Bliss: The Ontological Harmony

Science, Spirituality, and the Nature of Human Consciousness

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Indian philosophical traditions have long maintained—and repeatedly reaffirmed—that the ontology of bliss (*ānanda*) resists purely conceptual or discursive comprehension; it is fundamentally experiential rather than propositional. Even when approached through the disciplinary frameworks introduced by modern Western academia, bliss appears elusive, almost mirage-like, precisely because it exceeds the limits of analytical cognition. Human existence, as articulated in Indian traditions, is not structured through fragmentation or opposition but through coherence, non-duality (*Advaita*) and Yoga (physiological alignment and spiritual unity (Karma Yoga, Gyan Yoga and Upasana), sustained by an intrinsic harmony among the living and the non-living, the observable and the non-observable, across multiple planes of existence. From this standpoint, the rigid dichotomy between scientific rationality and spirituality—often treated as mutually exclusive domains—is a historical construct of Western modernity and remains deeply contestable. Swami Vivekananda, in his seminal address at the Parliament of the World's Religions in Chicago (1893), compellingly argued that the ultimate telos of both science and religion is the exploration of the same foundational reality that underlies and gives coherence to all phenomena, even though each proceeds through distinct epistemic methods—objectivity in the case of science and subjectivity in the case of religion. In nutshell, Indian knowledge traditions demonstrate inherent absolute scientificity in all spiritual practices, thus the duality of science and spirituality stands void.

The validity of science rests on forms of knowledge that are empirically demonstrable and provisionally accepted as universal, remaining authoritative only until they are revised or falsified by counter-evidence established through the same methodological procedures. Scientific inquiry is fundamentally grounded in sensory observation—whether direct or technologically mediated—which, while powerful, remains an intrinsically limited means of apprehending reality. For instance, at the level of ordinary human experience, the Earth appears flat to a person walking along a street, and this perception is functionally sufficient for everyday navigation. Yet, from the perspective of satellite observation, the Earth is known

to be spherical. Both understandings are contextually valid, though they operate at different epistemic scales. In this sense, scientific facts and spiritual truths need not be mutually exclusive, even when they appear to stand in tension with one another. As humanity ventures deeper into interstellar space on the basis of sensory data and advanced instrumentation, these empirically verified claims continue to expand human knowledge; yet they cannot be regarded as final or absolute truths. Rather, they remain provisional articulations of reality, open to further revision as human modes of perception and understanding evolve.

Practitioners of spirituality, on the other hand, contend that experiential or subjective knowledge cannot be externally demonstrated, even when it is arrived at through systematic and disciplined practices that parallel the rigor of scientific methods. For instance, a meditator may claim to transcend ordinary notions of time and space. While such assertions are often dismissed as superstitious, they cannot be conclusively refuted through scientific means either, precisely because they do not operate within the domain of empirical demonstrability. The validation or rejection of subjective experience, therefore, must occur at the level of subjectivity itself rather than through purely objective criteria. In other words, both the claim and its refutation must be situated on a comparable epistemic plane.

The fundamental distinction between science and spirituality thus lies not in their respective approaches to knowledge, but in the criterion of demonstrability. Swami Samatvananda (2025) emphasizes that spirituality begins where the explanatory reach of science ends. He further argues that the object of spiritual inquiry lies beyond the limits of scientific investigation, which primarily relies on data acquired through the five human senses. The ultimate reality—the "thinking substance," the locus of bliss, or the inner ground of consciousness—cannot be observed or verified through sensory perception. Rather, it is accessible only through individualized, inward experience.

Albert Einstein, widely regarded as one of the foremost figures in modern science, famously observed that "science without religion is lame, religion without science is blind." In articulating this view, he spoke of a "spirit… manifest in the laws of the universe," a sensibility that evokes humility and a form of spirituality grounded in awe, while simultaneously rejecting dogmatic and anthropomorphic conceptions of a personal God. Einstein's reflections illustrate how a physicist's sustained engagement with the cosmos can culminate in what he explicitly described as a "religious feeling"—not rooted in creed, but in wonder before the rational order of reality. Similarly, the American astronomer Carl Sagan argued that a mature scientific outlook naturally engenders a sense of spiritual awe and ethical responsibility. For him, treating science and spirituality as mutually exclusive domains impoverishes both, diminishing the depth of scientific inquiry as well as the moral seriousness of spiritual reflection.

