

SCIENCE AND THE SPIRITUAL VISION: A HINDU PERSPECTIVE

by *Varadaraja V. Raman*

Abstract. Every religious tradition has a spiritual basis. Hinduism is no exception. In this paper the spiritual framework of Hinduism is discussed, after a brief historical background, with reference to scientific worldviews. Particular attention is paid to the notions of objective knowledge, transcendental reality, and the Hindu view on the meaning of human existence.

Keywords: Brahman; objectivity; *prakriti*; *purusha*; quantum inseparability; Upanishads; Vedanta; Vedas.

In this paper I reflect on science and spirituality from a Hindu perspective. I use the indefinite article *a* rather than the definite *the* for at least two reasons: first, because it would be presumptuous on my part to speak on behalf of the entire Hindu world, which is vast and varied, and second, because from the Hindu perspective there is not one but myriad modes of apprehending the Truth. Expressed differently, no one individual can claim to represent *the* Hindu perspective.

It would be presumptuous on the part of anyone to be a spokesman for science also. For, when it comes to religion and culture, scientists come in a thousand colors: there are and have been scientists who may be described as ardent practitioners of this or that faith, as agnostics, atheists, and variations of all these.

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As one who has grown up in the Hindu tradition and has absorbed some of its essential insights, and also as one who for many decades has participated in and resonated with the essential insights and methodology of the world of science, I do not feel that I am seriously transgressing any cultural, scholarly, or scientific boundaries when I speak on this subject here.

I will consider the theme of science and spiritual vision in the Hindu world from three different perspectives: the historical, the scientific, and the philosophical. From each of these we gain some insight and understanding as to the relationship between religion and science in the Hindu framework. Indeed, this may be said of any religious or cultural context, for science and religion have interacted in complex ways in practically every culture. It is important to understand the matter from all these perspectives if we wish to build bridges of understanding and harmony between these two most potent and lofty expressions of the human spirit.

HISTORICAL

Since the most remote times, India has been a land known for reflection and inquiry. The Vedas,¹ which are the most ancient writings in the Hindu world and are among the most ancient literary legacies of the human family, pay homage to the primordial forces sustaining the phenomenal world. They embody mythopoetic hymns dedicated to personification of fire and water, sky and air and more. They are clearly responses to the complexity of the cosmos and are scientific in their wonderment, but they are imbued no less with a sense of awe that is religious in its reverence. They propound theories of cosmogony in terms of supernatural principles that are religious in format, but they express no less a keen sense of skepticism that is scientific at its core.

In later writings, especially in the Upanishads² and the Brahmasūtras,³ there are many references and theories related to natural phenomena and to the human mind. In other words, both the physical and the psychological world are considered here. These are the very core of the Vedantic worldview,⁴ which in the Hindu world is as central as Thomistic philosophy is in the Christian.⁵

The undeniable similarity between Vedanta and science lies in the spirit of inquiry. The greatest minds of the ages have striven to explain the wonders of nature and of the universe. Why does the sun rise and set, how do stars shine, what makes the rainbow span the sky, and what causes rain? Then there are even greater puzzles that need to be solved: When did the universe begin and how? Is there an end to space and time? Finally, we have the mystery of mysteries: human consciousness. Even if there is a physical reality beyond human consciousness, is the perception of that reality modified by the constraints of the perceiving principle or enhanced by its capacity?

These are penetrating questions. Inquiring minds have posed them in all cultures and at all times, and they have followed different methodologies at different times. The goal of science, as Karl Pearson reminded us succinctly in *The Grammar of Science* ([1892] 1937), is nothing less than the complete interpretation of the whole universe. The Brahma Sūtra opens with the bold phrase *atâto brahma-jijñâsâ*—the inquiry into ultimate reality.

Thus, both science and Vedanta seek to uncover the nature of ultimate reality. This ultimate reality is referred to as Brahman in Vedantic terminology.⁶ It is in this respect—in the matter of the goal of the enterprise—that Vedanta and science converge. But there are essential differences between the two in the methodology followed, in the basic assumptions, and in the nature of the results obtained.

