

THE BODY AS THE GROUND OF RELIGION, SCIENCE, AND SELF

by Judith Kovach

Abstract. The human body is both religious subject and scientific object, the manifest locus of both religious gnosis and secular cognition. Embodiment provides the basis for a rich cross-fertilization between cognitive science and comparative religion, but cognitive studies must return to their empiricist scientific roots by reembodying subjectivity, thus spanning the natural bridge between the two fields. Referencing the ritual centrality and cognitive content of the body, I suggest a materialist but nonreductionist construct of the self as a substantial cognitive embodiment that embraces not just perception and cognition, mind and spirit, but the forceful physicality of the moving body. Proprioception of the body's moving mass constitutes a mode of knowing that resonates strongly with the experience of self, not only across religious traditions but also within the physical sciences. By way of illustration, two directions are suggested in which a construct of the self as a substantial cognitive embodiment might lead us: first, a body-based interpretation of the Islamic myth of Adam and Iblis that reveals an internal substantiality as constitutive of the divinely imaged Self, and second, a new, religious direction for human evolutionary theory based on the implications of an embodied intentionality.

Keywords: Adam; anthropology of religion; anthropology and the body; bipedalism; cognition; cognitive content of the body; cognitive science; embodied cognition; embodiment; human evolution; *Homo religiosus*; Iblis; Islamic myth; liminality; phenomenology; preconceptual experience; proprioception; reflexivity; religion; religious experience; ritual; selfhood.

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Flesh . . . was the divinity of all masters of the fishing-spear, standing ahead of all other clan-divinities. In the past . . . there were not all the divinities . . . which there are now. . . . There were only two great “things” (principles, one might say in English)—Divinity and Flesh. . . .

“Flesh is one word” The Dinka expression “one word” means the word which is superior to many words, the decisive word, beyond argument and addition, and hence the true word. . . . “It is a single word, it is of the furthest past, what has always been.” (Lienhardt 1961, 138)

It is a central, if implicit, premise of cognitive science that human experience is sufficiently described by the human body. It is, after all, through reference to the body that cognitive scientists seek to understand and explain not only the rationality and propositional knowledge that traditionally define cognition but also perception, emotion, and even religious experience. Indeed, in its much-criticized emphasis on the knowing individual, cognitive science has directed its attention toward neither the external objects of awareness nor the social contexts of behavior but rather toward the manifest locus of subjectivity—the body itself.

Nowhere is the experiential significance of the body more apparent or better documented than in religious behavior, with its ritualized bodily actions and its predominance of sensory, rather than conceptual, stimuli. In his analysis of the healing trance dance of the Kung bushmen, for example, anthropologist Richard Katz (1982) highlights such sensory elements as leg rattles, massage, sweat, breath, bodily contact, and the rhythmic singing and clapping that accompany the dance, as well as the bodily movements of the dance itself. He specifically notes the nonverbal nature of the ritual and stresses the embodied and nonconceptual nature of religious education within the culture. Closer to home, the Roman Catholic Mass mirrors our embodied mode of being: we see our visuality reflected in the white host displayed before the congregation, in the golden sheen of the sanctuary and the chalice, in the intentional manipulation of light through stained-glass windows. The ringing of altar bells and perhaps the tones of a Gregorian chant reverberate in our ears; so too the drone of the liturgy—for more than a millennium conducted in Latin, unintelligible to most congregants, so that for them it was not theology but pure sound. The aroma of incense invades our nostrils, and our mouths are saturated with the taste of the wine and bread of the Eucharist. We are washed by the cool damp of holy water sprinkled on our faces. We flex and extend our muscles as we stand and sit and kneel, and our hearts beat to the tempos and rhythms of the Mass as we vicariously follow the priest in his prescribed movements. Catherine Bell argues that it is embodiment that gives substance and meaning to religion, noting that, for most people, religion “is not a coherent belief system but, first and foremost, a collection of [embodied] practices” (1992, 185).

Many anthropologists have attempted to address the cognitive content of the body, particularly in the religious context. Victor Turner argues that “the human organism and its crucial experiences are the *fons et origo* of all classifications” (1967, 90).¹ Rodney Needham has observed that the ubiquitous use of percussion to initiate religious transition may indicate a correlation between percussion’s neural and organic effects and the logical structure of category change (1967, 610–12). Maurice Bloch (1974) has argued that the restricted vocabulary and nonlogical, nonexplanatory language of much traditional ritual effect an impoverishment of both syntax and semantics and that the consequent decrease in propositional force is inversely correlated with an increase in performative impact. Bloch’s analysis opens up a view of ritual not as conceptual statement but as a phenomenal technique of cognitive reorientation toward fundamental, embodied modes of awareness. Stanley Tambiah (1985) delineates an inner, phenomenological frame of ritual marked by sensory and kinetic patterning. Talal Asad (1993) maintains that cognitive, especially religious, dispositions are cultivated not by cultural symbols and conceptual discourse but by bodily actions and disciplines, such as fasting, prayer, obedience, and penance. Paul Stoller points out that perception, especially in non-Western societies, “devolves not simply from vision (and the linked metaphors of reading and writing) but also from smell, touch, taste, and hearing. In many societies, these lower senses . . . are central to the metaphoric organization of experience” (1997, xvi).

The ideational thrust of academic anthropology, however, has ill prepared it to address the elemental physicality of human experience and its significance for both secular and religious cognition. From the cultural perspective within which body, mind, and religion are understood in anthropology, the natural world, human behavior, human artifacts, and the human body itself are ultimately significant not for their practical value, phenomenological² meaning, or religious efficacy but for their ideational, symbolic, and communicative import. Indeed, it is common practice in the field to speak of the human body not as a genetically or morphologically defined physical reality but as a social or cultural construct.

