

## Swami Vivekananda's use of science to communicate spirituality\*

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'Science tells us that water evaporates and turns clouds into rain bearing ones. And the same is mentioned in ancient Tamil religious literature too ... There is a verse in the *Thiruvembavai*, which talks of how sea water evaporates and makes clouds heavy with moisture. Again, scientists for a long time have said that the atom could not be split, until it was proved otherwise. But centuries ago, the Tamil poet Kambar wrote of the splitting of the atom in his *Kamba Ramayanam*.<sup>1</sup>

It would seem that our ancient sages had an understanding of the working of the universe, which modern science and scientists have discovered and proved later. This is evident in literature from the works of poets and writers. Swami Vivekananda employed his understanding of science to explain to a Western audience about philosophy – using examples and comparisons from sciences such as physics, cosmology, biology, physiology and medicine to elucidate vedanta and yoga.

'Vivekananda, Ancient Wisdom and Nineteenth Century Science' was the topic of a lecture delivered by Tapas Datta. Tapas Datta is an engineer and silicon chip designer who retired early from his technical career to (fully) pursue his interest in philosophy and religion, focusing mainly on the life and works of Swami Vivekananda.

Datta's speech comprised five sections: (i) Vivekananda's intellectual preparation and delivery of content in the West; (ii) background of the Western audience; (iii) nineteenth century scientific topical areas used by Vivekananda; (iv) logical flow and structure in Vivekananda's speeches, and (v) conclusion. The following is a gist of Tapas Datta's talk.

Vivekananda had exceptional ability to comprehend, speed-read, memorize and assimilate. His intellectual preparation included Western philosophical studies

covering a study of Western logic; Western philosophy; ancient and modern history of European nations; philosophy of science, including the works of British and Austrian philosophers; empiricism, covering the works of Aristotle, John Locke, John Stuart Mill, David Hume and George Berkeley; rationalism, encompassing the thinking of Descartes, Spinoza and Leibniz; German idealism of Kant, Schopenhauer, Fichte, Hegel and Schelling; equality, fraternity and liberty of the French revolution; and the positivist philosophy of August Comte. Vivekananda was also familiar with electrical sciences and engineering, higher mathematics, fundamental physics, astronomy and geometry. In order to specifically understand the brain and spinal cord, he took a course in western medicine. Datta said 'At the time when he first met Ramakrishna, Vivekananda was questioning everything about spirituality'.

In America, in the 1890s, due to social injustice and the impact of science, movements such as 'come-outism' were taking place, and western philosophers were giving alternative views of religion. During this time, when Vivekananda addressed his western audience on the ancient philosophy and wisdom of India, he used his scientific knowledge to make them understand a foreign subject in a familiar language, namely science. Some of the nineteenth century scientific topics that he used were philosophy of science, physical sciences and biological sciences.

On the scientific approach, Vivekananda said: 'In what are called the exact sciences, people easily find the truth, because it appeals to the particular experience of every human being. The scientist does not tell you to believe in anything, but he has certain results which come from his own experiences, and reasoning on them he asks us to believe in his conclusions, he appeals to some universal experience of humanity' (intro to Raja Yoga, CW-1, p. 125). He also expressed his understanding about scientific demonstration and thinking, and scientific laws. Speaking on the negative aspect of science, Datta said that, 'Vivekananda notes that science can become an irra-

tional cult, prompts one to dismiss as nonsense anything that modern science has not discovered yet, or cannot comprehend even if be truth based – direct experience'.

'Science is nothing but the finding of unity. As soon as science would reach perfect unity, it would stop from further progress, because it would reach its goal ... physics would stop when it would be able to fulfill its services in discovering one energy of which all the others are but manifestations ...' (paper on Hinduism, September 1893). Tapas Datta compared this statement of Vivekananda with one by Stephen Hawking: 'A completed unified theory might mean the end of theoretical physics, though this is clearly not an early prospect'. Vivekananda also spoke on the unification of fundamental forces and the unification in chemistry.

According to Newton: 'The most beautiful system of the Sun, Planets and Comets could only proceed from the counsel and dominion of an intelligent and powerful being ... God.' But Vivekananda 'rejects the concept of an extra-cosmic God as the First Cause ...' (Tapas Datta). 'The father of our psychology, Kapila, denies the existence of God. His idea is that a Personal God is quite unnecessary ...' (Vivekananda).

'Thus we have matter and force. The matter, we do not know how, disappears into force and force into matter ... therefore there is something which is neither force nor matter, as these two may not disappear into each other. This is what we call mind – the universal mind.' (*Oakland Enquirer*, 25 February 1900, CW-8, p. 233). Tapas Datta said that: 'this would be relativistic if we replace 'force' by 'energy' – Einstein's equivalence of mass and energy proved in 1905.'

Vivekananda had interacted with many eminent electricians like Tesla and Kelvin. He compared electricity and psychic currents, and discussed the propagation of waves in space. He said: 'Taking the analogy of electricity, we find that man can send a current only along a wire, but nature requires no wires to send her tremendous currents. This proves that the

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wire is not really necessary, but only our inability to disperse with it compels us to use it' (CW-8, p. 162). Tapas Datta pointed out that Maxwell showed, in 1864, the theoretical possibility of propagation of electromagnetic waves through a vacuum, though wireless transmission was discovered only later.

Vivekananda used the laws of conservation in physics to discuss vedantic cosmology and to prove his point against creationism. He also used the biological sciences to put forth his views. Tapas Datta drew attention to the fact that while Vivekananda accepted Darwin's evolutionary theory, he noted, 'The two causes of evolution advanced by the moderns, viz. sexual selection and survival of the fittest are inadequate. Suppose human knowledge to have advanced so much as to eliminate competition, both from the function of acquiring physical sustenance and of acquiring a mate, then

according to the moderns, human progress will stop and the race will die.' The theory of 'involution' is offered by Vivekananda, as a better explanation. In his introduction to Raja Yoga, Vivekananda used physiology to explain the nervous system and plexuses; he also used physiology in the idea of senses and sensing.

To make clear the logical flow in Vivekananda's speeches, Tapas Datta used a flowchart. Vivekananda asked a common question such as 'How or why absolute has become finite?' and went through a sequence of different viewpoints, hypothesis, inference, different paths of logic and conclusion, with clarifications where needed. He also started new thoughts such as 'What are time, space, causation?'

In his conclusion, Tapas Datta said, 'Vivekananda missed, by his untimely death in 1902, most of the revolutionary

developments of the 20th–21st centuries which he could have used to his advantage. But he anticipated some of them – by stroke of his genius – to discuss religious and philosophical issues in terms of scientific ones.' On the interconnect-edness of the Universe, Vivekananda noted that 'one atom in this universe cannot move without dragging the whole world along with it' (CW-3, p. 269). Tapas Datta pointed out that Vivekananda had recreated vedanta using science and if he were here now, he would have taken great pleasure in the findings of science.

1. *The Hindu*, 14 January 2010.

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Applications in plain paper are invited for a JRF position in a DAE, BRNS sponsored project entitled '**Theoretical studies on nonlinearity and dynamical instability of (driven) Bose–Einstein condensate and exploration of suitable control mechanism**' (Ref/2009/37/23/BRNS/1903) under the supervision of **Dr Barnali Chakrabarti**. Complete applications with bio-data and attested copies of testimonials should reach the Principal office by **27 March 2010**.