should be preserved by permitting equal status to the right hemispheric functions of intuition, feeling, and poetic insight. If we are to insure the development of a balanced, humane science (rather than an arid biotechnology), I suggested that the archetypal hypothesis as proposed by Jung should be examined as the articulating principle capable of uniting the natural sciences as a whole.

I do not think this was an extravagant suggestion. Jung had himself paved the way for it by proposing that archetypal structures were not only fundamental to the existence of all living organisms but that they were also directly continuous with structures controlling the behavior of inorganic matter. In Jung's later formulations, the archetype became "the bridge to matter in general" (Jung 1953-78, 8:para. 420). Ultimately, he believed, the distinction between organic and inorganic matter is artificial. Like the distinction between mind and body, it was a hypothetical construct developed to assist our comprehension of reality.

What Jung termed the archetype, Francis Crick once described in a pub conversation with James Watson, his co-discoverer of the structure of DNA, as "the perfect biological principle" which governs the self-replication of genes (Watson 1968). The operation of this perfect biological principle assures the perpetuation of each species, whose characteristics are encoded in its genotype. Perpetuation of the genotype depends upon perpetuation of matter, but with one important proviso—that what is passed from generation to generation is a structure, a *characteristic patterning* of matter: it is the pattern which forms the *replicable archetype* of the species.

The archetype thus possesses a fundamental duality: it is both psychic and nonpsychic. At the same time, it is one in being the essential precondition of all psychophysical events. As a consequence of its dual nature, however, the archetype achieves expression (it is "actualized," as Jung would say) both on the objective level of outer behavior and on the subjective plane of inner experience. In his essay, "Mind and Earth," Jung wrote, "the archetypes are as it were the hidden foundations of the conscious mind, or, to use another comparison, the roots which the psyche has sunk not only in the earth in the narrower sense but in the world in general. Archetypes are *systems of readiness for action*, and at the same time *images and emotions*" (italics added, Jung 1953-78, 10:para. 53). In this conception of the archetype as the common origin of both behavioral and psychic events, Jung made a contribution of the highest significance, for it would heal the cruel division between mind and matter inflicted on our culture by that schizoid philosopher René Descartes.

Followed to its logical conclusion, Jung's seminal concept carries us out of the realms of psychology and anthropology, and beyond the confines of biology itself. Jung's view of the material, nonpsychic aspect of the archetype was embraced by the physicist and Nobel Laureate Wolfgang Pauli, who saw it as a major contribution to our understanding of the laws of nature. For Pauli the archetype represented a sort of "missing link" between the material world, which is the legitimate study

of physical science, and the mind of the scientist who studies it. Jung's postulate was not just "the bridge to matter in general" but to a "cosmic order independent of our choice and distinct from the world of phenomena" (Pauli 1955, 152). The relationship between the physical world we perceive and our cognitive formulations concerning that world is "predicated upon the fact that the soul of the perceiver and that which is recognized by perception are subject to an order thought to be objective" (Pauli 1955, 152).

Now this, it seems to me, is a statement of the utmost importance, for at a stroke it would serve to integrate science with religion. What Pauli is saying is that the archetypes which order our perceptions and ideas are *themselves* the product of an objective order which *transcends* both the human mind *and* the external world. Pauli goes on to affirm the insight, originally advanced by the seventeenth-century German astronomer Johannes Kepler, that his delight in scientific discovery was due to the mental exercise of matching "inner ideas" or images, already implanted in his mind by God, with external events perceived through his senses. He spoke of these "inner ideas" as "archetypal." Echoes of the same notion are to be found in Immanuel Kant's dictum (1848) that "there can be no empirical knowledge that is not already caught and limited by the *a priori* structure of cognition." A position similar to Kepler's and Pauli's was developed by Lorenz, who for a time held Kant's chair at the University of Königsberg. Lorenz did not share his predecessor's doubts as to whether our senses give us a true and accurate picture of what the objective world is "really" like because, says Lorenz, "our cognitive apparatus corresponds to actual realities": that is to say, our cognitive apparatus is *itself* an objective reality which has acquired its present form through *evolutionary adaptation to the real world*. As a result, human cognition bears the stamp or imprint ("archetype") of the outer world to which, in the course of evolution, it has become intimately and specifically adapted. Lorenz's view is very close to Jung's statement that "the form of the world" into which the child is born "is already inborn in him as a virtual image" (Jung 1953-78, 7:para. 300).