Within the field of cognitive science, however, where the primary concern has been with subjectivity itself rather than with the sociocultural context of the person, there has long been a recognition, though often only implicit, of a reflexivity of awareness devolving upon the body itself: as the grid through which we view the world, our bodies structure, describe, perhaps even define our subjectivity. Hoyt Alverson describes reflexivity—which he calls intentionality³—as the necessarily subjective perspective that informs our knowledge of the world. “The notion of representing the world as it actually is,” he writes, “is incoherent,” because we can only know, and thus only represent, our experience of the world. Thus, any “object . . . is [an] ‘intentional’ object, as opposed to an ‘actual’

one. For humans all objects of experience—that is, all experience—are therefore necessarily intentional” (1991, 97–98). For cognitive science, however, reflexivity is not simply a philosophical stance but a methodological one, and the object of cognitive-scientific praxis is the body itself as the vehicle of subjective awareness. We see certain colors and not others because we are physiologically equipped to do so. We feel not the objects we touch but our own bodies’ sensory reactions to stimuli, just as we proprioceive changes in our bodily postures. In fact, as Francisco Varela, Evan Thompson, and Eleanor Rosch observe, the density and complexity of internal stimuli so overshadow stimulations from the external world that it is the internal programming of the body itself that is functionally central to our awareness (1993, 95–96). With or without external stimulation, our experience is of our own embodiment, and sensory activity is not so much a representation of the world outside our bodies as self-stimulation, the enactment of our own embodied autonomy.

Indeed, the great challenge of cognitive science is to delineate the relationship between the body and so-called mental experience, especially abstract cognition. Much of this effort has been focused on the brain. Even for the earliest cognitivists, who articulated a view of cognition as symbolic representation, symbol recognition was not of something “out there” in the world but of an internal, neural state. As Varela, Thompson, and Rosch note, it was the cognitivist claim that “the only way we can account for intelligence and intentionality is to hypothesize that cognition consists of acting on the basis of representations that are physically realized in the form of a symbolic code in the brain” (1993, 40). Over the years, applying the results of research in neuroscience, experimental psychology, and artificial intelligence, cognitive scientists have proposed a variety of cognitive models—computational, connectionist, emergent, and enactive, to name but a few—correlating subjective experience with the body and especially with the structure and functioning of the brain.

Yet the marriage of scientific praxis and embodied subjectivity has been marred by an ambiguous and ideationally constrained delimitation of crucial terms such as *mind*, *cognition*, and *knowledge*. While recent theorists have branched out considerably, the earliest cognitivists understood mind and cognition in the narrow terms of abstract rationality and propositional knowledge. It is perhaps worth noting in this regard Antony Flew’s comment on Descartes’ famous *Cogito*: “Descartes’ principle . . . is intended as primarily an expression of his own immediate and indubitable awareness of his present consciousness. In consequence of this the word *thought* in Descartes has frequently to be construed very widely, as not necessarily implying ratiocination but covering all . . . modes of consciousness. It is thus equivalent to the expression *subjective experience* . . .” (1971, 281). Descartes himself wrote, in the *Discourse*, “By the word *thought* I mean everything in us which is the object of our own immediate awareness. That

is why not only understanding, wishing, and supposing, but also feeling are here the same thing as thinking” (cited in Flew 1971, 281). Most modern cognitive researchers, judging by the range of internal states they seek to understand, appear to have embraced this broader sense of *mind* as subjective experience. Yet it is a halting embrace, attenuated by a continuing view of *cognition* as propositional knowledge and by a methodology that focuses almost exclusively on the brain—with the exception of a few daring expeditions into the hinterlands of visual perception—while avoiding the full range of somatic sensoria. Many theorists, in fact, understand the mind strictly in terms of brain states for which the larger body is little more than a feeding trough. Deceived, perhaps, by its elemental physicality, such theorists set the body apart from the subjectivity of “mental” experience.⁴ They are like timid swimmers, reluctant to dive too deeply into the forceful materiality of the lived body lest they relinquish the thin air of subjectivity. If they would only leap—and leaping, look—they might see in their approaching reflections the body not only as scientific object but also as knowing self.

A small number of theorists, however, have begun to explore the cognitive content of the lived body. George Lakoff, for example, echoing Turner, argues that the body provides “a preconceptual ordering of experience, which in turn structures the conceptual categories with which human beings think” (Bell 1992, 96); thus “our basic concepts correspond to [the] preconceptual structure [of our embodied experience] and are understood directly in terms of it” (Alverson 1991, 96). Mark Johnson observes that, as human beings, we are rational animals—that is, we are not only rational but animals,

which means that our rationality is embodied. The centrality of human embodiment directly influences what and how things can be meaningful for us, the ways in which these meanings can be developed and articulated, the ways we are able to comprehend and reason about our experience, and the actions we take. Our reality is shaped by the patterns of our bodily movement, the contours of our spatial and temporal orientation, and the forms of our interaction with objects. It is never merely a matter of abstract conceptualizations and propositional judgments. . . . Our embodiment is essential to who we are, to what meaning is, and to our ability to draw rational inferences and to be creative. (1987, xix, xxxviii)

The central argument put forward by Lakoff and Johnson is that embodiment entails “recurring patterns without which our experience would be chaotic and incomprehensible (Johnson 1987, xix). For example, we

begin to grasp the meaning of physical force from the day we are born (or even before). We have bodies that are acted upon by “external” and “internal” forces such as gravity, light, heat, wind, bodily processes, and the obtrusion of other physical objects. Such interactions constitute our first encounters with forces, and they reveal patterned recurring relations between ourselves and our environment. Such patterns develop as meaning structures through which our world begins to exhibit a measure of coherence, regularity, and intelligibility. (1987, 13)

The basic unit of such embodied interactivity is what Lakoff and Johnson call the *image schema*, a simple gestalt structure made up of “parts standing in relations and organized into unified wholes” (Johnson 1987, xix).⁵ Emerging first as figurative structures of our bodily interactions, image schemata can be developed and extended through metaphorical projection into more complex, abstract, and sophisticated patterns as percepts, concepts, and symbols, a process that provides image schemata with their dynamism, flexibility, and creative capacity. Johnson argues that image schemata “can properly be called ‘structures of understanding’ because they are patterns in terms of which we ‘have a world’” (1987, 82–83). As such basic structures, however, they “are not ordinarily part of our self-reflective awareness” (p. 82), and their projection onto other domains entails no deliberation on the part of the perceiver. Image schemata give coherence to our physical experience at a preconceptual level, yet it is “only by virtue of a complex web of [such] nonpropositional schematic structures that emerge from our bodily experience” that the conventionally propositional content of thought is possible (p. 5).⁶

