Science and Spirituality

Abstract

Readers who are committed to a traditional approach to science with its materialist foundation may find it difficult to relate to the reflections provided here; there is at times a strained relationship between a scientific search for truth and a spiritual search for Truth. Spirituality implies that “reality” is not exclusively material. Furthermore, for many, spirituality is equated with religion, and religion, with its foundation in faith, dogma, priesthoods and holy texts may be regarded as in opposition to science with its focus on objectivity, empirical investigation and the scientific community as the final arbitrator of matters of truth.

Keywords: scientific truth, spiritual search for Truth, Perennial Philosophy, consciousness, spiritual empiricism
“Science without religion is lame, religion without science is blind.”

Albert Einstein (Einstein 1941; 605)

“For me, science has always been the path to spiritual enrichment and self-realization.”

A.P.J. Abdul Kalam, aerospace scientist and former President of India

(Pruzan and Pruzan Mikkelsen 2007; 363-364)

To pave the way for reflections on the relationship between science and spirituality, consider the following basic questions:

- How did life evolve from non-life?
- Is the universe a random event?
- What is consciousness?
- Why is there anything rather than nothing?

I do not imply that these are “spiritual questions” in the sense that people on a spiritual path tend to ask such questions and to seek answers to them. And judging by the curricula of programs in science, neither are they ordinarily considered to be “scientific questions”. Nor do I have the audacity to imply that reading this essay will help you to answer such questions. Rather, they simply set the stage for the reflections that follow.

1 The Concept of Truth in Science and Spirituality

As a starting point, consider the following definition: “Natural science is a special way of looking at the universe – a rational approach to discovering, generating, testing, and
sharing true and reliable knowledge about physical reality.” (Pruzan 2016, 24) In other words, natural science is concerned with the systematic acquisition of knowledge of an objective, independent, physical reality that is knowable and that can be described, explained and predicted using our senses and cognitive capabilities. This way of looking for truth about the world has led to activities we call science, to a profession we call science, and to an institution we call science. From such a perspective, truth is a property of a statement; true statements correspond with reality – there is a correspondence between the external physical world of objects and phenomena and the internal mental world of perception, cognition and belief.

In contrast to science, although there are activities one can refer to as spiritual, and while there are many loosely coupled groups of people who share spiritual practices, for example at spiritual retreats and ashrams, there is no profession or institution one can call “spiritual”.

As is the case with many concepts where the user does not draw upon a well-established definition, for example the concept of “ethics”, people tend to have an intuitive understanding of the word “spirituality” and are able to use it in their day-to-day conversations with others and with themselves. In a research project focusing on spirituality and leadership, more than 30 business leaders from 15 countries in 6 continents reflected on the meaning of the word “spirituality” (Pruzan and Pruzan Mikkelsen 2007, 22). Perhaps the most significant commonality between their definitions is the focus on an “inner” reality (e.g. “knowing the true core of being within you”, “quest into one’s innate divinity”, “deep inner search”).
So while the “truth” that science searches for is an objective truth about an external world that exists independently of us as observers (1), the “Truth” that spirituality searches for is internal yet universal. Spiritual masters/sages throughout the ages, no matter what their spiritual traditions, have taught from their personal experience that this Truth is to be found within us as our essence and that it is the same essence that pervades the entire universe (Huxley 1970). However, our ability to know and be one with that essence, that universal reality, appears to depend on our ability to “go within”, to find truth not just in an objective outer world, but in the very core of our being. Therein appears to lie the aim of much spiritual practice, whether it is meditation, selfless service, prayer, reading spiritual texts, visiting spiritual retreats, seeking communion with nature, or whatever one chooses to do to realize the Truth.

