



SCIENCE & SPIRITUAL QUEST

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आ नौ भद्राः कर्तव्यो यन्तु विश्वतोऽदृग्बासो अपर्रीतास उद्भिदः । (RgVeda) *Let noble thoughts come to us from every side*

Science-Spirituality Dialogue Why Is This World Created?



A Discussion with
Prof. George F. R. Ellis, (right),
Templeton Laureate and
Dr. T. D. Singh (left);
Physical Organic Chemist,
Founding-Director of
Bhaktivedanta Institute

Dr. T. D. Singh: I wanted to ask you, you know Stephen Hawking, in one of his books he wrote that if we can find the answer to the question, "Why is this world created?" then, we will be able to solve many problems. I was wondering whether you have any answer to that.

Prof. George Ellis: Well, I agree, but his implication is that this is a scientific question and I would say this is not a scientific question. In a sense, there is a struggle going on at the moment, because some cosmologists are trying to say that science can answer that question. I would say science cannot answer that question. And that's where there is another interesting struggle going on.

Dr. T. D. Singh: Yes, that is an interesting answer. You know, in our scriptures, in the *Śrīmad Bhāgavatam*, there is a very interesting dialogue between two saintly people about the universe, why this world is created, what is its purpose. There is a long dialogue in eighteen thousand verses in Sanskrit. And the central idea presented there is that this world is a way to prepare how to find the ultimate happiness. It is presented in a very simple language.

Prof. George Ellis: Ah, we'd also say that similarly; the world is created so that beings may come into existence who can love.

Dr. T. D. Singh: Yes. Lastly, I would like to have some thoughts on world peace. You know, the world today is very much in great anxiety and it seems that everybody is looking for some kind of peace. ... At a very crucial time of ours, what are your thoughts about how to bring peace, I mean from the scientific point of view.



"The circle of our understanding is a very restricted area. ... What is happening outside of the circle? ... what are we, and what are we doing? To each and all of these questions There is no conceivable answer. We have suffered far more than a personal loss — We have lost our way in the dark.

— T. S. Eliot
Nobel Laureate in Literature

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31st July Onward

To Know about Life, Matter, and their Interactions, is called Knowledge

Prof. George Ellis: Well, it's only partly a scientific question, but in my conception of how you get peace, the fundamental point is, you try to turn the enemy into a friend.

Dr. T. D. Singh: Nice. Your approach is kind of spiritually oriented.

Prof. George Ellis: Well, it's spiritual but it's also practical. ..This is how Bishop Tutu works. He refuses to see the other person as an enemy. He chooses to see him rather as a human being who has made some errors, and who can be changed to go the right way.

Dr. T. D. Singh: We agree with that perfectly.

[Excerpt from the book, *Savijnanam vol-7 —Scientific Exploration for a Spiritual Paradigm*, Bhaktivedanta Institute, Kolkata]

On the Shoulder of Giants

Nevill Francis Mott

(Science, Religion and God)

In his 20th century, Nevill Francis Mott (30-9-1905—1996), one of the most creative theoretical physicists, founded the solid-state physics. The range of his contributions to physics stays possibly unequalled. Among his many works: Fermi liquid theory, metal-insulator transition, the theory of non-crystalline materials, and high-temperature superconductivity. His works led to international fame embodied by several honors, including the Knighthood award in 1962 and the shared Nobel Prize for Physics in 1977. We widely admire his originality, perception, sharpness, scientific vitality, along with his significant contribution as an author, editor and a director.

Nevill was born in Leeds, England. Both his parents, Charles Francis Mott and Lilian Mary Reynolds, had worked in the Cambridge Cavendish Laboratory with J. J. Thomson. They later settled as science and mathematics tutors at Giggleswick School.

Growing up in such an environment, very early Nevill felt a natural inclination toward physics. At school, he became fascinated with mathematics. Subsequently Nevill recollected the excitement he felt when he realized why any number raised to the power zero equaled unity! But Physics seized Mott's main interest. He confirms, "Ever since I knew what physics was, I wanted to be a physicist." Nevill obtained his bachelor's and Master's degree (1930) from St. John's College, Cambridge. He worked under some notable physicists: Niels Bohr (Copenhagen), Max Born (Göttingen), and Lawrence Bragg (Manchester). He mainly stationed at Bristol and Cambridge. In 1933, Nevill occupied the Bristol chair of theoretical physics and later the head of the physics department; finally, the post 'Cavendish Professor of Physics' from 1954 till 1971.

Besides his accomplishment as a physicist, Nevill possessed fine human qualities. He influenced the lives and careers of numerous companions and colleagues whom he befriended, advised, and guided with great generosity. He also brought many refugees from Nazi Germany to the UK and helped them in various ways. Most of the congratulations letters



Nevill Francis Mott (1905 – 1996)

“Neither physical science nor psychology can ever explain human consciousness. . . It lies outside science, and it is here that I seek the relationship between God and Man.”

from diverse friends on his Nobel Prize expressed this grateful consistent message for his kindness: "Thank you for all you have done." For Nevill, "The greatest pleasure in a life of research is putting others on the path to success."