Even Lakoff and Johnson, however, exhibit an ideational bias that precludes an in-depth exploration of our fundamental physicality and its subjective import. Alverson notes that Lakoff, by depicting his image schemata “as rather actualistic, Euclidean schematic diagrams, . . . ignores the key point that schemas are symbols for categories of sense; they are not simply mimetic abstractions of Euclidean space” (1991, 115). Alverson argues that “fundamental lived-body experiences of spatiality are kinesthetically, visually, tactilely informed” (p. 112) and that there are numerous ways to parse such a phenomenological gestalt—geometrically, temporally, sensorially, dynamically, qualitatively. Lakoff’s focus on spatial and dynamic structure is an arbitrary abstraction from a multidimensionally articulated scene. Meaning, Alverson seems to be saying, derives from the totality of lived-body experience, and Lakoff’s abstracted structure is too bare a basis even for a cognitive grammar. Johnson stresses the forceful nature of our bodily interactions with the environment, and he argues that “kinesthetic” image schemata, such as the “container schema,” the “part-whole schema,” and the “source-path-goal schema,” emerge from just such embodied experiences. Yet he is less interested in exploring the physics of force and movement, the embodied mechanisms of our awareness of such forces, or the impact of that raw physicality upon our consciousness than he is in delineating the relational structures that emerge from physical experience. Both Lakoff and Johnson, then, while paying token homage to the physicality of the body, privilege an abstracted relationality as the realm of meaning.

The cognitive-scientific application of an empirical methodology and modern technology to the exploration of human awareness has been extraordinarily fruitful, casting new light on the material basis of experience, including religious experience. Yet the cognitive significance of the em-

bodied reflexivity of awareness has been but dimly apprehended, and in their approach to religious experience, in particular, cognitive researchers often have been guided by an outdated concept of religion as a disembodied system of beliefs, ignoring the fundamental anthropological recognition of the central role played by the ritual body. To say that human experience is described by the human body is to declare the material embodiment of human selfhood. It is, after all, the self as cognizer that is the ultimate object of cognitive studies and the self as knower that is the ultimate subject of religion. If we wish to understand either secular cognition or religious gnosis, I would argue, we must recognize, in both theory and method, the lived body as the manifest and sufficient locus of the subjective self.

PROPRIOCEPTION

In the ancient Indian debate among Hindu and Buddhist *pramana* theorists over the perceptibility of objects, the proponents of certain Buddhist schools asserted that vision does not, in itself, grasp objects, just as it does not grasp sounds, textures, tastes, or smells. Hindu theorists, however, argued that vision is “infected” with cognition and that it is by virtue of its cognitive component that vision does, indeed, grasp objects. The suggestion is intriguing, for the physiological structure of our visual apparatus is binocular, presenting us with a kind of double vision: the optic nerves intersect and actually cross in the area behind the brows called the optic chiasmus; the visual cortex in the occipital lobe at the back of the head then synthesizes these intertwined data to present us not with a perception of a flat, two-dimensional object but with different angles on the same object, a three-dimensional perceptual form with both a perceptual content and an objectlike relational structure. Moreover, this morphological capacity for depth perception is enhanced by a variety of environmental cues, such as linear perspective, textual gradients, contour, and motion. As the Buddhist skeptics pointed out, however, vision—even three-dimensional vision—grasps only the surfaces of things, not their substantiality, and it is the substantiality of objects—their mass—not their three-dimensionality that constitutes their objecthood.

Despite rational arguments to the contrary, however, we persist in “seeing” not just surfaces and their structural relations but objects as well. Indeed, the persistence and universality of the perception of objects would seem to point to an innate sense of substantive wholeness, a sense that must be described within our physiology. As the Hindu philosopher Uddyotakara observed, “If the whole is never experienced [directly] we cannot be aware of . . . the whole . . . through . . . mental synthesis or . . . imaginative construction” (cited in Matilal 1986, 273). And, as Lakoff and Johnson argue, primary cognitions, such as objecthood, do not spring

unbidden from the ether, like some virgin birth, but from concrete bodily experience. But what is the bodily experience that gives rise to the perception of objects? Whether the objects we seem to see in the world are real or not is not the issue; the point is, why do we see them? If not from perception or cognition, whence comes our sense of objecthood, substantiality, and wholeness?

Hindu and Buddhist *pramana* theorists agreed that mere awareness is the primary basis for knowledge. Yet both seem to have held a notion of disembodied awareness, neglecting the physiology through which perception and cognition function and assuming that the senses of sight, hearing, taste, touch, smell, and the intellect are the only avenues of awareness. As for many cognitive scientists, the perceiver of the *pramana* theorists seems to have been a disembodied but perceiving mind, a mind with a view from nowhere.

Yet we are not disembodied, nor are we minds embodied only with perceptual organs—brains encased in eyes, ears, nose, tongue, and skin. Each of us has a substantial body, not simply the objectively perceived and outward-perceiving body but a subjective body constructed of bone, muscle, and sinew, filled with internal organs, maintained and unified by moving fluids and chemical processes, and monitored by neural networks. Our awareness of the unified mass of this lived body is neither perceptual nor relational but substantial and discrete; it is a sense neither of surfaces nor of structures but of a fundamental physicality, given neither through the rational mind nor through sight, hearing, taste, touch, or smell but through the body's response to everyday forces such as gravity and inertia that the bodily mass resists. Our sense of objecthood, substantiality, and wholeness—indeed, our sense of our own material selfhood—is neither conceptual nor perceptual but proprioceptual, constituting the mere awareness of our unitary bodily physicality.

In its conventional sense, proprioception gives us our sense of balance, position, and muscular tension. Proprioceptors respond to a variety of stimuli—contraction and stretch, acceleration and vibration, pressure, gravity, and balance—all of which are various expressions of weight or force and intimately connected with movement. Kinesthetic receptors in the muscles, tendons, ligaments, and joint capsules, for example, record contraction and stretch, informing us about the body's arrayal in space without reference to our external senses; such receptors allow us to touch the tips of our noses, for example, even when our eyes are closed. Our most sophisticated proprioceptual organ is the vestibular apparatus located in the inner ear, which tells us where down is and allows us to maintain a balanced and upright position. The vestibular system acts somewhat like a carpenter's level to orient the body both to gravity and to movement through space. Two saclike structures in the inner ear, the saccule and the utricle, contain small granules embedded in a gelatinous material. As the body

moves, gravity causes the granules to change position, generating a neural response that tells the brain which way is down and thus orienting the body to gravity. In addition, the inner ear contains three semicircular canals situated at right angles to one another and filled with a fluid that flows through the canals as the head moves through space. Small hairs within the canals sense the flow of the liquid and relay the information to the brain, orienting the body to the movement. Although assisted somewhat by the visual system, which uses the horizon as a gravitational reference, and by the proprioceptual capacity to determine bodily posture, the vestibular system is our primary means of establishing and maintaining balance and spatial orientation.