Contemporary scholars and institutions working at the intersection of science and spirituality further maintain that while science seeks to uncover the structural and causal patterns of reality, spirituality—or what is sometimes termed "personal religion"—engages with questions of meaning, consciousness, and ethical orientation. From this perspective, an

integrated framework that respects the integrity of both domains is better equipped to address complex global challenges, combining analytical rigor with moral sensitivity and compassion.

Harmony between Science and Spirituality

Despite persistent scholarly debates that emphasize a sharp divide between science and spirituality, developments in contemporary quantum physics have increasingly challenged such rigid separations. Several theoretical and experimental insights in quantum mechanics complicate classical scientific assumptions and resonate—at least metaphorically and philosophically—with claims long articulated within spiritual traditions. In this sense, quantum theory has unsettled the once-clear boundaries between scientific and spiritual horizons.

For instance, the phenomenon of quantum entanglement demonstrates that two particles can remain correlated across vast distances, such that a change in the state of one instantaneously affects the other. While this is a strictly physical process governed by mathematical formalism, it has often been interpreted as conceptually analogous to spiritual notions of fundamental unity and interconnectedness, commonly expressed in the idea that reality is ultimately non-dual. Similarly, quantum experiments indicate that measurement plays a constitutive role in determining a particle's observable state. Although this does not imply that human consciousness "creates" reality in a literal sense, it has prompted philosophical reflection on the active role of the observer—an insight that echoes longstanding themes in Eastern traditions such as Vedānta and Buddhism, where consciousness is understood as integral to the apprehension of reality.

Parallel developments in the neurosciences have further contributed to dialogues between science and spirituality. Neurotheology—sometimes described as the scientific study of spiritual experience—employs neuroimaging techniques such as fMRI and SPECT scans to examine neural activity during meditation, prayer, and other contemplative practices. Empirical studies have reported decreased activity in the posterior superior parietal lobule, a region associated with spatial orientation and the distinction between self and world. Reduced activity in this area is correlated with subjective reports of diminished ego-boundaries and an intensified sense of unity, experiences that are central to many spiritual traditions.

Research in neuroplasticity has also demonstrated that sustained contemplative practices, including mindfulness and gratitude, can bring about measurable structural and functional changes in the brain. These practices have been associated with increased grey matter density in regions linked to emotional regulation and attentional control, alongside reduced reactivity in the amygdala, which is involved in fear and stress responses. Such findings provide a neurobiological account of the enhanced well-being, emotional balance, and deep contentment often reported by long-term practitioners. Related studies on meditation and controlled psychedelic experiences further suggest that decreased activity in the Default Mode Network (DMN)—commonly associated with self-referential thought and narrative

identity—can facilitate states of reduced ego-identification and heightened integrative awareness.

At a more fundamental philosophical level, the enduring "hard problem of consciousness"—the difficulty of explaining subjective experience in purely physical terms—continues to challenge reductive accounts within neuroscience. The absence of a clearly identifiable neural "locus" for consciousness has led some contemporary philosophers and physicists to revisit non-reductionist frameworks, including versions of panpsychism. Such perspectives propose that consciousness may be a basic feature of reality itself, rather than an emergent by-product of complex neural processes. While highly contested, these approaches reopen serious scientific and philosophical inquiry into forms of universal or fundamental consciousness, bringing modern debates into cautious dialogue with spiritual metaphysics without collapsing the distinction between empirical science and experiential wisdom.