VEDANTIC THESIS

What makes the Vedantic system unique is that, unlike doctrines in some other religious systems, Vedanta is not simply based on the sacredness of this book or that. The Vedantic vision is not theology or philosophy or even metaphysics. Rather, it is the formulation of a worldview arising from a unique mode of exploration. From the traditional perspective, it is a discovery derived from a mode of inquiry very different from the standard (currently followed) scientific mode.⁷

The essential thesis (or discovery) of Vedanta is that there is something beyond our perceptually acquired impressions. Just as physical instruments such as the telescope and the microscope make us aware of hidden aspects of physical reality, Vedantic vision brings to our cognition a different realm or dimension of the universe. This dimension transcends space, time, and causality. The recognition that there is a transcendent reality beyond the purely perceptual gives us a very different and, from this perspective, a deeper vision of the ultimate nature of the universe. This discovery is significant and relevant for at least three reasons.

First, this recognition enables us to regard the human experience in richer ways. Our attitudes and behaviors in life are often governed by the meaning and purpose we attach to the life experience. Vedantic revelation gives us a framework in which life becomes immensely significant. Indeed, the affirmation and acceptance of transphysical reality is part of any religious experience. This has the potential for providing one with a positive approach to life, for enriching human life with hope and purpose. Prayer and meditation are efforts to communicate with and experience the transcendent dimension of reality.

Second, Vedantic recognition underscores the relative nature of the intellectual-rational mode of grasping the ultimate nature of the world. It reminds us that logic and reason enable us to become aware of only one

dimension of reality: its phenomenal component. Vedantic awareness enables one to see that while the logical mode is useful and essential in the comprehension of this dimension, there is another dimension of reality that is no less significant. Without disparaging the logical-empirical mode of grasping the sensorially perceptual world, one may still appreciate its scope and limitations.

This point needs to be emphasized in the context of current discussions and debates on the relationship between science and religion. All too often, the so-called diehard physical scientists categorically declare that there is *nihil ultra*, nothing beyond gross matter and the fundamental fields of interaction. Insofar as one is dealing with the causal and localizable aspects of the phenomenal world, they might be quite right. But, at least with reference to human consciousness, there are subtle and intangible entities, such as thought and value, meaning and aesthetic experience, that transcend logico-mathematical explanations. They belong, from the Hindu spiritual perspective, to a totally different realm: that of the human spirit.

By the same token, keen philosophers and theologians, in their admiration for the results and coherence of scientific methodology, often try to establish the deeper elements of religious faith in the framework of science. The spiritual masters of the Vedantic tradition have often insisted that this is not only unnecessary but quite futile. For the truths apprehended by the human spirit go beyond the facts and figures accumulated by painstaking observation and analysis of the physical world.

Third, the Vedantic system exposes the complexity of the neural network of the human brain, which we normally tend to look upon as an instrument for handling only the physical dimensions of the world. Vedantic revelation uncovers the spiritual potential of the brain, which is a subtler region in the spectrum of human capacities. It is this spiritual component that enables the practitioner to attain states of transcendental awareness.

Whether this spiritual component is superimposed on the material elements constituting the brain, like an image in a bowl of clear water, or is an as yet unexplained consequence of brain chemistry, we are unable to affirm with complete certainty.

From the first perspective, if we make an analogy between the human brain and the telescope, say, then ordinarily the lenses of the instrument are blurred and foggy. Meditation and other spiritual exercises would be equivalent to cleaning and polishing the eyepiece. This enables one to see more, and also more clearly, aspects that are otherwise either blurred or not visible at all. In other words, spiritual exercises are for the recognition of transrational dimensions of reality, even as routine laboratory experiments are essential for a full grasp of physical phenomena.

It must be clear from what has been stated that Vedanta is very different from science, as the term is understood by the practitioners of science.

More specifically, Vedantic revelation is not the result of collective activity, although it could be corroborative. Each spiritual seeker chooses his or her own path and comes upon varying aspects of the beyond, which is kaleidoscopic in its multisplendor. This Vedantic insight, extended to the global arena, opens up our hearts and minds to diversity. And it leads to the much needed enlightenment that not just tolerates but respects all religious modes and cultural traditions as well. An oft-repeated prayer in the Hindu world is:

As waters raining from the skies
All return to the self-same sea
So prostrations to different gods
Reach the same divinity.⁸

Vedantic thinkers remind us that spiritual awakening does not arise from intellectual modes of activity, though philosophers attempt to express religious truths in intellectual terms. Vedanta insists upon the constraints and limitations of the logical mode in the recognition of transcendent dimensions of reality. For those who have not had the revelation, the *sastras*, or canonical doctrines, are said to provide the basis of proof.