Proprioceptors are usually distinguished from interoceptors, which provide visceral sensations of our internal organs as well as a great deal of unconscious information about internal states of the body.⁷ Like proprioceptors, however, many interoceptors provide us with sensations of weight or force. One class of interoceptors—called baroreceptors, from the Greek *baros*, meaning “heavy”—are found in the walls of the respiratory tract, the digestive tract, and the heart and its vascular trunks. Situated in the sliding planes between layers of smooth-muscle tissue, they respond to the stretching and relaxation of muscles (Nauta and Feirtag 1986, 122–23),⁸ detecting such stimuli as stomach distension, giving us a feeling of fullness; intestinal contraction, perhaps yielding a cramping sensation; and lung stretch, allowing us to regulate the volume and timing of our breathing. Information from chemoreceptors, which monitor body chemistry, rarely, if ever, reaches the level of consciousness; yet even some unconscious stimuli, such as blood pressure, may be correlated with changes of force in the body.

For my purposes, I will conflate both proprioceptual and interoceptual sensation under the term *proprioception* for two important and interconnected reasons. First, both are distinguished from exteroceptors—the eyes, ears, nose, tongue, and skin—sensors located at the surface of the body that provide information about the external world. Because the exteroceptual system is oriented outward, away from the body, Drew Leder refers to it as “the ecstatic body” (1990, chaps. 1–2). In contrast, proprioceptors and interoceptors provide information about the internal body—what we might call the “enstatic” body—the body as discretely and subjectively experienced rather than discursively and objectively as perceiver or perceived. Second, proprioceptors and many interoceptors, in their response to various expressions of force, taken together give us our sense of our bodily mass. Expressions of force are defined in terms of mass, and, as a measure of the resistance to force, mass itself functions as a counterforce; indeed, it might be argued that there is no functional distinction between mass and force. Consequently, in our proprioceptual response to force—especially in our species-specific struggle against gravity—we are made aware

of our own body's massive and unified physicality. These two features of proprioception, in its larger sense—its inward intentionality and the physicality of its referent—mark it as a distinct mode of awareness, one that references the discrete interiority and forceful materiality of our own substantive and subjective embodiment.

MASS AND THE SELF

The word *proprioception* means “self-awareness” or, more literally, “self-capture,” and, in fact, the terms we use to describe our proprioceptual awareness of mass are suspiciously like those we use to describe our sense of self. We think of the self as inner, personal, and existentially absolute. So also is proprioceptual awareness both personal and internal—it constitutes, after all, not simply the awareness of mass as such but the awareness of our own mass. And while we may think of the “interiority” of self as only a metaphorical description of personal specificity, proprioceptual interiority is described both morphologically and by the neurologically represented distinction between perception and proprioception. As Charles Laughlin, John McManus, and Eugene d’Aquili observe, “the inner-outer distinction [in our awareness] is anything but spurious, as it is founded upon the genetically bifurcated organization of sense receptors into *exteroceptors* . . . and *proprioceptors*, or *interoceptors*. . . . The nervous system is neurognostically organized to distinguish stimulation originating within the being from stimulation originating from the world” (1992, 89). Moreover, the inner-outer distinction between proprioception and perception constitutes a hierarchical phenomenological relationship in which perception is relative to the perceiving self. Not only is the spatial location of any point or object in the perceptual field relative to the perceiver but also the field as a whole; indeed, the very notion of a perceptual field is meaningful only as a description of space external to and defined by the perceiver. In contrast, the perceiver is himself materially defined by his bodily mass and phenomenologically apprehends himself not relatively within the perceptual field but absolutely through proprioception. While the perceiver may cover his eyes and plug his ears, closing himself off from external perception, the self, which he so closes off and which he cannot escape, is apprehended within the interiority of his personal, proprioceived mass. Thus, the existentially absolute self is, at the very least, described not by the relativity of the perceptual field but by the phenomenological primacy of the bodily mass.

Much has been made of the imperceptibility of the self. Indeed, many have argued that our inability to locate within the body anything that might be called a self demonstrates the illusoriness of the very concept of selfhood. Oddly enough, mass, for all its essential physicality, exhibits this same imperceptibility. As noted, proprioception accesses physiologically internal and, hence, under normal circumstances, imperceptible informa-

tion about the body. Nor does the perceiver apprehend his own mass within the perceptual field. These observations reflect the interiority and subjectivity of proprioception, yet that interiority and subjectivity are but intimations of the physical imperceptibility of mass itself. Even if, as objective observers, we were to open the body up to view, we would be unable to locate its mass, just as we are unable to locate the self within the body. We cannot look at an object and say that its mass—or its selfhood—is located in this place or that within the object. What physicists call the center of mass or the center of gravity is a dimensionless point—sometimes called the zero point—calculated through spatial symmetries. It is not even necessarily contained with the object itself; for example, the center of mass of a doughnut is not actually in the doughnut itself. Nor is the location of the mass simply equivalent to the space occupied by the body. As we all know, the space occupied by a body is mostly empty space, the body's mass compressed within its atoms, which are infinitesimally small compared to the bodily space. Yet atoms are themselves mostly empty space, with virtually all of their mass compressed within their nuclei, which are themselves infinitesimal compared to the size of the atom. Nor has this massive reduction yet ended, for there are voids even within atomic nuclei. In fact, of the visually apprehended space occupied by a massive body, the proportion occupied by the mass itself becomes smaller and smaller the more we learn. The more we search for the mass the more it eludes us, until the dimensionless point that describes the center of mass now begins to look less like a mathematical abstraction and more like a physical reality. *Mass is not a visual category but an absolute property of objects*, and as the Buddhist skeptics observed, what we see when we look at an object is color, surface, and structure; we cannot see the mass that constitutes its objecthood any more than we can see the self that constitutes our subjectivity.

Finally, note that the zero point at the center of mass reiterates the imperceptible perceiver at the center of the perceptual field. This twice-iterated centrality and imperceptibility speaks to the unitary and unarticulated nature of the bodily mass. Mass is a way of speaking about a body as a materially cohesive unit. When we locomote through space, it is our entire bodily mass that moves, not simply its internally moving parts. The weight of the body varies according to the forces acting upon it, yet even in outer space, where the body is weightless, its mass remains constant⁹ and cohesive. Our embodied materiality is defined by our unitary mass, just as our subjectivity is defined by the self.

