



## *Vedanta Meets Science*

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**E**VERY BEING IS naturally inclined to seek happiness and to avoid pain. Mental reactions to sights and sounds, the drive to fulfil physiological and psychological needs, and even the struggle for existence are all propelled by the urge for happiness. Though all humans reach out towards the sources of pleasure, few obtain it, and still fewer discover that delight and happiness through the senses is ephemeral. Enlightened minds discover that everlasting happiness lies in knowing the Truth. The human search for Truth, which constitutes a higher nature of humankind, has ushered in various branches of knowledge and learning. Swami Vivekananda says: 'The goal of mankind is knowledge. That is the one ideal placed before us by Eastern philosophy. Pleasure is not the goal of man, but knowledge. Pleasure and happiness come to an end.'<sup>1</sup>

### ***Objective and Subjective Search***

Science and philosophy are two noble branches of knowledge. With its passion to understand the

world, science has established a commanding influence today. The spin-offs, in the form of various technologies, are the gifts of science to humankind. Scientific search for truth is restricted within the domain of objective investigation, and such investigations are invariably known to be relative and partial. Sir Arthur Eddington says: 'Here is a hint of aspects deep within the world of physics, and yet unattainable by the methods of physics.'<sup>2</sup> Hence, these deeper aspects that are unattainable by objective methods require further investigation by adopting means that can overcome the barriers of objectivity.

Philosophy delves into the various levels of consciousness and opens the subjective side of human nature, the 'knower', for investigation. It enables humankind to see deep within itself. The world of the subject is as vast and complex as the external world. Hence, if science and philosophy can combine harmoniously, the journey towards Truth will be smooth and swift.

Indian philosophies have been contributing immensely to the storehouse of human wisdom

from time immemorial. *Darshana*, which in Sanskrit means 'seeing', is wrongly translated as 'philosophy'. Unlike most Western philosophies, *darshana* is obviously not based only on philosophical speculations but has its roots in the immediate and direct experience of the Reality. This Reality transcends the subject-object duality.

The Vedas, constituting the supreme realizations of the rishis, are the fountainhead of all Indian philosophies. The religion and philosophies of Buddhism and Jainism, though they attack the Vedas, can hardly deny their influence on their philosophical structures, either positively or negatively. There are six Indian orthodox philosophical systems, and the Vedanta philosophy is the most sublime and influential.

The Upanishads are the concluding portions of the Vedas, for this reason they are called the Vedanta. Vedanta philosophy is the systematization of the Upanishadic thoughts, supported by the Bhagavadgita and the *Brahma Sutra*. Acharya Shankara accomplished the mighty task of coherently explaining Upanishadic teachings and interpreting them in the light of Advaita, non-duality. The aim of Advaita philosophy is to establish the non-dual nature of the ultimate Reality. In order to explain the multiplicity of the phenomenal existence Acharya Shankara introduced the unique concept of *maya*, without compromising the non-dual nature of Reality. Although several other schools of Vedanta like the Vishishtadvaita, Shivadvaita, and Shaktadvaita came up with their own interpretations, Acharya Shankara's Advaita Vedanta, with its robust logical framework, outshined all others. Thus the Advaita as an experience matured into a potent philosophical system that was constantly being authenticated and fine-tuned by subsequent rishis.

This highest experience of Advaita is not associated with that of the senses or the mind. It

is supra-mundane, transcendental, and beyond the purview of so-called rationalism. At the same time, this lofty philosophy does not indicate that logical reasoning has no place in it, nor denies its importance. Vedanta recognizes the rational mind's limitation in discovering the absolute Reality. Therefore, Vedanta transcends the system of logic and wants to intuit the Truth directly. We find Gödel's theorem<sup>3</sup> and Russell's paradox<sup>4</sup>, the two remarkable contributions in the field of mathematical logic, attesting to the limitation of logic. Vedanta philosophy accepts three methods of investigation: Shruti, scriptures; *yukti*, logic; and *anubhuti*, experience. Logical analysis is a powerful tool for the search of Truth, and as a matter of fact forms the bedrock of Vedantic enquiry. But in order to transcend logic, Vedanta refers to the Shruti, the Vedas, and one's own experience, which has to finally tally with the Shruti. Acharya Shankara's Advaita Vedanta makes the transition from Advaita Vedanta as a philosophy to Advaita as an experience.