SPIRITUAL AND SCIENTIFIC QUESTS

We must note the difference between the spiritual and the scientific quests. The goal of the spiritual quest is not to describe the world but to apprehend its inner essence. The truths thus recognized are based on *anubhava*, which is intensely personal,⁹ and it does not call for experiments that demand external tools and meters.

There are, in fact, different levels of reality. Just as there are dimensional scales in the physical world, from the subnuclear to the extragalactic, as we peel the layers of reality through appropriate spiritual modes, declare Vedantic seers, we will discern the integral nature of the substratum of the universe in its totality.

Vedantic revelations are not fruitful in the sense in which scientific results are. They do not enable us to predict the evolution of particular phenomena, such as where a ballistic missile will land or when the next comet will appear, or to find a cure for malaria or invent a computer.

This is because Vedanta is concerned with the unchangeable underlying principle of the universe,¹⁰ whereas science analyzes every detail of all that is changing and ephemeral. But we must remember that physics, too, is interested in uncovering the unchanging quantitative features in the phenomenal world.¹¹ Thus, Vedanta explores what is permanent and eternal, the principle that does not change, rather than the measurable quantities that do not change. This is the reality with which Vedanta is concerned, while science is primarily interested in the specific ways in which unchanging principles give rise to the changing aspects of the perceived universe.

Thus, Vedanta is revelatory of a reality beyond the physical world of sensory perceptions. As mentioned earlier, it unveils a dimension of reality that transcends spatial-temporal and causal categorizations. By its very nature, this dimension of reality is not something that can be conceptually grasped, logically analyzed, or verbally articulated. Hindu thinkers emphasized the differences between sensory perception, logical analysis, and intuitive apprehension.¹² Transcendent reality can be grasped only in its totality by the human spirit, not in its piecemeal subdivisions. The fundamental thesis of Vedanta is that transcendent reality can be apprehended, not comprehended; experienced, not experimented with.¹³

OBJECTIVITY

The goal of classical science is descriptive and explanatory of the world insofar as it is independent of human presence in it. One might almost say that the obsession of (classical) science is with objectivity. As Werner Heisenberg put it, "Every scientist who does research feels he is looking for something that is objectively true" (Heisenberg 1962, 82). Science seeks to know how the world would function whether or not the human mind happens to be in it.

Long before René Descartes distinguished the *res extensa* from the *res cogitans* (for which he is being castigated by many postmodernists who trace all the evils of the modern world to this error of Descartes), Hindu philosophers had propounded a very similar idea: the dichotomy between *prakriti* (mindless nature) and *purusha* (the experiencing principle). The world per se (*prakriti*), bereft of the observing self (*purusha*), would be as weird and wasteful as encyclopedias buried at the bottom of the sea. In the terminology of Vedanta, science is an attempt to picture *prakriti* without a *purusha*.

One difficulty with this goal of science is that it cannot be reached even in principle. This is because science is based on concepts that are products of the human mind. By scientific objectivity one means that scientific analyses and descriptions ought to be independent of the specific human minds that articulate or accept them. In other words, scientific theses demand certain universality of appeal based on appropriate experimentation and logical modes. Scientific objectivity thus becomes essentially collective subjectivity. But, as La Chaussée reminded us, "When everyone is wrong, everyone is right."¹⁴ Vedanta grants such collective subjectivity but regards it as illusory, by which is meant that the physical phenomenal world, such as it appears, is a consequence of the constraints and characteristics of the human mind.¹⁵

A second and more serious difficulty with objectivity has arisen from our exploration of the microcosm. Quantum physics has brought out the intrinsic inseparability between subject and object, between the observed

and the observer. A solution to this impasse may be found by accepting levels of reality: a macroscopic level, at which a bifurcation between subject and object is not only possible but indispensable for a coherent description of the world; and the microcosmic level, where such a distinction becomes not only impossible in practice but also untenable conceptually. This would conform to the Vedantic doctrine that the nature of reality is a function of the level at which one apprehends it.

The interconnectedness between the conscious mind (*purusha*) and the inert world (*prakriti*) makes separateness (objectivity) very difficult to hold. Indeed, it forces us to look upon physical reality as being ultimately a single unified whole. Moreover, the separateness that we observe and experience is a consequence of the level at which we normally function. From this perspective, then, it is not impossible to see how, exploring the world at a different level of experience, the wholeness may become more apparent. The substratum of physical reality may be grasped either analytically (i.e., via the scientific mode) through concepts, mathematics, and instruments, leading to quantitative and exploitable results, or through the mystical mode (meditation, yogic exercises, and so on), leading to intensely personal and profound experiences.