This massive holism is echoed within our sensorium. Leder notes that, in contrast to the five sense modalities of perception, “opening onto distinct perceptual worlds,” interoception, in particular, is “experienced as modulating a single dimension of [awareness], i.e., ‘inner sensation.’” Moreover, while “interoception is not devoid of an expressive range and utilizes . . . a variety of sense-receptor types, including mechanoreceptors,

nociceptors, and even some thermoreceptors,” the number and variety of interoceptors, as well as its “repertoire of motor responses,” is greatly reduced compared with exteroception. Consequently, interoception also exhibits a greatly reduced spatial precision compared to surface perception, such that “visceral sensations are often vaguely situated with indistinct borders,” registering “generalized stimulations involving substantial portions of the organ.” This spatial ambiguity is exacerbated by the phenomenon of referred pain and by what Leder calls “physical/phenomenal transfers between [the vital organs] and the body as a whole”; hunger, for example, is experienced “not just in abdominal ache but as a heaviness in the limbs [and] a yearning in the mouth.” Leder observes that the visceral organs “sustain [the] body as a whole through [often unconscious] processes of digestion, circulation, respiration, and excretion”; likewise, many of their processes are “marked by ineluctable [experiential] discontinuities,” while what sensation they permit is “manifested everywhere and nowhere” (1990, 40–42).

Like the self, then, the bodily mass is personal, internally accessed, and imperceptible. Just as the self, existentially absolute and unitary, defines our subjectivity, so the bodily mass, physically absolute and unarticulated, defines our embodied materiality. Indeed, the correlations between our bodily mass and our subjective self are so complete and so profound that I would argue that the bodily mass *is* the objective articulation of subjectivity itself, the material testament of the immaterial self. *Pondero ergo sum*: I have mass, therefore I am.

THE RELIGIOUS BODY

Thus, a paradox: Spirit is substance, and substance is spirit. Since long before cognitive science began to explore the embodied reflexivity of awareness in neurophysiological terms, the religions of the world have engaged that reflexivity in ritual praxis. Yet the heavy emphasis on the body and sensory experience that we see in religious praxis indicates not simply the logically necessary, largely subconscious embodied reflexivity that characterizes all awareness but an explicitly reflexive intentionality. By this I mean that the focus of religious behavior is interiorized—directed away from the world outside our bodies and toward the phenomenality of the body itself. As Laughlin, McManus, and d’Aquili note, “the target of ritual is the sensorium of the [ritual] participant” (1992, 213). The meditative traditions, in particular, practice just such an explicitly reflexive intentionality focused on fundamental bodily experiences and employing a range of interiorized techniques such as breath meditation, visualization, and mantra, as well as more overtly embodied techniques such as walking meditation, whirling, and even tantric sexual practices. Even in less clearly meditative religious behaviors, however, we see this same intentional interiorization. In the sacramental rite of baptism, for example, the catechu-

men is submerged in water—eyes shut, sound muted, smell and taste occluded, virtually weightless—only to emerge from this brief moment of fully interiorized awareness as one spiritually reborn.

This explicitly reflexive intentionality, I would argue, is directed a fortiori toward the experience of profound selfhood articulated by the massive substratum of the body. Indeed, the correlation between our substantial embodiment and the substantial selfhood encountered therein implies that a reflexive intentionality is a religious intentionality, one that resonates with numerous expressions of the religious primacy and even divine sanction of the body. Kukai, the founder of Shingon Buddhism, asserted that “this body in itself is a fulfilled buddha” (cited in Kasulis 1993, 310). Dogen, the founder of Japanese Soto Zen Buddhism, regarded the body as the ground of being into which we must inquire if we are to understand both the self and the Buddha Dharma; for him, the most direct path to realization of our own buddhahood was through the cultivation of bodily form, in both meditative practice and in the daily physical routine of monastic life. The great Sufi mystic Abu Yazid al-Bestami described his own intentional immersion in embodied selfhood: “[God] stitched up my eye, not to be the means of seeing and so that I might not see, and He instructed the gaze of my eye in the root of the matter, the He-ness of Himself. . . . He disclosed to me His own Selfhood, unjostled by my own existence. . . . Through God I gazed on God. . . . I became a dweller in the palace of silence . . . and all that I saw, all was I” (quoted in Attar [1966] 1990, 106–9).

The Islamic myth of Adam and Iblis particularly illustrates the religious interplay of embodiment, selfhood, and reflexive intentionality. At the close of the introduction to his *Kashf Al-Mahjub*, Ali B. Uthman al-Jullabi al-Hujwiri penned the following lines:

Know that I have found this universe an abode of Divine mysteries, which are deposited in created things. Substances, accidents, elements, bodies, forms, and properties—all these are veils of Divine mysteries. From the standpoint of Unification it is polytheism to assert that any such veils exist, but in this world everything is veiled, by its being, from Unification, and the spirit is held captive by admixture and association with phenomenal being. Hence the intellect can hardly comprehend those Divine mysteries, and the spirit can but dimly perceive the marvels of nearness to God. (al-Hujwiri [1911] 1936, 8–9)

With those lines, al-Hujwiri defined Iblis, the Islamic Satan, who is himself the “veil of mortality” that is phenomenal being ([1911] 1936, 4). His nature is apparent in his Greek name, *Diabolos*, meaning literally “thrown across,” like a veil; figuratively, a block or obstacle; and as a person, an adversary or enemy. Master of the world (Awn 1983, 26), he is characterized by his “blatant carnality [and] passionate desire” (p. 27); his offspring rule the bazaar and marketplace and delight in calamity and adultery (p. 32). So, too, he is lord of the aesthete, enmeshed in the beauty and multiplicity of material forms. More subtle than mere materiality, however,

Iblis also represents the mercurial and reasoning mind. Yet his most fundamental trait, embracing both his phenomenality and his rationality, is his dualism, his separation of God from all that is not God. Through his externalized, perceptual orientation, Iblis establishes the distances of time and space. Rumi wrote that "Iblis possessed a gaze that separates; / he imagined that we are separated from God" (quoted in Awn 1983, 91). Through his reason, Iblis establishes the discursive distinctions between the things of the world, distinctions that veil the immanence and unity of God. Thus al-Hujwiri wrote that "reason is blind" ([1911] 1936, 268), for "thought involves duality" (p. 239).