This brings us to a most interesting question. If archetypal reality accurately mirrors cosmic reality and if part of that archetypal reality is concerned with religious experience, does this mean that such experience must be objectively real? As real, say, as our experience of a sweetly scented rose on a summer evening? In other words, does the fact that I experience God mean that there must be a God out there for me to experience? Or is that experience, as Sigmund Freud maintained, an "illusion"?

As I have already said, the religious archetype would seem to be a fundamental attribute of our psychic endowment as a species. "When I

say as a psychologist that God is an archetype," wrote Jung, "I mean that the 'type' is in the psyche. The word 'type' is, as we know, derived from the Greek word *τυπος* 'blow' or 'imprint': thus an 'archetype,'" concludes Jung, "presupposes an imprinter" (Jung 1953-78, 12:para. 15).

Now, although Jung acknowledges that the existence of a God "imprint" in the psyche presupposes a God "imprinter," he stops short of making the assertion that the existence of the God archetype proves anything about the existence of God. "The idea of God," he said, "is an absolutely necessary psychological function of an irrational nature, which has nothing whatever to do with the question of God's existence. The human intellect can never answer this question, still less give any proof of God. Moreover, such proof is superfluous, for the idea of an all-powerful divine Being is present everywhere, unconsciously if not consciously, because it is an archetype" (Jung 1953-78, 7:para. 110).

Jung is, I believe, right to stress the limitations of human intellectual understanding and right again to attribute objective value to our non-rational faculties as products of nature. As J. B. S. Haldane once warned, our universe may not only be a more mysterious place than we imagine but a more mysterious place than we *can* imagine.

So, if all religions are, as Jung maintained, true expressions of the biological reality of the Self, does this mean that all religions are true? It depends on what you mean by truth—whether the kind of truth you want is, to put it crudely, left hemispheric "scientific" truth (truth expressed in rational, logical statements of fact which can be objectively, experimentally, and historically verified) or right hemispheric "intuitive" truth (truth expressed in insights which are formulated intuitively and experienced symbolically). In his remarkable book *The Flight From Woman*, written before Sperry demonstrated that we possess "two minds," Karl Stern (1966) says: "Simple self-observation shows there exist two modes of knowing. One might be called 'externalization,' in which the knowable is experienced as an *ob-ject*, a *Gegen-stand*, something which stands exposed to me; the other might be called 'internalization,' a form of knowledge by sympathy, a '*feeling with*'—a union with the knowable. Of this distinction there is no doubt. Whether the terms 'analysis,' 'scientific knowledge,' 'discursive reason' are perfectly synonymous or refer only to a common denominator does not concern us here. The same is true about the terms 'intuition,' 'poetic knowledge,' 'knowledge by connaturality.' The only thing of importance in the present context is a basic duality in the mode of knowing." This I think is a striking instance of how brilliantly introspection can anticipate scientific discovery.

What Stern called "intuitive knowledge," "poetic knowledge," "knowledge by connaturality" clearly corresponds to what we now

know about the right hemispheric mode of knowing. It also corresponds to the “absolute knowledge” of Buddhism, which resists communications through the left hemispheric mode of words and logic. As the opening line of the *Tao Te Ching* puts it so succinctly, “The Tao that can be expressed is not the eternal Tao”; and there is a Zen dictum to the effect that the moment you speak about a thing you “miss the mark.” Thus, the deepest spiritual insights cannot be defined or proved, only *experienced*. “Religious experience is absolute,” wrote Jung; “it cannot be disputed. You can only say that you have never had such an experience, whereupon your opponent will reply: ‘Sorry, I have.’ And there your discussion will come to an end” (Jung 1953-78, 7:para. 167).

Religious experience is, therefore, a nonintellectual perception of reality arising from a nonordinary state of consciousness of the type achieved through meditation or contemplation. Our predominantly left-hemispheric culture is hostile to such states of mind because they are not materially productive.