In the modern times Swami Vivekananda rejuvenated the Advaita Vedanta of Acharya Shankara by emphasizing its experiential aspect. For centuries this high philosophy had fallen in the hands of pundits bent only on discussing its merits. Swamiji also gave a modern interpretation to some of its philosophical structures, bringing about the syncretization of Vedanta and the scientific thought of the day. As a young boy Swamiji had interested himself with philosophy and science, and was then trained as an Advaitin by his Master. Another unique aspect of Swamiji's exposition of Advaita Vedanta is that he did not discard the best thoughts of other schools of Vedanta. 'Harmony' and 'syncretism' were the watchwords of his practical Vedanta. Both the transcendent and immanent aspects of the Reality were endorsed by him, and consequently Vedanta evolved as the science of Consciousness.

**The Quantum Subject-Object**

Recent developments in the physical sciences are fascinating. Starting from rigorous objectivity, it is now entering into the realm of subjectivity. The twentieth century witnessed some marvellous discoveries in physics. The formulation of the uncertainty principle by Werner Heisenberg in the field of quantum mechanics opened up the floodgate of new concepts and ushered in a revolution within science. The principle not only gifted physicists a theory to explore and understand events at the sub-atomic level but also welcomed philosophical insights into it. The old Cartesian division of mind and matter shrunk into insignificance, yielding to new thoughts that involve consciousness and subjectivity in physical observations. These quantum principles were supported by experiments that were later applied to create modern technologies. Accordingly, the detached observer-scientist of classical physics is no longer a detached observer looking at something separate from oneself. One is both the actor and the participator in the great quantum drama of existence. Great scientists like Albert Einstein, Wolfgang Pauli, Max Born, Erwin Schrödinger, Werner Heisenberg, Neils Bohr, and others gathered in Brussels at the fifth Solvay Congress in 1927 to discuss the consequences of quantum theories. The meeting facilitated the interpretation of the subject over matter.<sup>5</sup>

Eugene Wigner stated that it is impossible to describe quantum mechanical processes without referring to consciousness. Erwin Schrödinger, one of the pioneers of quantum mechanics, declared: 'The only possible alternative is simply to keep to the immediate experience that consciousness is a singular of which the plural is unknown; that there *is* only one thing and that what seems to be a plurality is merely a series of different aspects of this one

thing, produced by a deception (the Indian Maya).'<sup>6</sup> He was a versatile scientist who made significant contributions to molecular biology and philosophy. Later Bell's theorem, Einstein-Podolsky-Rosen paradox,<sup>7</sup> Schrödinger's cat,<sup>8</sup> and Von Neumann/Wigner interpretation<sup>9</sup> and so on, established the primacy of the subject over objective investigation.

Mathematics serves as a powerful tool in the development of scientific theories and hence plays an important role in the quest for truth. It is the heart of all theoretical and practical sciences today. It is so elegant and foolproof that Sir James Jeans, the famous astronomer, metaphorically said: 'God is a mathematician.' But this sovereignty of mathematics suffered a serious blow owing to a paradox discovered by Bertrand Russell. In fact, Russell's paradox raised serious objections against mathematical formalism, which finally put an 'end to the logical honeymoon'. Also Kurt Gödel's theorem established the inadequacy of mathematical methods in its search for truth. Truth cannot be caught in the net of mathematical formalism, as no system is consistent and complete at the same time. An attempt to trace the Reality using mathematical formalism is as good as to empty the 'well of truth with a leaky bucket'.

Vedanta is not simply a philosophy but a science of Consciousness or Reality. Though rigorously logical, it transcends the framework of logic and leads to the immediate experience of the Reality. Many stalwarts of modern science like Schrödinger, Julian Huxley, Jagadish Bose, and others praised this lofty philosophy. Vedantic cosmology has many principles similar to that of modern cosmological theories. This is also true about some other theories like that of evolution. Thus, it is observed that Vedanta philosophy, which chiefly deals with the subject, has also contributed to the field of the object.

### Swamiji and Modern Science

The theory of the universe as propounded in Vedanta has striking similarities with scientific theories. It is true that Vedic literature lacks technical details in several aspects, yet these theories project a generalized perspective of the perpetual process of creation, sustenance, and dissolution of the universe in a cyclic order. Today such cyclic cosmological theories have become a subject of great interest to cosmologists and astrophysicists. Moreover, predictions made by Swamiji on the basis of Vedanta and his own experiences are being confirmed. The conversion of mass to energy, and vice versa, which happens to be a significant contribution of Albert Einstein, had been proposed by Swamiji a few years before its discovery by the scientist.<sup>10</sup>

Moreover, the inseparability of space and time in Einstein's special theory of relativity had also been predicted by the great swami before the scientific theory was published. Swamiji said: "The one peculiar attribute we find in time, space, and causation is that they cannot exist separate from other things."<sup>11</sup>

He also refuted the ether theory, which was a scientific dogma during his time. He observed:

As far as it goes, the theory that this ether consists of particles, electric or otherwise, is also very valuable. But on all suppositions, there must be space between two particles of ether, however small; and what fills this inter-etheral space? If particles still finer, we require still more fine ethereal particles to fill up the vacuum between every two of them, and so on. Thus the theory of ether, or material particles in space, though accounting for the phenomena in space, cannot account for space itself (9.288–9).