In his first appearance in the Koran (2:34; Pickthall [1930] 1992), Iblis refuses God's commandment to bow before Adam. It is for this crime of disobedience that Iblis is cast out from the presence of God. Ibn Kathir and Ath-Tha'labi tell the tale of the confrontation between Adam and Iblis: "Iblis kept walking around [Adam] and striking him. The body made sounds like a clay pot. And Iblis said, 'You were created for some reason or other.' He struck him with his hand. He seemed hollow! Iblis entered him through the mouth and exited by his rear. He said to his comrades, the angels who were with him, 'This is a hollow creature'" (in Awn 1983, 34).

Yet Adam was not hollow but flesh and spirit, recapitulating within himself the juxtaposition of God and Iblis. The Koran states that "the form of Adam is the mirror of both worlds. Whatever has been put into these two kingdoms, was made visible in human form" (41:53). Adam is a material being, created from clay; thus "Satan sits in the blood of Adam's children" (Schimmel 1975, 193), and "no son of man exists who does not have a satan . . . yoked together with him" (Awn 1983, 31). Yet Islam attests also to a profound intimacy between human beings and God, for God breathed into Adam his own divine spirit (Koran 15:29; 38:73) and kneaded Adam's clay with His own hands, sanctifying his very flesh. Thus, "He is closer to man than his own jugular vein" (Koran 50:16). Al-Hujwiri wrote of the divine nature of human embodiment: "On the night of the Ascension [Muhammad] was born to the station of proximity; he desired that his body should be destroyed and his personality be dissolved, but God's purpose was to establish His proof. He bade the Apostle remain in the state that he was in; whereupon he gained strength and displayed the existence of God" ([1911] 1936, 283). Paraphrasing the Sufi saint Hallaj, Louis Massignon wrote that man,

joined to an extended body, . . . must become carnal; he is destined to fall into the bondage of matter and into divine contempt; and he fell into both. But . . . the form of his body . . . has been distinguished in advance from animals, ennobled, freed from slavery, consecrated to liberty, before his creation; for the ideal clothing of divine glory that God, conceiving the model of Adam, presented for the adoration of the Angels as a divine image, is the prefiguration of the real affinity that God keeps for men with Himself. (1982, 18)

Yet Iblis sees in the newly created man only the clay from which his form was molded and not the spirit of God that fills him. Thus Iblis is called the One-Eyed (Awn 1983, 90). It is this blindness, his failure to perceive the immanence of God within Adam, that is his real sin and the root of his disobedience and pride. Yet his sin comprises his very nature, for he is blinded by Adam's visible form, the phenomenal reality that is Iblis himself. Lord of perception, materiality, and rationality, Iblis sees only extensionality, separation, and distinction—he sees, one might say, only the perceptual field and its structural relations but not the perceiver within. Looking always outward, he cannot turn his gaze upon himself; thus, it can be said that he is separated even from himself. Lacking an *intentionality*, an internally grounded sense of himself, he cannot see the selfhood of another. As al-Hujwiri wrote, “reason does not even know itself: how, then, can it know another?” ([1911] 1936, 268) Indeed, Iblis *has* no self; he is mere persona, a mask, an empty shell of light and shadow. Created of fire, he lacks both the material substantiality of Adam's clay and the existential reality of a subjective self. The hollowness he sees in Adam is the hollowness within himself.

Yet Adam, with his dual nature, can turn within to the substantial selfhood of his own embodiment, both divine metaphor and avenue to gnosis. Abu Hamid al-Ghazali wrote that “human beings are unable to arrive at an understanding of the attributes of God except by means of their own attributes” (in Heer 1993, 236). It is only because he is embodied, and thus yoked to Satan, that he can look inward, turning his gaze upon himself. It is only because he has a body that he has a self, and it is that interior, embodied self that is *ruh*, his divine nature. Al-Hujwiri wrote, “He who knows himself has come to know his Lord” ([1911] 1936, 275). Adam's body is penetrated with divine gnosis; thus the “gnostic, while he remains a gnostic, has no fear of being separated from God” (p. 273).

William C. Chittick writes that “without clay, Adam would have been an angel, not a human being” (1993, 346). But Adam is embodied, and his salvation must be found within and through his embodiment. “Form is the veil of the spiritual world, but at the same time it is its symbol and the ladder by means of which union with it can be attained” (Nasr 1974, 332). As Satan is radical extension, Adam must exert a radical intention, an act of performance, a piercing of form via form. By the very discreteness of his body, by the very skin that encloses him from all that he is not, Adam performs the divine mystery, *muein*, meaning “to plug” (the body). Annihilating all that is outward, he enters into union with God through entering into his own inner solitude. Within that solitude, he comes at last to the fundamental experiential gestalt of “I am” expressed in the integrity of his body. That profound selfhood is utterly subjective, utterly intentional, stripped of the particularities of personality, mood, and emotion, a selfhood that speaks to the genetic and phenotypic commonality of

mankind, to the Day of *Alastu*, when “before creation, God called the future humanity out of the loins of the not-yet-created Adam and addressed them with the words: ‘Am I not your Lord?’ and they answered: ‘Yes, we witness it’” (Schimmel 1975, 24). In that divine gestalt, the mystic Bayazid “compares himself to God, claims the praise of angels in God’s stead, turns the direction of prayer from God to himself, and declares that the Ka’aba walks around him. He becomes God’s rival, finding God’s throne empty and ascending it in recognition of his own true being” (Bowering 1993, 218). In his ecstatic “I am I!” is the great affirmation of *wajd*, the state of being found by God.

Annemarie Schimmel compares creation “to articulation—did not the Koran speak of the *nafas*, the ‘breath’ of the Lord, which is infused into Adam . . . to create a new being? The pure Essence was as if it had held its ‘breath’ until it could no longer do so—and the world appeared as [the breath of the Lord]. As in breathing, so the universe is created and annihilated every moment; it is taken back into its transcendent origin just as breath is taken back into the lungs” (1975, 268). Iblis is that ecstasis of God, God’s exhalation into the world, moving ever outward, ever more distant from its divine source. Peter Awn writes of Satan’s “longing for the one who will resist him and finally overcome him so that, by the end of time, he will perform the prostration before the perfected man, . . . and will thus, finally, be saved” (1983, ix). It is Adam, through his embodied, reflexive intention, who reverses the divine ecstasis, becomes the inhaler of God’s exhalation, Muhammad, the perfected man, redeeming both himself and Iblis within the enstasis of his own embodied selfhood.