Clearly, the right hemisphere makes a crucial contribution to the “varieties of religious experience” accessible to the human animal, while left-hemispheric functioning is indispensable to the systematic formulation of the dogmas, principles, articles of faith, creeds, and so on, which are the very stuff of theology. The profoundest religious apperception presumably requires the integrated functioning of both hemispheres; and whether this occurs through “a rapid functional alteration of each hemisphere” operating “via a mechanism of mutual inhibition at the brain stem level,” or by “spillover” or “rebound” between the ergotropic and trophotropic systems as d’Aquili and Laughlin suggest (1979) must remain open to dispute; but I would like to add to these conjectures by proposing that in all forms of religious experience, the right-hemispheric, trophotropic systems are primary and the left-hemispheric, ergotropic systems secondary.

Since the Renaissance, we have increasingly attributed primacy to the left-hemispheric, ergotropic systems; and this has coincided with a rapid decline in Christian conviction throughout the Western world. The trouble is that the left-hemispheric formulations of religious experience, which seemed appropriate and acceptable to our ancestors up to the publication of Darwin’s *Origin of Species*, no longer carry conviction for the great majority of our contemporaries; and, since left-hemispheric functioning now holds primacy in religious affairs, the right-hemispheric components of Christian life have been denigrated, devalued, and allowed to atrophy with disuse. Increasingly, the pronouncements of religious leaders and theologians reflect a left-hemispheric preoccupation with profane, socioeconomic actualities,

largely uninformed by right-hemispheric insights into the sacred life of the spirit. Many of them, even when they discuss theology, talk as if they were, in a manner of speaking, successfully commissurotomized. As Jung says, "Theology does not help those who are looking for the key, because theology demands faith, and faith cannot be made: it is in the truest sense a gift of grace. We moderns are faced with the necessity of rediscovering the life of the spirit: we must experience it anew for ourselves" (Jung 1944, 140).

An important conference on the contemporary condition of the Church of England held in 1983 at Windsor agreed that the Church was completely failing in its spiritual responsibility to people and merely devoting itself to fashionable causes; that vast amounts of time and money were being fed into a bureaucracy which is growing like a cancer and strangling the spiritual life of the Church; and that the spirit was being crushed under a mountain of synods, boards, committees, courses, and meetings while virtually nothing was done to uphold the mystery of the Holy, the inestimable value of meditation, of silence, and of prayer. The conference concluded that, if the Church is to survive, it must abandon its obsession with politics and recognize that nothing can supersede the intimate communion of person with person, of soul with soul: what was needed was "a return to Christ through the heart."

The ecclesiastical retreat from the realm of the sacred into the last ditch of the profane gives sanction to what Mircea Eliade calls the "systematic banalization of the world." A notorious example of this occurred very recently in England when the Bishop of Durham elect announced that, in his view, and in the view of many of his fellow clergy, it is no longer necessary to believe in the Resurrection or in the Divinity of Christ in order to count oneself a Christian. Thus does the Church betray the supposedly eternal principles on which its *raison d'être* is based in order to put itself in collusion with the contemporary *Zeitgeist* which would abrogate all that is sacred and render the world profane, while, at the same time, ignoring the fact that rendering the world profane makes possible its wholesale profanation. If we lose our capacity to experience the *numinosum* we lose our ability to feel awe and respect for creation, which we then treat as a thing alien, exploitable, and devoid of all rights. And we degrade ourselves to the level of greedy parasites too stupid to recognize that we are destroying the host off which we live.

If a neurobiological substrate mediating the experience of the *numinosum* exists, then it is because such experience has been found by Nature to be indispensable both to the survival of our species and to the balance of the ecology on which our survival depends. But we should never forget that neurobiological "explanations" of the *numinosum* can

be no substitute for its experience. Our religious intuitions have always led us to assert that we—humankind—alone among all the animals of creation, speak with authority on account of our special relationship with the gods. We are their privileged servants here on earth, and all that we do is in their name. Primitive religions, in their various ways, portray human beings as the messengers between heaven and earth. More advanced religions express the same idea. To the Muslims, humanity is the viceroy placed by god over creation; to the Hindu, the human spirit is one with the eternal and infinite Brahman; to the Christian, humanity is made in the Image of God.