In other words, while the natural sciences aim at “discovering, generating, testing, and sharing true and reliable knowledge about physical reality”, spirituality has different aims and standards. It does not directly rely on the senses, on the intellect, on measuring instruments, on analyses. It does not aim at objectivity and replicability since spiritual experiences are individual and subjective and therefore not directly subject to empirical testing. It does not aim at the development of theories and laws that generalize relationships between variables. It does not aim at the achievement of consensual approval via peer evaluations as to the correctness of analyses and conclusions. In fact its aims are very personal – and yet very general: to realize/experience that we are all embodiments of a source that is both immanent (existing in all of what we refer to as reality) and transcendent (beyond the limits of ordinary experience – existing apart from and not subject to the limitations of the material universe).
Wilber (1996, 265 and 270-271) reflects on developments that have led to the perspective that science is the sole provider of truth and refers to the statement by Bertrand Russell (1961, 243): “Whatever knowledge is attainable must be attained by scientific methods; and what science cannot discover mankind cannot know.” According to Wilber, “Science ... became scientism, which means it didn’t just pursue its own truths; it aggressively denied that there were any other truths at all!” From this perspective, science has objectified spirit, consciousness, art and morals.

So the scientific community, with its emphasis on a materialist empiricism, ignores the existence of a spiritual empiricism founded on the documented spiritual experiences of individuals (Pruzan 2015, 142). Even though such empiricism cannot live up to traditional scientific norms of objectivity, replicability and generalizability, there has long existed extensive written documentation of spiritual experiences – in spite of the limitations of language in expressing experiences that often transcend normal perceptual and cognitive capabilities. This documentation includes the writings by and about what sages and seers and saints – as well as ordinary humans – throughout the ages and across cultures have experienced. Let us therefore briefly consider the commonality of spiritual aims and experiences that can underlie such a spiritual empiricism.

2 The Perennial Philosophy

The title of this section is inspired by Aldous Huxley’s book with the same name (Huxley 1970) and by his introduction to the translation of the ancient Indian spiritual text Bhagavad Gita (Prabhavananda and Isherwood 2002), often referred to as “The Gospel of
Hinduism”. The introduction by Huxley (1970, 11-22) presents a concise interpretation of the so-called “Perennial Philosophy”, a term first coined by the philosopher Leibniz (1646-1716). Huxley describes the perennial philosophy as “the Highest Common Factor of all religions … which has always and everywhere been the metaphysical system of the prophets, saints and sages”. According to Huxley (1970), at the core of the Perennial Philosophy we find four fundamental doctrines that can unite people of all spiritual orientations and that are not limited to time or cultural or religious context:

First: the phenomenal world of matter and of individualized consciousness – the world of things and animals and men and even gods – is the manifestation of a Divine Ground within which all partial realities have their being, and apart from which they would be non-existent.

Second: human beings are capable not merely of knowing about the Divine Ground by inference; they can also realize its existence by a direct intuition, superior to discursive reasoning. This immediate knowledge unites the knower with that which is known.

Third: man possesses a double nature, a phenomenal ego and an eternal Self, which is the inner man, the spirit, the spark of divinity within the soul. It is possible for a man, if he so desires, to identify himself with the Spirit and therefore with the Divine Ground, which is of the same or like nature with the Spirit.

Fourth: man’s life on earth has only one end and purpose: to identify himself with his eternal Self and so to come to unitive knowledge of the Divine Ground.
Huxley’s doctrines are in harmony with an “Eastern” (Vedantic) perspective (2). This philosophical school does not refer to an external source, to a philosophical first principle, to autonomous normative, practical principles (such as provided e.g. by a Kantian perspective) or to a social constructivist perspective whereby historical, social and economic forces determine what we find to be “good” or “bad”, “right” or “wrong”, “true” or “false”. Instead, it has its roots primarily in existential ontological perspectives on the very nature of reality whereby all sentient beings are physical manifestations and agents of a divine source.

According to this perspective, all physical reality, the subject matter of the natural sciences, has its origin in a timeless, non-material and omnipresent source: the Universal Consciousness. The highest manifestation of that source in sentient beings is in humans; we are endowed with the capability of self-reference and thereby eventually of self-realization – of realizing the unity of the individual consciousness with all other consciousnesses and with their ultimate source, the Universal Consciousness – the Divine Ground that Huxley refers to in his concise formulation of the Perennial Philosophy.