Surprisingly enough, this ether theory was later abandoned by the modern physicists on the basis of enquiries, and Swamiji's observation was

confirmed. Applying the Vedantic conclusions of the unity of existence Swamiji said that all forces have sprung from one primal force. Today physicists have unified three—electromagnetism, weak, and strong nuclear forces—and are struggling to unify the fourth, gravity, that will bring about the grand unified field theory. Probably the latest experimental confirmation of the Higgs boson may lead to a greater degree of unification. Besides, String theorists have already admitted the unity of the fundamental interactions of particles as well as of matter, upholding the unity of existence. So Swamiji, who preached 'only the Upanishads' is receiving attention from some scientists too.

Vedanta philosophy speaks of Brahman, absolute Consciousness, as the sole cause of the universe. It holds that the universe has come into being by the apparent modification of Brahman, its cosmic power called maya. Maya is the substratum of space, time, and causality; is finite and inscrutable. It animates this ever-changing universe of names and forms. Before the creation the basic elements of nature remain in equilibrium. Vedanta, echoing the principles of Samkhya cosmology, asserts that creation begins with the breakdown of this equilibrium. Swamiji teaches:

At the end of a cycle, everything becomes finer and finer and is resolved back into the primal state from which it sprang, and there it remains for a time quiescent, ready to spring forth again. That is Srishti, projection. And what becomes of all these forces, the Pranas? They are resolved back into the primal Prana, and this Prana becomes almost motionless—not entirely motionless; and that is what is described in the Vedic Sukta: 'It vibrated without vibrations'—Anidavatam. There are many technical phrases in the Upanishads difficult to understand. For instance, take this word Vata; many times it means air and many times motion, and often

people confuse one with the other. We must guard against that. And what becomes of what you call matter? The forces permeate all matter; they all dissolve into Akasha, from which they again come out; this Akasha is the primal matter. Whether you translate it as ether or anything else, the idea is that this Akasha is the primal form of matter. This Akasha vibrates under the action of Prana, and when the next Srishti is coming up, as the vibration becomes quicker, the Akasha is lashed into all these wave forms which we call suns, moons, and systems. We read again: *Yadidam kincha jagat sarvam prana ejati nihsritam*—‘Everything in this universe has been projected, Prana vibrating.’ You must mark the word Ejati, because it comes from Eja—to vibrate. Nihsritam—projected (3:399–400).

Swamiji was the first Vedantist who tried to bring together Vedanta cosmogony and scientific cosmology. His concepts of *akasha*, universal matter, and *prana*, universal force, impressed the renowned scientists and thinkers of his times. Nikola Tesla was charmed to know these unique concepts and expressed his desire to search for a mathematical demonstration of the same.

### **Grand Syncretization**

As every scientific theory gets verified and consummates in practical application, similarly Acharya Shankara’s Advaita Vedanta finds its universal application in Swamiji’s practical Vedanta. Scientists experimentally verify a theory by incorporating necessary approximations and optimizations, while keeping its fundamental form unaltered in order to facilitate and simplify experimental procedures. Likewise Swamiji optimized and simplified Vedanta by bringing in the latest principles of science, ethics, and other schools of philosophies.

The eternal, changeless Brahman is the only Truth, and this ephemeral universe is

like an illusion. This is the essence of Shankara’s Advaita Vedanta. Several commentators belonging to different schools challenged Acharya Shankara’s stand by furnishing logical objections against it. These arguments against Advaita were quashed by the Acharya himself and by some of the post-Shankara Advaitins as well. It constitutes a fascinating period in the history of Vedanta philosophy. In the nineteenth century Swamiji, upholding Shankara’s philosophy, projected a new paradigm called ‘*nitya-lila*’, which harmonizes Vedanta and science without totally abandoning the conclusions of the bhakti schools of Vedanta.