The religious archetype informs us, therefore, that we are here to serve God hermeneutically—that we are the means of communication between our portion of the cosmos and all that lies beyond. This is our sacred mission, and, inasmuch as we perform it, we experience the *numinosum*. Anything less than this debases the meaning and impoverishes the experience of life. The worship of profane idols—Social Justice, Sexual Equality, State Socialism, the Free Market, Professional Eminence, and so on is simply not enough. To know ourselves to be the messengers of God is essentially right-hemispheric knowledge, but merely to express this as a function of neuronal activity is to imprison it in a set of left-hemispheric categories and to deny ourselves the experience of its meaning.

THE ANTHRŌPOS

The sacred view possesses supreme value, for it elevates the experience of human life above the mundane practices of subsistence. It enables the least among us to perceive the significance of all human acts and to comprehend the responsibility which each of us carries towards each other, towards our fellow creatures, and towards our planet. Above all, it makes us aware that each of us possesses a dual nature, that we are both temporal and eternal, that although we are subject to the conditions and constraints of our daily lives we nevertheless transcend them through the nature of our humanity. Although all religions teach this, Jung was the one psychologist of stature in the twentieth century to perceive its fundamental importance. And he was convinced that it was the catastrophic loss of this perception of our essential duality that was making us collectively ill, a sickness which he diagnosed in the witch doctor's classification, "loss of soul." "Among all my patients in the second half of life," wrote Jung, "—that is to say over thirty-five—there has not been one whose problem in the last resort was not that of finding a religious outlook on life" (Jung 1944, 264).

He saw that humanity's obsession with the extraction of material benefits had coincided with the hypertrophy of the extraverted think-

ing function and the repression of introverted feeling and intuition—a state of affairs which I have termed, with the benefit of neurological hindsight, left-hemispheric imperialism. This has gone along with the abrogation of eternal values and a progressive narrowing of historical perspective which has effectively cut us off from the past and the future. Yet, for all our computers, jet planes, automobiles, telecommunication satellites, weapons technology, air conditioning, sky scrapers, and television sets, our human nature remains fundamentally what it has been from the very beginning. “Ultimately,” wrote Jung, “every individual life is at the same time the eternal life of the species” (Jung 1953-78, 11:para. 146).

The remedy which Jung proposed for the collective illness afflicting our culture was “a rediscovery of the life of the spirit.” To achieve this he did not advocate a “return to the Church” or a regression to the “well-tryed values of our forefathers” because he regarded such exhortations as futile attempts to reverse the tide of history. What he believed necessary was hard psychological work on the part of individuals to achieve in actuality the realization of their own potential for wholeness—a process which he called “individuation”—thus opening the human mind once more to the life-enhancing power of symbols and the experience of transcendental meaning. He had no doubt that spiritual exercises such as meditation, contemplation, dream analysis, and active imagination advanced the individuation process, partly on the empirical grounds of his own clinical experience and partly as a consequence of his convictions that nature is not only outside the individual but inside as well; that the phylogenetic psyche (incorporating the archetypes of the collective unconscious) is a portion of nature itself; and that there exists, in a very profound sense, a hidden connection between human nature (the Self) and the Cosmos. In other words, his therapeutic techniques were designed to stimulate and activate the mythopoetic layers of the psyche.

The Self, Jung believed, not only constitutes the evolutionary history of our species (what he sometimes referred to as the two-million-year-old human being within us) but lies at the heart of all religious intimations as to the essential oneness of life—the *unus mundus*, the *satori* experience of Zen Buddhism. All over the world, wherever human cultures have been established, people have expressed the notion of wholeness, oneness, and union with the divine principle in a fourfold or circular configuration which in Sanskrit bears the name of *mandala*. In Eastern traditions in particular the mandala is the central symbol denoting the *cosmic individual* and the oneness of all existence.

The cosmic individual fascinated Jung, and he returns to this great all-encompassing symbol again and again in his writings. He called it

the *Anthropos*. What intrigued him was that mythology presents the Anthropos not only as the common ancestor of all humanity but as the *prima materia* out of which the cosmos itself was created. This again stresses our connaturality with all existence—that our human nature is subject to the same laws as all nature: each reflects the other and both are the product of the same evolutionary process. Creation myths produced by peoples all over the world emphasize the archetypal unity of all mankind: all humanity has a common origin; we share a common soul.