In his late fifties, Nevill developed a keen interest in understanding the relationship between scientific and spiritual truth. He began reading Scriptures and often discussed with his colleagues. To Nevill, science and religion can agree; one must wear these two hats of science and religion in contemplating the world. He opines that, "Science can have a purifying effect on religion, freeing it from beliefs from a pre-scientific age and helping us to a truer conception of God. At the same time, I am far from believing that science will ever give us the answer to all our questions." Contemplating on the mystery of human consciousness, Sir Nevill says that, 'neither physical science nor psychology can ever explain human consciousness. . . It lies outside science, and it is here that I seek the relationship between God and Man.' He remarks, "Subjects such as man's consciousness, his free Will, his relationship with God and God Himself lie on the supernatural side of the barrier separating it from natural law." Talking about scientists' approach to religion, Mott says that, 'for a scientist, this field of thought can have the fascination of the unknown and the unexplored. . . Perhaps a man coming to religion from the foreign world of science may be struck more forcibly than another by its beauty, harmony, and importance. Admitting his belief in God, because it gives meaning to human life, Nevill suggests the scientist, when he wishes to contemplate God, must leave behind him the tools of his trade, his analytical method of thought.

Thus, in the quest for truth, all the fascinating discoveries of science have indeed expanded the boundary of our ignorance. And great scientists like Nevill F. Mott have demonstrated the need to gradually learn walking humbly with God to learn about our life and ourselves.

Vedanta & Science

Two Aspects of Nature

From the dawn of civilization man has always been interested in the mysteries of nature. But, 'What is nature?'. The definitions of nature will be as variegated as nature itself. For generations, many thinkers have contemplated about nature with their own limited conceptions. Pascal, the French mathematician and philosopher stated, "Nature has perfections in order to show that she is the image of God." The American theologian Edwards remarked, "Nature and revelation are like God's books; each may have mysteries, but in each there are plain practical lessons for every-day duty."

With the advent of scientific revolution from around the sixteenth century, man's thinking and empirical observation have replaced theological doctrine as the principal means for comprehending nature. However, in his deep-rooted quest for finding secrets of nature, man has faced immeasurable paradoxes and puzzles based on thought experiments and scientific experiments. A characteristic feature that has emerged out of this long historical development is the recognition that there is a need to add to the modern epistemological equation other factors such as will, faith, morality, hope, intuition, forgiveness and many other non-mechanistic elements of nature. Being beyond empiricism, these have to be derived from spiritual experiences. It is felt that science alone is unable to understand nature and thereby the need to include religious or spiritual principles in the study of nature.

According to the Vedantic paradigm, the epistemological content has two elements, *parā vidyā* — higher knowledge, and *aparā vidyā* — lower knowledge, or spiritual and material knowledge respectively. The synthetic ontological element is the Supreme Being, the primeval source of both. The *Muṇḍaka Upaniṣad* (1. 1. 4) describes: *dve vidye veditaoye iti ha sma yad*

brahmavido vadanti parā caivāparā ca. Meaning: "There are two categories of knowledge to be acquired by man; so say the knowers of Brahman, the Absolute Truth. One is called *parā vidyā* higher knowledge and the other is called *aparā vidyā*, lower or ordinary knowledge." Higher knowledge cannot be equated to lower knowledge. It is very possible that the Vedantic paradigm will bring a new dimension in the study of nature.

In the *Bhagavad-gītā* (7.4-5), Lord Krishna proclaims,

*bhūmir āpo 'nalo vāyuh kham mano buddhir eva ca
ahaṅkāra itīyaṁ me bhinnā prakṛtir aṣṭadhā
apareyam itastv anyāṁ prakṛtiṁ viddhi me parām
jīva-bhūtāṁ mahā-bāho yayedam dhāryate jagat*

"Solid, liquid, radiant, gaseous, ethereal, mind, intelligence and false ego are the eight separated states of My material energy. Besides these, O mighty-armed Arjuna, there is another, superior energy of Mine — the conscious living entities who are struggling with material nature and exploiting its resources."

In this paradigm there are two aspects of nature — material nature, which is composed of non-conscious entity or matter, and spiritual nature, which is composed of conscious entities, i.e. living beings, including man. In the phenomenal cosmos, nature is a whole and everything else including man is a part. In this paradigm, the Supreme Being is the cause of all causes, *sarva-kāraṇa kāraṇam*, and therefore nature is a teleological system.

Among all products of nature, man is given the highest importance. The role of man in nature is to enquire about the meaning of the Absolute Truth, the higher knowledge and in this connection man will be able to see clearly the web of life and balance of nature. Then solutions to ecological problems could be conceived.

[Excerpt from the book, *Man and Nature--Scientific and Vedantic Perspectives*, Bhaktivedanta Institute, Kolkata]

"Nature has perfections in order to show that she is the image of God."

— Blaise Pascal



Announcement

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