Science speaks of two orders of reality: the classical Newtonian and the quantum. The former is the appearance of the latter. Vedanta also accepts two aspects of reality: Brahman and the relative universe—the latter is the appearance of the former. This is illustrated by the famous rope-snake example. The link between the two is consciousness, both individual and universal. Individual consciousness is the appearance of universal Consciousness; the Absolute is of the nature of Consciousness, in which the relative world of fragmented and individualized consciousness is sustained. This is also echoed in David Bohm’s theory of implicate and explicate order.<sup>12</sup> The explicate order is the manifest universe of manifoldness, whereas the implicate order, being of the nature of Consciousness, is the unbroken wholeness, which is the source of the explicate order. Bohm says: ‘There is evidence to suggest that our world and everything in it—from snowflakes to maple trees to falling stars and spinning electrons—are only ghostly images, projections from a level of reality literally beyond both space and time’ (1). Advaita Vedanta asserts that all manifestation of manifoldness is apparent and the product of maya. All dualities are observed from the reference

frame of relativity. But when supreme knowledge dawns, the distinction between knower, knowledge, and known vanishes and the one and absolute Reality is experienced.

Vedanta philosophy not only deals with the nature of Reality but also prescribes the means and methods to arrive at the supreme Truth. These methods are called the various yogas. The person who has come face to face with the absolute Reality is called a *brahma-jnani*, knower of Brahman. The methods employed are not speculative but are tested, scientific, and can be practised like any other discipline. In modern times we have before us the tremendous life of Sri Ramakrishna, who experienced the Reality by adopting all the different yogas. This added a new dimension to the philosophy of Advaita Vedanta by breaking the narrow barriers of sectarian interpretations and beliefs.

Sri Ramakrishna's divine life and mystic visions embody and endorse the experience of the Reality as recorded for thousands of years by earlier scriptures and seers. Several times in his life Sri Ramakrishna had the unique experience of the Reality beyond the previously recorded experiences of the rishis. Swami Saradananda writes in *Sri Ramakrishna: The Great Master* about Sri Ramakrishna's unique experience of *bhavamukha*,<sup>13</sup> which is the supreme state of human consciousness. Being established in *bhavamukha* Sri Ramakrishna raised the world from the status of *mithya*, unreal, to the status of *lila*, divine play. Both the absolute and the relative aspects of the Reality were endorsed by him. He stood at its junction. The universe, a manifestation of the Absolute, is projected as a 'mart of joy', and Brahman is conceived of as absolute Bliss. Swamiji brought about the great syncretization of Vedanta and science on the basis of this profound experience of his Master. Indeed, this was the beginning of a new age: both Vedanta

and science are blissful pursuits towards the goal, which is Satchidananda, absolute Existence, Consciousness, Bliss. 

### Note and References

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2. Sir Arthur Eddington, *Space, Time, and Gravitation* (London: Cambridge University, 1920), 182.
3. See 'Metalogic' in *Encyclopaedia Britannica* (Chicago: Encyclopaedia Britannica, 2009).
4. Russell's Paradox: a logical paradox stated in terms of set theory, concerning the set of all sets that do not contain themselves as members, namely that the condition for it to contain itself is that it should not contain itself—see *New Oxford Dictionary of English* (Oxford: Oxford University, 2000).
5. See <<http://www.dailymail.co.uk/sciencetech/article-2002163/1927-Solvay-Conference-Electrons-Photons-Is-greatest-meeting-minds-ever.html>> accessed 2 July 2013.
6. Erwin Schrödinger, *What is life* (London: Cambridge University, 1948), 89.
7. See Yakir Aharonov and Daniel Rohrlich, *Quantum Paradoxes* (Weinheim: Wiley-VCH, 2005), 25.
8. See *Universities Press Dictionary of Physics*, ed. John Daintith and John O E Clark (Hyderabad: Universities, 2000), 194.
9. Andrew Whitaker, *Einstein, Bohr, and the Quantum Dilemma* (Cambridge: Cambridge University, 2006), 193.
10. See Swami Tathagatananda, 'Swami Vivekananda's Search for a Mathematical Demonstration of the Unity of Existence', *Bulletin of the Ramakrishna Mission Institute of Culture*, 61/1 (January 2010), 11.
11. *Complete Works*, 2.135.
12. See Michael Talbot, *The Holographic Universe* (London: Harper Collins, 1996), 46.
13. See Swami Atmapriyananda, 'Understanding *Bhāvamukha*: Sri Ramakrishna's Unique State of Consciousness', *Prabuddha Bharata*, 116/1 (January 2012), 37.