This all lends support to what I take to be Jung's greatest contribution: his insistence on the *objective* reality of the psyche—that the psyche is as real, as existent as the physical world of organic and inorganic matter. For him, the psyche was the most significant expression of the natural order. The Anthropos is the symbolical expression of this truth. It represents the human spirit as a primary, universal fact of nature, and it is not concerned with the ego-centered distinctions we make between ourselves. So wide is its embrace that it transcends our petty snobberies, our religious and political intolerances, and our obsessions with class, race, nation, or creed. Its total comprehensiveness would reconcile black with white, male with female, young with old, and rich with poor. As with Christ—the Anthropos symbol of our culture—it is both “King of Kings” and “the least among us.”

The largest, most enduring cultures in the history of the world have all owed their identity and cohesion to the Anthropos symbol at their heart: Buddha, Christ, Mohammed. These highly individuated men, who in their own lifetime achieved the fullest possible realization of the Self, appeared to those who followed them as the living embodiment of the “cosmic man,” the Anthropos, and, consequently, as the guide to the Way of individuation.

But in our own time, the salience of our Anthropos symbol has weakened, with consequences which could prove fatal for our culture and our species. Marie-Louise von Franz (1975) of Zurich, however, gives us some reason to hope that the outcome could be otherwise: she believes that as the Christ symbol loses its power, a new Anthropos figure must be forming itself in the unconscious of all those men and women who were once Christian. As yet we can only intuit the attributes of this prenascent figure, but it is clear that it must be more complete, more world embracing than any that has preceded it. I say this because of the historical moment we have reached. For the first time in the evolution of human consciousness, the world has become a spatial and temporal unity. Henceforth, any religious perspective must take the global view. We are no longer in a position to believe in the God of one established religion to the exclusion of all others.

While it is true that the symbols with which we are brought up inevitably remain the most potent, the most numinous, for each of us, it also has to be recognized that, in the present circumstances, to be an *exclusive* Protestant, Catholic, Mohammedan, or Jew is to stand convicted of cultural provincialism. Christianity is, of course, a rich expression of the human quest for spiritual truth, but, if Anthony Wallace (1966) is to be believed, it is only one in a hundred thousand such expressions which have been formulated since our species began. How can we possibly maintain that Christianity, or the particular version of Christianity prevailing in the neck of the woods where we happened to grow up, is the one and only approach to the Eternal that possesses absolute validity? In the circumstances prevailing on our planet, we will do well to relinquish all chauvinism of the spirit and to meditate on the implications of the Anthropos. For, as von Franz maintains, it is the only symbol capable of healing our divisions and reconciling the fearful oppositions emerging between us—in the name of our common humanity.

The problem is that, thanks to the astronauts and their marvelous photographs, we have come to see our planet as a unity before we have seen our species as a unity. We are still in the grip of what Erik Erikson calls "pseudo-speciation": we continue to treat our fellow men and women of different color, nationality, or creed as if they belonged to a different species from ourselves. The ecumenical movement is a timely attempt to counter this by establishing the immemorial unity of the human spirit, but it keeps falling victim to our ignorant propensity to divide ourselves into different "species," as do the Protestants and Catholics, for example, in Northern Ireland.

Yet, despite all the corners of the earth which for millennia we humans have occupied, all the different climates and geographical conditions we have mastered, the remarkable truth of the matter is that we have all remained genetically the same. If any other species than ours had succeeded, as we have done, in colonizing virtually the whole planet, it would doubtless have been compelled to use genetic means of adaptation, and, as a consequence, different subspecies would have evolved, as among Darwin's finches on the Galapagos Archipelago. But our species has used cultural rather than genetic means to adapt to widely differing conditions. While it is true that a tiny number of human adaptations have been genetic (skin color for instance), nevertheless, scientific studies have demonstrated remarkable genetic uniformity between all the people of the earth. Such differences as do exist between different populations are of gene frequencies only. The genes themselves remain unaltered from Greenland to Tierra del Fuego. Again, this truth is embodied in the beautiful and moving symbol of the Anthropos.