A focus of Vedanta, and of spiritual inquiry in general, is not “truth” from a scientific perspective, but Truth – supreme, timeless, omnipresent truth. However, the focus of spiritual inquiry is not limited to such Truth, but includes as well knowledge of the Knower, what Huxley referred to as the Divine Ground. The methodology of spiritual inquiry, although based on reason, observation and experimentation, is not based on the use of instruments that can investigate the physical world, but on very different types of “technologies”, such as meditation and cleansing and calming the mind, that are oriented
towards the direct perception of Truth, what Huxley in the second doctrine refers to as “direct intuition”. According to sages throughout the ages, when the mind is in a state of non-dualistic consciousness it is able to directly perceive the true nature of things. The silent mind is the only instrument that can realize the Divine-Ground/God/Jehovah/Parabrahman/Allah/Universal Consciousness – all labels for that which is both beyond the realm of the senses and our cognitive capabilities and is nevertheless immanent and omnipresent.

From this spiritual perspective, traditional science, with its reliance on technologies for observing, measuring and analysing limited aspects of physical reality by extending the capabilities of our perception and cognition, is not capable of investigating that which is their very source. On the other hand and in opposition to this spiritual perspective, investigation based on spiritual inquiry and direct intuition is considered as pseudo-science by traditional, materialist-based natural science.

A possible way out of this conundrum is to consider the origin and nature of consciousness. If one considers human consciousness to be both a manifestation of Universal Consciousness (the Knower) and an instrument whereby individual consciousness (the knower) can investigate and know and be one with the Knower, then the methodology employed by practitioners of spiritual inquiry is rationally based. Instead of manipulating and observing external reality, the seeker of Truth employs a research design based on self-reference. The goal is, via the transcendence of physical reality, to investigate its very source and essence.
3 Consciousness

The essay commenced by referring to several rather fundamental questions (“How did life evolve from non-life? …”). Closely related to these questions regarding physical reality are fundamental questions dealing with our experiences as human beings. These include for example the question as to where thoughts come from, where morals come from? preferences? love? aesthetics? conscience? loyalty? faith? awareness and self-awareness? Can all these aspects of consciousness be observed and explained by science – perhaps within a framework of biological evolution and reduced to molecular/genetic/chemical/quantum-mechanical explanations? Such questions become even more challenging when manifestations of consciousness include non-sensory experiences, often referred to as “mystical”, characterized by pure consciousness or awareness per se without cognitive/intentional content, i.e. content about things, events and states of affairs (Forman 1999, chapter 7).

The landmark paper “Facing Up to the Problem of Consciousness” (Chalmers 1995) raises basic questions as to how we can understand the emergence and existence of consciousness and whether a physical system can give rise to experience:

Consciousness poses the most baffling problems in the science of the mind. There is nothing that we know more intimately than conscious experience, but there is nothing that is harder to explain. All sorts of mental phenomena have yielded to scientific investigation in recent years but consciousness has stubbornly resisted … The really hard problem of consciousness is the problem of experience. When we think and perceive, there is a whir of information-processing, but there is also
a subjective aspect. … This subjective aspect is experience. … For any physical process we specify there will be an unanswered question: Why should this process give rise to experience? … The emergence of experience goes beyond what can be derived from physical theory. (Chalmers 1995, 9,10,18)

In *The Conscious Mind – In Search of a Fundamental Theory*, Chalmers (1996) expands on these perspectives: “Consciousness is the biggest mystery. It may be the largest outstanding obstacle in our quest for a scientific understanding of the universe … we are entirely in the dark about how consciousness fits into the natural order. … if a scientist suggests that consciousness can be explained in physical terms, this is merely a hope ungrounded in theory.” (Chalmers 1996, xi, xii). (3)

Similar arguments are also provided from the field of cognitive psychology by Kelly et al. (2007) in their in-depth presentation of “the problem of relations between the inherently private, subjective ‘first-person’ world of human mental life and the publicly observable, objective, ‘third-person’ world of physiological events and processes in the body and brain”. (Kelly et al. 2007, xvii). They develop an historical and theoretical framework for the thesis that the mind is an entity independent of the brain or body and, like Chalmers, they provide a critique of contemporary scientific thought regarding consciousness and argue that the mind cannot be understood adequately as the product of physiological sensations or processes and that it is itself an elementary and causal principle in nature:

…to the extent that any provisional consensus has been achieved by contemporary mainstream scientists, psychologists and neuroscientists in particular … human
beings are nothing but extremely complicated biological machines. Everything we 
are and do is in principle causally explainable from the bottom up in terms of our 
biology, chemistry and physics … Mind and consciousness are entirely generated 
by – or perhaps in some mysterious way identical with – neurophysiological 
events and process in the brain. Mental causation, volition, and the “self” do not 
really exist; they are mere illusions, by-products of the grinding of our neural 
machinery. (Kelly et al. 2007, xx-xxi)