The Neurobiology of Awareness

The neurobiology of awareness seeks to explain how the brain shifts from its routine, survival-oriented mode of functioning to states often described as transcendent or contemplative. During profound spiritual or meditative experiences, neural processing related to space, time, and self-referential identity undergoes measurable modulation. These changes provide a neurobiological framework for understanding subjective reports of deep connectedness or unity.

One of the most significant neural changes observed during such experiences involves the Posterior Superior Parietal Lobule (PSPL), a region associated with spatial orientation and the differentiation between self and environment. Neuroimaging studies indicate that activity in this area decreases during sustained meditation or prayer. When the brain's capacity to maintain clear self–other boundaries is reduced, individuals may report a sense of expansiveness or limitlessness—often interpreted as ego-dissolution in spiritual discourse.

At the same time, the prefrontal cortex (PFC), which governs attention, concentration, and executive control, shows increased activation. Practices such as focused meditation, mantra repetition, or ritualized prayer engage sustained attentional networks, thereby suppressing distractive cognitive activity. This heightened focus contributes to reduced activation of the Default Mode Network (DMN), a neural system implicated in self-referential thinking, autobiographical memory, rumination, and anxiety. The attenuation of DMN activity corresponds with reports of mental quietude and a diminished preoccupation with personal narratives.

The limbic system, particularly structures such as the amygdala and hippocampus, also exhibits distinct patterns of activation during spiritual experiences. Rather than triggering threat responses, the amygdala appears to shift toward signalling safety, emotional salience, and awe. This modulation is associated with the release of neurochemicals linked to positive affect, bonding, and motivation, contributing to feelings of deep relaxation, joy, and emotional connectedness. Collectively, these neurobiological processes help explain why

spiritual experiences are often accompanied by profound calm, a sense of meaning, and an expansive orientation toward others and the world.

Dopamine, Serotonin, and the Idea of "Deep Joy"

An examination of dopamine and serotonin helps clarify how scientific insights can illuminate spiritual distinctions between enduring purpose and transient pleasure. In neuroscience, dopamine is often described as a "reward" neurotransmitter; however, its primary function is not the experience of pleasure itself but the anticipation and pursuit of reward. Dopamine is released in expectation rather than fulfillment, driving motivation, desire, and goal-directed behaviour. Everyday stimuli—such as social recognition, sensory indulgence, or professional advancement—produce brief dopaminergic surges that generate excitement and momentum.

Because these dopamine-driven effects are short-lived, neural activity rapidly returns to baseline, often giving rise to renewed desire. This cyclical pattern of anticipation and dissatisfaction bears a conceptual resemblance to what spiritual traditions describe as *māyā*—the illusion of fulfillment through external gratification. The continual pursuit of successive rewards can foster a persistent sense of lack, as each momentary high is followed by psychological decline and renewed craving.

In contrast, serotonin is associated with feelings of safety, social belonging, emotional stability, and contentment. Unlike dopamine, serotonin does not operate through sharp spikes and crashes. Instead, it supports sustained well-being and equanimity. Neurobiologically, serotonin is closely linked to states of gratitude, trust, and internal regulation, and may be understood as the physiological correlate of inner peace—a mode of being rather than constant striving or acquisition.

When scientific and spiritual perspectives converge, they point toward a third experiential state that may be described as "deep joy." This state emerges when motivational engagement is aligned with enduring values and meaningful purposes. Activities such as sustained service, creative mastery, or contribution to a larger collective goal integrate dopaminergic motivation with serotonergic stability. The result is neither fleeting pleasure nor passive contentment alone, but a coherent experience of purpose, fulfillment, and psychological well-being that resonates with longstanding spiritual ideals of meaningful life orientation.

Telomerase, Stress, and Longevity

Contemporary biomedical research has begun to illuminate the ways in which psychological states and long-term behavioural patterns influence cellular ageing. One of the key mechanisms through which this relationship is studied involves telomeres—the protective nucleotide sequences at the ends of chromosomes. With each cellular division, telomeres gradually shorten; once they reach a critical length, the cell loses its capacity to divide and eventually undergoes senescence or apoptosis. Telomere length is therefore widely regarded as a biomarker of biological ageing and has been associated with increased risks of cardiovascular disease, metabolic disorders, and cognitive decline.

