

## Swami Vivekananda's Search For A Mathematical Demonstration Of The Unity Of Existence

By Swami Tathagatananda

Swami Vivekananda preached the unity of existence, or the oneness of matter and energy, or the ultimate oneness of God, man and nature—the keynote principle of Hindu thought and life. Behind everything in the phenomenal world there is one unifying power or energy that projects the entire universe and upon which all animate beings and inanimate objects depend for their existence. This power manifests from Brahman, the Supreme Reality. This Reality, or pure Consciousness is the substratum of all phenomena; It projects, manifests, sustains, penetrates, permeates, observes, regulates and ultimately absorbs within Itself the objective world. In Vedanta, both *Akasha* and *Prana* are nothing but subtle energy produced from the cosmic unity. *Prana* appears as physical force; *Akasha* as sensible matter. This world is not a mere arrangement of molecules with no unifying force behind them. *Akasha* and *Prana* are not separate—there is one power or force that unites *Akasha* and *Prana*.

In 1895, in his London lecture, “The Real Nature of Man,” Swamiji emphasized the unity of power or energy (“force”) with matter:

. . . the force which takes up the matter and forms the body is the same which manifests through that body. To say, therefore, that the thought forces manifested by the body are the outcome of the arrangement of molecules and have no independent existence has no meaning; neither can force evolve out of matter. Rather is it possible to demonstrate that what we call matter does not exist at all. It is only a certain state of force. Solidity, hardness, or any other state of matter can be proved to be the result of motion. Increase of vortex motion imparted to fluids gives them the force of solids. A mass of air in vortex motion, as in a tornado, becomes solid-like and by its impact breaks or cuts through solids. (*C. W.*, II: 76)

Swamiji then went on to identify this force or energy and explain its relevance in human life:

Whatsoever has form must be the result of combinations of particles and requires something else behind it to move it . . . something other than itself to move it. So that something was called the soul, the Atman in Sanskrit. . . . The different philosophies seem to agree that this Atman, whatever it be, has neither form nor shape, and that which has neither form nor shape must be omnipresent. Time begins with mind, space also is in

the mind. Causation cannot stand without time. Without the idea of succession there cannot be any idea of causation. Time, space, and causation, therefore, are in the mind, and as this Atman is beyond the mind and formless, it must be beyond time, beyond space, and beyond causation. Now, if it is beyond time, space, and causation, it must be infinite. Then comes the highest speculation in our philosophy. The infinite cannot be two. If the soul is infinite, there can be only one Soul . . . To say that the infinite changes in any way is absurd; it cannot be. You can move and I can move, as limited bodies; every particle in this universe is in a constant state of flux, but taking the universe as a unit, as one whole, it cannot move, it cannot change. Motion is always a relative thing. I move in relation to something else. Any particle in this universe can change in relation to any other particle; but take the whole universe as one, and in relation to what can it move? There is nothing besides it. So this infinite Unit is unchangeable, immovable, absolute, and this is the Real Man. Our reality, therefore, consists in the Universal and not in the limited. (*C. W.*, II: 77-9 passim)

Swamiji's scientific explanation of the unity of existence came forth ten years before Einstein presented his theory on the relationship between mass and energy (1905), and twelve years before Einstein theoretically proved that all mass has energy and captured the relationship in his famous equation,  $E=mc^2$  (Einstein's 1907).

An astonishing fact comes to light in this regard. In February 1895, Swamiji wrote an article, "The Ether," which appeared in the *New York Medical Times*, an outstanding scientific journal. In it, he wrote:

And thus we are forced to find that the ether . . . cannot explain space because we cannot but think of ether as in space. And therefore, if there is anything which will explain this space, it must be something that comprehends in its infinite being the infinite space itself. And what is there that can comprehend even the infinite space but the Infinite Mind? (*C. W.*, IX: 289)

It is not known whether or not Nikola Tesla (1856-1943) the famed Austrian-born (**not Serbian-born, according to Webster's dict'y**) American physicist, mathematician and inventor, attended any of the lectures that Swamiji delivered in New York City early in 1896. What is known is that nine years before Einstein's mass-energy equation, Swami Vivekananda and Nikola Tesla had a significant and prescient discussion with Tesla on February 5, 1896 during a dinner at the Corbin residence in New York City.

Vivekananda and Tesla were seriously interested in each other's ideas; Swamiji hoped for a mathematical demonstration of the Vedantic concept of unity and Tesla wanted Swamiji to further illuminate his understanding of the ether. There is evidence that at some point Swami Vivekananda had asked Tesla if he thought it was possible to establish the equivalence between inert matter and energy (the theme of Einstein's paper). On the same day that Tesla wrote his letter above to Swamiji, Swamiji wrote to Mr. Sturdy about Tesla's apparent interest in this project: "Mr. Tesla thinks he can demonstrate mathematically that force and matter are reducible to potential energy" (*Letters of Swami Vivekananda* [Advaita Ashrama, 1976], pp. 281-2) —**or Letter to Tesla, February 8,**

**1896. N. Krishnaswamy, *Einstein, His Papers and His Letter*, Gandhi Centre of Science and Human Values, 2006, p. 50).** There was some correspondence between Vivekananda and Tesla on this subject; in the end, Tesla was unable to provide mathematical proof of Einstein's theory, giving Einstein the privilege of doing so in his fourth paper.

Swami Vivekananda's thoughts are based on the solid foundation of Hindu philosophy and logic. On February 16, 1896, Swamiji delivered his lecture, "The Real and Apparent Man" at Madison Square Garden's Concert Hall in New York City. He said:

We have not yet found that one, by knowing which everything else will be known. We have resolved the whole universe into two components, into what are called matter and energy, or what the ancient philosophers of India called Akasha and Prana. The next step is to resolve this Akasha and the Prana into their origin. Both can be resolved into the still higher entity which is called mind. It is out of mind, the Mahat, the universally existing thought-power, that these two have been produced. Thought is a still higher manifestation of being than either Akasha or Prana. It is thought that splits itself into these two. The universal thought existed in the beginning, and that manifested, changed, evolved itself into these two Akasha and Prana: and by the combination of these two the whole universe has been produced. (*C. W.*, II: 265)

Again, at Kumbakonam in 1897, Swamiji said, "It seems to us, and to all who care to know, that the conclusions of modern science are the very conclusions of the Vedanta reached ages ago; only, in modern science they are written in the language of matter" (*C. W.*, III: 185).

After Vivekananda returned to India from his first visit to the West, he delivered a lecture in Lahore on November 12, 1897 and made these significant remarks:

There is the unity of force, Prana; there is the unity of matter, called Akasha. Is there any unity to be found among them again? Can they be melted into one? Our modern science is mute here, it has not yet found its way out. (*C. W.*, III: 400)

No scientist has been able to provide the mathematical interpretation of the Truth of Vedanta that is expressed in its most essential principle, the principle of unity. Though Einstein brilliantly demonstrated that energy and mass are equivalent energies differing only in their physical state, his unsuccessful struggle to arrive at a unified field theory pained him till his death. His comments about his attempt are meaningful: "The years of searching in the dark for a truth that one feels, but cannot express, the intense desire and the alterations of confidence and misgiving, until one breaks through to clarity and understanding, are only known to him who himself experienced them" (Robert B. Downs, *Books That Changed the World* (Mentor, 1964), p. 192.)