So, if our biological nature as a species provides the archetypal foundation for all the typical experiences of human life, it follows that we may eventually hope to share a global religious-mythological perspective. A shared actualization of the Anthropos could lie at the heart of all mutual understanding, all altruism, all empathy—not just in the form of Christian love or Buddhist all-compassion. The capacity for such actualization exists as potential in all of us; but in the past it has been actualized provincially (that is to say, at the tribal, sectarian, or national level) and never globally. The worst evil of provincialism is the way it encourages hostility for other provincials: now that our planet has become a nuclear arsenal as well as a global village, we can no longer afford this luxury. The religious imperative on all of us is to actualize the Anthropos on a transpersonal, transnational, transideological plane.

CONCLUSION

In championing a multidisciplinary approach to the study of our species and the resolution of its problems I am adopting a standpoint very close to that of Fritjof Capra (1982), who proposes that we should adopt a new vision of reality, a view that stresses not the disparate atomization of the world (the approach of Descartes and Isaac Newton) but the essential interrelatedness and interdependence of all phenomena—physical, biological, psychological, social, religious, and cultural. Capra's theme is that our entire planetary ecosystem consists of a dynamic and highly integrated web of living and nonliving forms, and that we can only understand parts of the system in terms of the whole.

The survival of life on earth depends on the healthy continuity of this planet's total ecosystem, or biosphere, which is responsible for regulating the chemical composition of the earth's atmosphere, the salt content of the oceans, the distribution of trace elements in plants and animals, the temperature of the earth's surface, and the intact interdependence of the vastly intricate biochemical chains on which all living organisms depend and to which they contribute. So elaborate, sensitive, and mutually dependent are these global transactions that the chemist James Lovelock and the microbiologist Lynn Margulis maintain that their functions can be understood only if we conceive the planet as a whole as *a single living organism*, of which we are all contributory parts.

Lovelock (1979) recognizes that this startling hypothesis is not original; it represents the scientific resurrection of an ancient myth. He has, consequently, christened it the "Gaia hypothesis," after Gaia, the Greek goddess of the earth. (Could it be that the new Anthropos is about to

take the female form?) He is not saying that our planetary biosphere functions *like* a living organism but that it actually *is* a living organism, and that by treating it as if it were dead we are guilty of the ultimate blasphemy which may destroy us all. By assuming our ecosystem to be nonvital, we devitalize it; through conceiving it as dead, we kill it.

The Gaia hypothesis is, of course, extensible to the entire cosmos and is compatible with a process theology of the deity, the view that God is the mind of the universe and is immanent in all its parts. In this view God is neither male nor female, nor manifest in any personal form, but is the self-organizing dynamic of the entire cosmos.

In conclusion, I must try to give my reply to the question which the authors in this issue of *Zygon* have been invited to consider: Does neurobiology matter? Of course, it matters—but no more than any other discipline. It matters only inasmuch as it contributes to our understanding of the whole life experience. Like all other human sciences, it needs to be kept in its place: it must never be allowed to get above itself; it must remain subservient to the sciences of humanity as a whole; above all, it must remain subservient to the psyche. Brain technology must never become more important than our experience of our own minds.

It is not, of course, surprising that our typically human quest for explanatory mythologies should lead us to try and find them in biology and neuroscience. That we should seek a neurological substrate for the numinous experience is absolutely in accord with the left-hemispheric scientific materialism of our times. What our forebears accepted on the basis of faith, we will accept only on the evidence of electrodes and micropipettes. In our left-hemispheric culture, the value of an experience can only be established if it can be proved to possess a structural and functional basis. Moreover, the contemporary *Zeitgeist* would proclaim that if a neuronal system exists, then it would be the waste of a resource not to use it! In a materialist world, the use of a resource is its own justification.

But in pursuing our deliberations here, I would beg that we do not pander to this barren materialism. We must be vigilant that we do not replace the religious fundamentalism of our forefathers with our own brand of neurobiological fundamentalism. The perennial danger of left-hemispheric “scientific” knowledge is the ease with which it can thrust us out of our own experience. By enabling us to conceive of our psychic functions in terms of neuroanatomy and neurochemistry it can too readily lead us to denigrate our precious impressions of *what it is like* to live through these neurobiological events. The reduction of psyche to neurobiology would sterilize the world of poetry and deny to our minds their dignity and state. The principle which I endorse passion-

ately is that we should never abrogate the primacy of psyche. Neurobiology may be given a place in the household of the human sciences, but as psyche's maidservant. Nothing more exalted than that.

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