Groundbreaking research led by Nobel laureate Elizabeth Blackburn and her collaborators has demonstrated that telomere shortening is influenced not only by chronological ageing but also by chronic psychological stress, sustained anxiety, and maladaptive cognitive patterns. While telomere attrition is a natural biological process, the body possesses an enzyme—telomerase—that can partially restore and maintain telomere length, thereby supporting cellular longevity and resilience.

Empirical studies suggest that individuals engaged in sustained mindfulness practices, meditation, or intensive contemplative retreats often exhibit higher telomerase activity compared to control groups. These findings support the view that mental states and emotional regulation exert measurable effects on cellular processes. Rather than operating as separate domains, mind and body function as an integrated and continuous feedback system. Contemplative practices that cultivate calm, attentional stability, and emotional balance appear to activate parasympathetic pathways—mediated in part by the vagus nerve—leading to reduced physiological stress, lowered heart rate, and the activation of restorative biological mechanisms.

From this perspective, spiritual or contemplative practices are not merely ancillary to psychological well-being but may play a meaningful role in sustaining long-term physiological health. The existing evidence increasingly supports the view that practices fostering mental equanimity and inner coherence contribute to cellular health and longevity.

Harmony as the Ultimate Horizon

Both Eastern philosophical traditions and modern scientific inquiry increasingly recognize that human beings do not merely passively perceive the world but actively interact with it through multiple layers of engagement that extend beyond immediate cognition. Human interaction with reality occurs across sensory, affective, cognitive, and experiential registers, many of which remain only partially accessible to existing scientific instruments. Consequently, the phenomenology of human experience cannot be fully reduced to what is presently observable, measurable, or computationally modelled.

Classical Indian thought offers a sophisticated account of this multi-layered engagement through the distinction between the five *jñānendriyas*—sight, hearing, touch, taste, and smell, which function as channels of perception—and the five *karmendriyas*—locomotion, grasping, speech, reproduction, and excretion, which enable action in the world. The *manas* (mind) operates as an integrative bridge between perception and action, processing sensory inputs and directing response. When the mind is fragmented or agitated, sensory information degenerates into cognitive "noise"; when the mind is disciplined and still, the senses become a transparent medium for apprehending reality with clarity and coherence.

Indian intellectual traditions from Patañjali and Vasiṣṭha to Kṛṣṇa have developed systematic practices aimed at achieving such inner coherence and harmony. In contemporary psychological discourse, this orientation is often described as an internal locus of control; in

spiritual vocabulary, it is articulated as *yoga*. Yoga, in this deeper sense, is not primarily concerned with physical flexibility but with emotional regulation, non-reactivity, and the cultivation of nervous system stability amidst external volatility. While biology suggests that individuals possess a baseline or "set point" for happiness, research on neuroplasticity demonstrates that this baseline is modifiable. By grounding well-being internally rather than in transient external rewards, individuals reclaim a form of biological and psychological autonomy.

In the contemporary age of artificial intelligence, anxieties regarding human relevance and existential displacement have intensified. Spiritual traditions, however, offer a decisive counterpoint: while AI operates on sensory-derived data and algorithmic pattern recognition, the core of human experience—lived subjectivity, compassion, curiosity, and empathy—cannot be fully quantified, replicated, or appropriated as data. Intelligence, as understood in contemporary science itself, extends beyond information processing to include meaning-making, ethical judgment, and experiential depth. While artificial systems may simulate aspects of cognition, they do not possess consciousness or interiority.

From this perspective, the future need not be framed as a contest between humanity and technology. Rather, it may mark a renewed convergence in which science continues to refine its tools to interpret experience, even as spirituality deepens humanity's access to dimensions of awareness that remain irreducible to computation. This ongoing dialogue gestures toward a higher horizon of harmony, where scientific understanding and spiritual insight are not opposed but mutually illuminating.

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