THE EVOLUTION OF RELIGIOUS INTENTIONALITY

To say that awareness is reflexive is to say that a particular embodiment entails a particular subjectivity. Evolutionary morphological changes must, therefore, mark an interiorized evolution, an evolution in experience of both world and self. When we look at the evolution of our unique, species-specific morphology, I would argue, we see the emergence of a physiologically expressed reflexive intentionality, an increasingly inward-directed, and hence religious, consciousness. By way of illustration, I highlight aspects of three morphological features: the brain, the physiology of language, and bipedalism.

The Brain. Often called the seat of consciousness, the brain does not sit naked atop the head, exposed to and informing us directly about the world. It is an internal organ of the body, invisible behind a covering of hair and skin and encased within a mass of bone; so also is its faculty of mentation interiorized and invisible. Of course, many life forms exhibit an internal brain, but the brain—and hence its interiority—has acquired particular significance within our own species. As our intelligence has

increased, becoming more central not only to our evolutionary adaptability but to our consciousness of both world and self, the brain also has grown, so that it now dominates the architecture of the head. At the same time, our outward-looking face has shrunk, literally receding backward beneath the brain, a recession that articulates a transformation, I would argue, from a primarily exteriorized awareness to an awareness that is primarily interiorized. On the brain itself we see an increasing number and depth of cortical involutions, the folding back of the cortex upon itself. These involutions are clearly associated with intelligence, more so, in fact, than the weight or size of the brain, and they occur in all the higher animal species, especially those that exhibit self-awareness, but in human beings most of all.

The Physiology of Language. Many animals clearly communicate with each other; apes, for example, have demonstrated an ability to use and manipulate complex symbol systems, and dolphins have even shown some evidence of a rudimentary appreciation of syntax. None of these animals, however, has the physiological capacity for articulate speech, a requirement for the full flowering of language that we see in our own species. Much of the physiology necessary for speech developed relatively early in our evolutionary history: fossils as early as *Homo habilis*, who lived 2 million years ago (myr), for example, show an enlargement of Brocca's area of the brain; and *Homo ergaster* (1.5 myr) exhibits the flexion at the base of the skull necessary to create space for a long pharynx. Ann MacLarnon, however, found that, in at least some early human species, "the space for the part of the spinal cord that controls the chest muscles was much smaller than it is in modern humans" (in Tattersall 1995, 239–40). The implication is that these earlier human species probably did not possess the complex innervation that gives us such precise muscular control of the thoracic cage and, ultimately, of the vibrating column of air we manipulate to produce speech. This greater breath control, which may be unique to our species, not only allows for the development of language but also, and more fundamentally, presumes an increased and more refined *awareness* of the breath. The breath, of course, holds an encyclopedic place in religious thought and practice worldwide—indeed, the word *breath* is synonymous with *spirit*—and attention to the breath is a fundamental meditative technique for interiorizing awareness. Thus, consequent upon the development of the physiological capacity for language, we see also the emergence of a physiologically expressed reflexive intentionality with religious implications.

Bipedalism. Perhaps the most obvious marker of human uniqueness, our fully erect bipedalism, emerged through a long evolutionary process beginning with a moderately upright gait and culminating with the flattening of the human face, a process through which a large brain came

to be balanced atop a vertical spine. In its fully refined human form, erect posture is marked by a number of enabling morphological features, all of which converge phenomenologically on increased attention to a single, central line of gravity in the body. The angle at which the thigh bones attach to the pelvis, for instance, produces a narrow gait that allows us to maintain our verticality throughout the transference of weight from one leg to the other rather than assuming the side-to-side, swinging gait we see in the great apes. In addition, our knees flex and extend sagittally rather than diagonally, allowing a smooth forward-walking action, with each step aligned more or less along the centerline of the body. The human foot, often called a marvel of shock absorption, is designed not for grasping, as in other primates, but to cope with the stresses of gravity: we have an extended heel for balance, a complex arch, and a more flatly aligned big toe, all resulting in a flexible platform ideally suited to bear the weight of the moving body along a single gravitational line. An S curve in the spine flexibly supports the weight of the upper body, allowing us to constantly adjust to external forces and to distribute the force of gravity while remaining upright. Finally, we see a centering of the opening called the foramen magnum at the bottom of the skull, a straightening of the neck, and a backward motion of the face, or “cranio-facial contraction,” all contributing to our ability to balance a large brain directly atop the vertical spine.¹⁰

In short, the verticalization of our morphology constitutes a centering of the body along a unitary line of gravity. In consequence, it must also entail an increasingly precise refinement of our basal *awareness* of gravity and hence of the unitary mass of the body as it resists gravity. Indeed, the balance required for our upright posture necessitates just such a heightened proprioceptual awareness, thereby morphologically inclining us to a deep, even religious, consciousness of our embodied selfhood.

To say that humankind is “*Homo religiosus*” is to say that religious experience is discovered within and through our species-specific embodiment and that our evolutionary development entails the emergence of a morphologically based religious subjectivity. The constellation of features I have discussed, while functionally central to the human organism, simultaneously suggests just such a gradual but steady evolutionary development of the reflexive intentionality characteristic of religiosity. If we look at evolution from the perspective of embodied subjectivity, the survival benefits of intelligence, language, and upright posture may be reconsidered as adaptively necessary but evolutionarily secondary features, or spandrels, consequent upon a directionality that can best be characterized as religious. In contrast, to consider only the adaptability of morphological variation without considering its subjective entailments is akin to those cognitivist projects that venture beyond the brain only to address the body’s

thin, surface layering of exteroception, as though our substantial interiority were as nonexistent as it is invisible. Such a vision looks only outward, quite literally where the light is brightest, to see what is in the inner shadows, and thus it can only silhouette, so to speak, our bodies and ourselves.