Such reflections do not just challenge philosophers, psychologists and neuroscientists but 
also people whose reflections on reality are not based solely on a faith in science as the 
provider of truth. Consider for example the following citation from the renowned Zen 
Buddhist teacher Steve Hagen as to the way that the natural sciences look upon the 
relationship between consciousness and matter. Hagen argues essentially that we have put 
the cart (matter) before the horse (consciousness):

… it’s not mind or consciousness that’s abstract, but matter … Our problems with 
matter stem from the fact that, unlike consciousness, which is directly 
experienced, matter is always secondary – that is, experienced indirectly via mind. 
In fact, whenever we go looking at the stuff matter is made of, we find it 
inextricably enmeshed in consciousness. … In short, physical reality cannot be 
fully accounted for apart from consciousness. Yet it’s not at all clear that matter is 
necessary to account for consciousness. (Hagen 2003, 227-229)

The interest for consciousness by leading thinkers with a spiritual as well as a scientific 
orientation can be illustrated by the mission and research activities of the Institute of
Noetic Sciences (IONS) in the USA: “From its inception, the Institute of Noetic Sciences has blazed new trails in exploring big questions: Who are we? What is consciousness, and how does it impact the physical world? … Because limitations in our human consciousness underlie many of the problems we face as a global community, research at IONS focuses on exploring the fundamental nature of consciousness, investigating how it interacts with the physical world, and studying how consciousness can dramatically transform in beneficial ways.” (Institute of Noetic Sciences 2017)

But perhaps the major public awareness of consciousness research is not due to such organizations that may be considered as being on the fringe, so to speak, of traditional science, but from mainstream hard-core science itself. Amongst most neuroscientists who focus on the nature and the origin of consciousness, the fundamental assumption that the source of consciousness is purely physical has essentially the status of an axiom.

The major neuroscientific approach towards describing/explaining consciousness is to employ brain imaging techniques. What is noteworthy about such neuroscientific approaches, based as they are on a materialist, perspective, is that they do not appear to consider the possibility that the brain is not the source of consciousness but is instead a receptor of it, whereby thoughts and sensations are recorded in the brain but do not necessarily originate there – and therefore that the termination of the brain’s functioning does not necessarily lead to the termination of consciousness. An analogy could be a radio; what we hear when we turn the radio on is the result of electromagnetic signals that originate external to the radio that receives the signals, amplifies them and transforms them into sound waves that we hear. Destruction of the radio does not destroy the source
of its signals – and many other radios will continue to receive the signals even if our radio no longer functions.

Physicist and computer scientist Peter Russell challenges the attempts by materialist-based neuroscience to explain consciousness:

Whatever idea is put forward, one thorny question remains unanswered: How can something as immaterial as consciousness ever arise from something as unconscious as matter? … (such approaches) are all based on the assumption that consciousness emerges from, or is dependent upon, the physical world of space, time, and matter. In one way or another, they are attempting to accommodate the anomaly of consciousness within a worldview that is intrinsically materialist. … Rather than trying to explain consciousness in terms of the material world, we should be developing a new worldview in which consciousness is a fundamental component of reality. (Russell 2003; 28-9)

Finally here, consider the reflections by the Nobel Laureate in Medicine, George Wald who found himself compelled by empirical evidence to accept perspectives on science, physical reality and consciousness that shocked his scientific sensibilities.

There is nothing I can do as a scientist – no way that I can identify either the presence or absence of consciousness. … Consciousness seems to me to be wholly impervious to science. It does not lie as an indigestible element within science, but just the opposite: Science is the highly digestible element within consciousness, which includes science as a limited but beautifully definable territory within the much wider reality of whose existence we are conscious. …
the stuff of which physical reality is composed is mind-stuff. It is mind that has composed a physical Universe that breeds life, and so eventually evolves creatures that know and create: science-, art-, and technology-making animals. In them the universe begins to know itself. (Wald 1984; 1-2)

So there appears to be two conflicting metaphysical assumptions regarding the nature of consciousness: (I) The materialist position taken by most neuroscientists that human consciousness can be reduced to and explained by the biological and physical/molecular properties of brains and nervous systems, and (II) the spiritual, and potentially scientific, position that although there is an interplay between consciousness and the physical frame whereby consciousness is actualized in the brain, its source is independent of our physical forms. To this latter perspective can be added the logical extension that the interplay between consciousness and the body terminates when the body dies while the consciousness, which does not have a material source and is not dependent on the physical frame, continues to exist (which is a metaphysical assumption underlying concepts of reincarnation).