What is interesting is that a great number of serious scientists, not just philosophers or religious apologists but physicists who had contributed to the emergence and development of quantum physics, have been observing in the spiritual revelations of Hindu *rishis* (spiritually evolved sages), glimmers of their own discoveries of the mysteries of the microcosm. From Erwin Schrödinger to Eugene Wigner and David Bohm, many perceptive physicists have seen more than mere parallels between the collapse of the quantum mechanical wave function and the intertwining of *purusha* and *prakriti*.¹⁶ In the process, as knowledgeable Hindus will recognize, all the variety and range of Asian philosophy and metaphysics are often lumped together under the simple, not to say simplistic, rubric of Eastern mysticism. Yet, what is interesting here is that thinkers outside of a tradition are recognizing the relevance of an alien tradition in their interpretations of science. This is surely a matter of some significance, for it reflects as much the open-mindedness of the thinkers as the intrinsic truth content of the matters interpreted.

A number of modern commentators hold the view that, even with its mutually opposing positions as to the identity or distinctions between *jīvâtman* and *paramâtman* (individual and supreme souls), and other conflicting and debatable metaphysical assertions, Hindu spiritual doctrines have at the core certain profound insights into the nature of ultimate reality and of the human experience. The basic tenets do not simply subtend a speculative system, any more than Maxwell's equations are mere mathematics. Rather, Hindu seers were telling us something that is not only meaningful but revelatory about the cosmos and consciousness. They were

not building a system of thought but unveiling a not-so-apparent dimension of the universe. Their assertions were not just doodles on the mental plane: they arose rather from experiential certitudes resulting from sustained experimentation with the subtlest centers of the inscrutable self. Their words and wisdom are to be taken, therefore, not simply as magnificent mythopoesy but as findings about the translucent aspects of the physical universe, exactly as twentieth-century science, after persistent probing into the heart of matter and energy, after countless decades of search and reflection, erected its framework of fundamental reality.

If this be so, if spiritual probing via meditation and yogic discipline do lead to insights about the nature of one realm of reality, while scientific peelings of the layers of matter via experimental ingenuities and mathematical structures take us to the deep-down details of another realm, then one could expect the two lines of quest to complement each other, if not converge, somewhat as travelers by jet planes and ocean liners may ultimately arrive at different destinations in the same country.

This, in the view of some commentators, is precisely what has been happening in recent decades.¹⁷ The epistemological quagmire into which quantum physics has been sliding turns topsy-turvy our commonsense pictures of a solid substantial world of cause and law, of rigid particles and conserved quantities, of smooth-flowing time and three-dimensional space. As we delve deeper into the remote recesses of atoms and nuclei, funny things begin to happen. Mathematical clouds of probability take over, electrons seem to know, information is transmitted instantaneously, everything seems to be interconnected. In the depths of black holes and in the singularities of quarks, space and time and physical laws themselves get warped and dissolved. Weird things are indeed transpiring in the microcosm.

One begins to wonder if those *rishis* of ancient India had not after all tumbled upon some profound truths about the unperceived world that, because of their very nature, cannot be expressed adequately even in sacred Sanskrit. They were perhaps quite right in insisting that in the stark denuded aspect, bereft of matter and mind, there is a level of reality that only pure consciousness can experience and pure consciousness can only experience, not convey. Could it be that now, at long last, after countless tortuous turns of experimentation, mathematics, and microscopes, we are slowly beginning to get a glimpse of what the sages were speaking about?

This is the reason why in our own times some physicists and philosophers of the quantum world are drawn to ancient wisdom. This is what led to John Wheeler's (1973) idea of the collocality of planiverses, to Henry Stapp's (1977) consciousness-configurations in quantum mechanics, to Alex Comfort's (1984) notion of the phenomenal world as eigenstates of Om, and to Amit Goswami's (1993) provocative notion of a self-aware universe.¹⁸ It would seem that there is much to be gained if the yogic quest, stripped of its mumbo-jumbo, and no-nonsense empirical science, freed

from its rationalistic straitjacket and model-building obsession about what can and cannot be, combine forces in unscrambling the deeper mysteries of the world of experience.