NOTES

1. Turner also finds that bodily experiences are directly correlated with what he calls the “ultimate mysteries” of religion (1967, 107). In that regard, he calls particular attention to ritual liminality, characterized by the dissolution, often through pain, isolation, or privation, of the conceptual structures that ordinarily define our world—cultural norms, social status, gender, even time and space. Stripped of such outward structures, the ritual participant must turn inward into a kind of existential, embodied gestalt, a kind of remembering—or perhaps an anamnesis, a nonforgetting—of corporeality. Among tribal societies, liminality is expressed by a rich variety of symbols of negation, hiddenness, or embodied interiority—participants frequently go naked, they may be treated as though they were invisible, and they are often sealed inside tomb- or womblike structures from which they emerge through a ritual rebirth into a reconstituted world. Within the world religions, the monastic life, the Franciscan and Quaker practices of poverty and simplicity, and the homeless wanderings of the Indian *saddhu* are all examples of a kind of normative liminality, attempts to render the liminal state permanent by inhabiting the fringes of the social structure and persisting at the level of the immediate, the personal, and the concrete.

2. I use the term *phenomenology* in the nontechnical sense commonly employed in the field of cognitive science. Mark Johnson, for example, applies what “might be called a form of descriptive or empirical phenomenology, . . . a kind of ‘geography of human experience.’ Such a geography seeks to identify the chief contours (structures) and connections that our experience and understanding exhibit. It . . . explore[s] the emergence of comprehensible form and organization in our experience and the means we have of making sense of it” (1987, xxxvii). Strictly speaking, phenomenology means “the study of appearances,” and in cognitive science it generally refers to studies that apply the results of research in a variety of fields, particularly psychology and neuroscience, to an exploration of the relationship between perception and cognition, based on the recognition that “the neural systems mediating perception and cognition are intimately integrated and operate on the same basic principles” (Laughlin, McManus, and d’Aquili 1992, 171). Johnson’s explanation of his “descriptive or empirical phenomenology,” however, suggests a more inclusive quasi-phenomenology embracing not just perception and cognition but other modes of awareness, such as the proprioceptual awareness of force discussed herein.

3. Alverson’s use of the term *intentionality* is perhaps somewhat idiosyncratic. Laughlin, McManus, and d’Aquili offer an explanation of the term as it is generally used in the field of cognitive science: “The *sine qua non* of consciousness as described in both the Western and Eastern phenomenological traditions is *intentionality*: the fundamental realization that consciousness is always ‘of something.’ Intentionality is experienced as a distinction between subject and object, between the phenomenon intended and the ‘I’ doing the intending. It is also experienced as (1) the constellation of cognitive (conceptual, imaginative, intuitive, perceptual, etc.) and sensory (qualities, forms, topological relations, etc.) processes upon and in constitution of the object, and (2) as a unity of phenomenal reality that is both coherent and meaningful” (1992, 103).

4. Indeed, the term *mental* as applied to experience is both superfluous and misleading—superfluous because all experience is mental, in the sense of subjective, and misleading because the word *mental* implies a juxtaposition over and against *embodied*.

5. An example is the compulsion schema, consisting of a force, a direction, and a target object (Johnson 1987, 45): F \longrightarrow ■ \dashrightarrow

6. Johnson (1987) gives several examples of image schemata, analyzes their gestalt structures, and discusses what he sees as some of the rational entailments to which they give rise:

- Containment: linguistic uses of *in* and *out* are metaphorical projections of the containment schema (pp. 21–23).
- Path: our conception of reasoning derives from the path and containment schemata (pp. 38–39).

- Various force schemata (such as compulsion, blockage, attraction, etc.): linguistic uses of *must*, *may*, and *can* are examples of metaphorically projected force schemata within the sociophysical and epistemic realms and in the structure of speech acts (pp. 45–53).
- Balance: the balance schema illustrates how metaphor is irreducible and preconceptual (pp. 96–98).

7. We are concerned here with proprioceptual awareness rather than with unconscious proprioceptual information. It should be pointed out, however, that extensive experimental work in the area of biofeedback has conclusively demonstrated that processes once thought wholly autonomic, such as regulation of heart rate, body temperature, blood pressure, and even the release of hormones, are in fact susceptible to conscious manipulation.

Naomi Eilan, Anthony Marcel, and Jose Luis Bermudez ([1995] 1998) make a distinction among proprioceptive systems, proprioceptive information, and proprioceptive awareness. I find their classification problematic on a number of levels. They characterize proprioceptive systems, for example, as internal “channels of information . . . whose source is the body” (p. 14). Yet the body is also an important source of perceptual information; indeed, Varela, Thompson, and Rosch (1993) have pointed out that perception entails a greater level of internal than external stimulation, and they have argued that even cognition is grounded in bodily experience. The authors define proprioceptive information as “all the information available about the body (whether it comes from proprioceptive systems or from elsewhere)” (Eilan, Marcel, and Bermudez [1995] 1998, 14). Does this include my observation, upon looking in the mirror, that I have a suntan? I certainly cannot proprioceive a tan, and the authors’ classification vitiates the distinction between perception and proprioception. The authors state that proprioceptive awareness is “independent of whether or not the awareness is derived from proprioceptive systems” (p. 14), referring, apparently, to their observation that “the contents of the [proprioceptive] experience are often different from the contents of the information that generates that experience. (For example, information about the summation of joint angles may give rise to a conscious experience as of limb position)” (p. 14). I would quite agree that these two types of “contents” are different. Still, it is not at all clear that the former directly gives rise to the latter; it seems rather more likely that the former simply calls attention to an ever-present, if low-grade, proprioceptive awareness of limb position.

8. See also Nauta and Feirtag 1981, 67–74, for a discussion of somatic sensory endings and reflex connections.

9. According to the theory of relativity, the measure of the mass of a moving body by a stationary observer changes with its speed, up to the speed of light. Necessarily included within the relative description of space, time, and force, however, is what is called the “proper” frame of reference (as in *proprioception*), that is, the frame of reference of the body itself, in which the measure of the body’s mass remains constant, regardless of the speed at which it moves relative to a stationary observer. The point here is that, quite apart from the *measure* of the bodily mass, the physical reality of mass is constant and unitary as well as phenomenologically unarticulated.

10. One of the very latest evolutionary changes in the emergence of our species is the expansion of the parietal lobe, which accounts for the rounded shape of the human skull in contrast to the flattened, “football” shape of earlier human forms. Anne d’Ambricourt (2001) has argued that, together with craniofacial contraction and the straightening of the neck, this rounding of the skull may be an ongoing process, transforming the once elongated skull into an ever more perfect sphere ever more perfectly balanced atop the vertical spine.

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