4 Reconciliation of Science and Spirituality?

We have seen that science and spirituality provide different paths or routes to "truth": (i) that of science that investigates a reality "out there" and considers that for a statement to be accepted as a scientific truth it must be observable, measurable, cognizable, testable and generalizable, and (ii) that of spirituality that investigates the reality "inside", and is therefore personal but that also transcends the personal, as well as time and space, and
can lead to the realization of a Truth that is universal. According to the distinguished neuroscientist, V.S. Ramachandran, the “need to reconcile the first person and third person accounts of the universe ... is the single most important problem in science.” (Lodge 2002, 18)

If such reconciliation is to take place, what is required at a minimum is the development and broad acceptance of a methodology for integrating and accepting the individual/subjective truth that is verifiable solely by direct experience with the objective, reproducible truth sought in traditional science. (4) In other words, there is a need to both supplement materialist empirical methods with a *spiritual empiricism* based on subjective, first person accounts – and to bring the objective methods of science to bear on spiritual phenomena without denying their inherent subjectivity.

Evidence that scientific and spiritual methods of investigation can eventually be reconciled is provided by the documented experience of scientists who do not regard science and spirituality as being mutually exclusive domains. For example, reference is made to TASTE – The Archives of Scientists’ Transcendent Experiences (2017), which “… is an online journal devoted to transcendental experiences that scientists have reported. It lets scientists express their experiences in a safe space, collects and shares them to debunk the stereotype that ‘real’ scientists don’t have ‘spiritual’ or ‘mystical’ or ‘psychic’ experiences, builds a data base of the experiences for future research and helps us understand the full range of the human mind.” Reference can also be made to Metanexus Institute (2017) “Founded in 1997, the Metanexus Institute is a not-for-profit organization dedicated to promoting scientifically rigorous and philosophically open-ended explorations of foundational questions.”
This essay was introduced with a quote from Einstein. It concludes with another of his reflections:

The fairest thing we can experience is the mysterious. It is the fundamental emotion which stands at the cradle of true art and true science. He who knows it not and can no longer wonder, no longer feel amazement, is as good as dead, a snuffed-out candle. (Einstein 2007, 5)

Notes

(1) There are however exceptions. For example, from the vantage point of quantum physics; a physicist investigating “quantum reality” does not observe an objective reality that is independent of us as observers, but a world of potentials. In addition, one can refer to other innate limitations on scientific reasoning and observations: Heisenberg’s uncertainty principle (quantum physics), Gödel’s theorem (mathematics) and, more recently, chaos theory (non-linear dynamics), Reference can also be made to the limitations in our senses and cognitive capabilities to have access to an “objective world”, to the role of the measurement instruments we use and to our personal values and experience when making observations (Pruzan 2016, 43-55).

(2) According to Swami Chetanananda (Vivekananda 1987; editor’s note, 16), Vedanta is “…the transcendental experience of the seers of Truth … the essence or conclusion of the Vedas, so it is called Vedanta. Literally, Veda means knowledge and anta means end.”
(3) In an attempt to provide such a theory, Damasio (2012) develops a neurobiological, evolutionary framework whereby the brain constructs a mind and consciousness evolves when the mind is endowed with subjectivity. He underscores that this framework “is a conjectural, hypothetical view. There are facts to support this imaginarium, but it is in the nature of the ‘mind-self-body-brain problem’ that we must live for quite a while with theoretical approximations rather than complex explanations.” (Damasio 2012, 16).

(4) Radin (1997) attempts to contribute to such a methodology based on statistical analyses of individually experienced psychic phenomena, obtained via controlled experiments of the existence and effectiveness of paranormal/extrasensory phenomena.

References


Einstein, A. (1941). Nature 146, 605