RECONCILIATION, A MODERN TREND

From all this it must be clear that in the framework of the Hindu world, science and spirituality are both quests, but of very different levels of reality. It is therefore not at all surprising that in classical India, scientific investigators went about their business, producing practical technology, observing and calculating stellar configurations, creating mathematics, and even speculating on the nature of matter. But the spiritual seekers would have nothing of all this. These were the saints and the sages to whom the populace came not to learn about physics and cosmology but to show their reverence.

However, ever since the advent of modern science in the Indian cultural framework, many historical forces have come into play, largely due to European intrusions, influences, and to some extent, political oppression too. Hindu thinkers have adopted the apologetic approach of Western theology, whose goal is to reason out and elucidate religious doctrines and to defend them against the iconoclastic onslaughts of modern science. Thus, in the Hindu context, too, efforts have been and are being made to establish that the ancient spiritual visions of the tradition are in perfect harmony with the latest findings of quantum physics and Big Bang cosmology.¹⁹

THE VISION

Finally, let me turn to the philosophical/metaphysical vision in the Hindu world. The human being, as a biological entity, is a puny entity, confined to a planetary speck in the vast stretches of the cosmos. To all appearances, this minuscule bundle of mind and matter emerged barely a few million years ago through the slow and silent working of immutable physicochemical laws acting in harmony and at random, too, for if the mystery of life can be tracked down to molecular bonding, no calculation could have predicted the countless chance factors that brought them into play. Was it the most sublime manifestation of the chaos principle in action? or was it a carefully designed confluence of causal links? No one can be certain. But if we trust our thermodynamics and astrophysics, the spark of life may last for a few billion years yet unborn and then be snuffed out to be gone forever.²⁰

The compelling evidence of experience is that the human being is much more than a biological entity, for there is in each of us the magic of thought and feeling, the glory of art and music, the excitement of love, and the ennobling of ideals. Then there is the penetrating power of the mind that can fathom the ultimate nature of the complex world, reach the very ends

of the universe, and mathematize the microcosm. If all this is matter and energy and nothing more, then one might as well say that a collection of Shakespeare's plays is a mere heap of letters permuted in peculiar ways.²¹

This capacity for awareness and experience, for logical analysis and joyful interaction, constitutes the intangible component in the fleeting persistence of *Homo sapiens*. This is the essence of what we call the human spirit. Even as there is more to a flower than soil and plant, the spirit is more than neural network, heartbeat, and vital breath, though these are what sustain it.

If there is splendor in the perceived world and pattern in its functioning, and if it can all result in the grand experiences of life and thought, then even prior to the advent of humankind there must have been a *purusha* of a vastly superior order, an Experiencer that spanned the cosmic range in space and time. This is the undergirding cosmic principle, the Brahman in the Hindu vision.²² Just as the grand expanse of water in the seas is scattered all over land in ponds and lakes and rivers, the all-embracing Brahman finds expression in countless life forms. We are all miniature lights that have emanated from that cosmic effulgence, like photons from a glorious galactic core, destined for the terrestrial experience for a brief span on the eternal time line, only to re-merge with that from which we sprang.²³

Is this poetic imagery, scientific hypothesis, or perhaps the ultimate Truth? Who can tell? But even if it be poetry, we must remember that poetry and prayer are for the human spirit what the telescope and the microscope are for human eyes. Even as the lenses enable us to discern entities beyond our normal recognition, profound poetry is a response of the spirit to that which is not fathomed through logic and reason. It brings home to us, indeed it forces us, to reckon the world of experience not in terms of sense data and charts and proofs but in subtle and holistic ways that reveal meaning and majesty in the universe, ways that lie in a realm beyond the plane of rigid rationality. At the highest levels, poetry is mysticism verbalized.

We may also say this of the Hindu spiritual vision: It paints the human experience on a cosmic canvas. It recognizes the transience and finitude of us all as individual entities yet incorporates us into the infinity that encompasses us. It does not rule out the possibility of other manifestations of Brahman, sublime and subtle, carbon or silicon based, elsewhere amidst the stellar billions. It recognizes the role of matter and the limits of the mind but sees subtle spirit at the core of it all. It does not speak of rewards and punishments in anthropocentric terms nor of a He-God communicating in local languages. Yet, it regards the religious expressions of humanity as echoes of the universal spirit, even as volcanic outbursts reveal submerged forces of far greater magnitude.

NOTES

1. The word *Veda* literally means “knowledge” in Sanskrit, the sacred language of Hindus. The English *wisdom* is cognate to this. The Vedas date back to a period prior to 1500 B.C.E. The four Vedas (or portions thereof) have been translated into many languages. Of these, the renderings of Karl Friederich Geldner (German), Ralph T. H. Griffith (English), and Louis Renou (French) are the best known.

2. From a cultural-historical point of view, the Upanishads are philosophical/metaphysical treatises that embody some of the worldviews of the ancients, but they are not purely speculative works. They are often presented in a dialogue format, somewhat like Plato’s work. Of the many Upanishads, eighteen are regarded as principal. The Upanishads have also undergone many translations.

3. Brahmasūtra, also known as Vedānta-sūtra, is attributed to Bādarāyana (ca. 300 B.C.E.).

4. Vedānta is the Hindu school of thought that is taken by many to be the most authentic interpretation of the Vedas. It is essentially monistic, regarding matter and spirit as only superficially different. In this sense, it is not unlike religious naturalism, which regards all the vital aspects in the phenomenal world to have one and the same naturalistic basis, except that in Vedānta they both have one and the same spiritual basis.

5. Like the approach of the Thomistic thesis in the Christian world, which gave equal importance to both rationality and faith, the Vedantic school recognized the value of both the physical and the spiritual realms. In Thomism, one can discover God through reason. In Vedantic thought, one can attain spirituality through the proper (meditative) discipline of the physical body.

6. Brahman, in the Vedantic view, is the conscious substratum of the universe, ultimate existence and the only reality.

7. The identification of spiritual insights with scientifically formulated truths is one of the more serious errors of modern scholarship.

8. In Sanskrit, this verse, which is recited by millions of Hindus every day, is as follows:

*ākāśād patitāntōyam
yadā gacchadī sāgarām
sarvadēva namaskāra
srī kēsavam pradigacchadī*

9. The term *anubhava* means “direct experience” or “personal realization.”

10. This corresponds to the idea that God is eternal and indestructible. Anything that changes, decays, or perishes cannot be the Absolute.

11. In physics these are referred to as conservation laws: principles that state which measurable quantities remain unchanged within a closed system even when a thousand changes are actually occurring. In physics, too, these invariants are what constitute reality.

12. According to the Katha Upanishad (II.3.10), for example: “When the five senses together with the mind cease [to function as usual] and the intellect itself stirs not, that, it is said, is the highest state.”

13. Here the term *transcendent* is used in the sense of something that exists beyond space-time and causality and not of enlarging one’s ontological identity that comes with reflection and self-awareness, making human beings co-creators, in the terminology of Philip Hefner (1993).

14. La Chaussée: “*Quand tout le monde a tort, tout le monde a raison.*” *La Gouvernante*, Act I, sc. 3. This is the doctrine of *mâyā*.

15. This is one interpretation of the doctrine of *mâyā*. The Rig Veda considers *mâyā* as “the divine art or power by which the divinity makes a likeness of the eternal prototypes or ideas inherent in his nature” (Radhakrishnan 1953, 83).

16. These were presented and popularized for the general public in a number of very successful books during the last quarter of the twentieth century.

17. Not all the books purporting to intertwine science and mysticism are profound and insightful.

18. For a good discussion of some of these, see Rothman and Sudarshan 1998.

19. This enthusiasm for demonstrating concordance between the most recent theories of physics and the most ancient scriptures of one’s tradition is a characteristic of the modern age and is likely to find expression in an increasing number of publications authored, by and large, by nonpracticing or retired physicists who have a deep sense of commitment to their particular religion. This is an unfortunate by-product of generous funding for science-religion dialogues

and multiculturalism. I am of the opinion that the true contribution of ancient Hindu thinkers and practitioners is precisely to help us understand this sometimes irreconcilable but most often complementary dichotomy, in the human experience, between the head and the heart.

20. According to some authors who rely on information persistence in a nonmaterial world, this possibility might be averted. See, for example, Tipler 1994.

21. Today we try to explain these as emergent properties: the rising of something totally unexpected from something else. Some might say that this is an example of technical terms that deceptively hide human ignorance, for the fundamental question is, *How* does it happen?

22. We are reminded of Paul Tillich's (1957) description of God as "The Ground of Being" and "Being-itself."

23. The Mundaka Upanishad (II.1.4) says: "This is the truth. As from a blazing fire, sparks of like form issue forth by the thousands, even so, O beloved, many kinds of beings issue forth from the immutable and they return thither too."

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