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आ नौ भद्राः कर्तवो यन्तु विश्वतोऽर्दब्धासो अपरीतास उद्भिर्दः । (RgVeda) *Let noble thoughts come to us from every side*

Science - Spirituality Dialogue

A Scientist's Prayer



*A Discussion with
Prof. William D. Philips (right);
Nobel Laureate in physics and
Dr. T. D. Singh (left);
Physical Organic Chemist, Founding-
Director of Bhaktivedanta Institute.*

Dr. T. D. Singh (Henceforth TDS): One of the things that is very interesting about your life is that you talk about the power of prayer. I find this extremely interesting for a scientist. In your biography you mention that you prayed for the birth of a younger brother, and confirmation came after your prayer. In scientific research, you have done pioneering research in laser cooling of atoms. In the processing of your experimentation or through receiving some concepts in that direction did you also get some kind of inspiration or direction, through prayer?

William D. Philips (Henceforth WDP): Well, my concept of the nature and the importance of prayer have changed a great deal since I was a child. Let me recount the story; my sister and I prayed for a brother, or a sibling. When my parents did have my brother, we were very thankful, believing that it was in answer to our prayer. I have said that this event confirmed the power of prayer for me, but from the point of view of a child. I'm not sure that I have the same idea about the nature and importance of prayer today. For example, today there are certain things that I don't pray for that I did pray for when I was a child. I do not pray for things that will benefit me materially. I feel that those kinds of things are not proper to pray for. I pray for other people, for the welfare of others and for greater understanding of myself, not for material things. I also remember that as a child I was very

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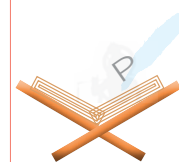
► On the
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A Glimpse of
Celebration of Science and
Spirituality Year -2012



“The two most powerful forces shaping our civilization today are science and religion. Through science man strives to learn more of the mysteries of creation. Through religion he seeks to know the creator. Neither operates independently....”

-- Wernher Von Braun, Founder of Astronautics

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

impressed by the story of Solomon in the Bible. Solomon was a king of Israel, and he was given the opportunity to ask for a gift from God. He could ask for number of things, but what he asked for was wisdom. It seems to me that one should be very careful about what kinds of things one asks for. So, I try not to ask for material things for myself, but rather for spiritual gifts, and the hope that if I have the spiritual gifts everything else will come. Even if I don't have the material gifts it doesn't matter as long as I have the spiritual gifts. I wouldn't for example pray for the success of an experiment. What I would pray for would be the insight to see what it is that God is telling us through nature. I figure God knows better than I do what kinds of gifts I need. What I want to do is to pray for the openness to receive what God wishes for me.

TDS: You have wonderful devotional qualities. There is a great similarity in our *Vaishnava* tradition of India. The *vaishnava* tradition is a part of Hinduism. *Vaishnavism* says that the true religious person, a *vaishnava*, never asks anything to benefit himself, but always prays for the benefit of others. It is said, *para-duḥkha-duḥkhī*: meaning he feels unhappy because of the unhappiness of others. In this way it is very similar to your perspective.

WDP: It sounds very similar, and I'm sure that we can learn a great deal from that kind of wisdom.

[Excerpt from the book, *God is a Person, Reflections of two Nobel Laureates*, Bhaktivedanta Institute, Kolkata]

On the Shoulders of the Giants

Werner Heisenberg

Founding Father of Quantum Mechanics

Werner Heisenberg was one of the most important physicists of the twentieth century. He was the first to consistently formulate quantum mechanics in 1925. In 1932 he received the Nobel Prize in Physics for his discovery of the uncertainty principle which states that it is impossible to specify the exact position and momentum of a particle (tiny piece of matter) at the same time.

His philosophical ponderings on the problem of atoms first began when he saw the illustration of the multiatomic gas molecules in which the atoms were joined into molecules with little "hooks and eyes" in his physics textbook. He said, "To my mind, hooks and eyes were quite arbitrary structures whose shape could be altered at will to adapt them to different technical tasks, whereas atoms and their combination into molecules were supposed to be governed by strict natural laws". When he came across the description of the atoms as cubes and pyramids by Plato in the book *Plato's Timaeus* he became deeply interested to understand about the



“The first gulp from the glass of natural sciences will turn you into an atheist, but at the bottom of the glass God is waiting for you.”

— Werner Karl Heisenberg (1901-1976)

(as cited in Hildebrand 1988, 10)

order in natural phenomena. He believed that there had always been a path to the central order in the language of music, in philosophy and in religion. He considered science and religion as the objective and subjective aspects in understanding the fundamental order of reality revealed in the harmonious beauty of the universe. He said, "Science is the basis of technology, religion the basis of ethics. ...the conflict between the two, which has been raging since the eighteenth century, seems founded on a misunderstanding, or, more precisely, on a confusion of the images and parables of religion with scientific statements. ... Science is ... the manner in which we confront, in which we argue about, the objective side of reality. Religious faith, on the other hand, is the expression of the subjective decisions that help us choose the standards by which we propose to act and live. ...I doubt whether human societies can live with so sharp a distinction between knowledge and faith."

At middle age and again near the end of his life, Heisenberg declared science and religion to be "complementary" aspects of reality, each with its own language and symbolism and each with its own limited realm of validity. Different religiously or intuitively apprehended truths should be viewed as different sides of the same truth, while rational science - his own profession - should be viewed as just one among a variety of ways of perceiving reality.

Vedic Science in the age of Science & Technology

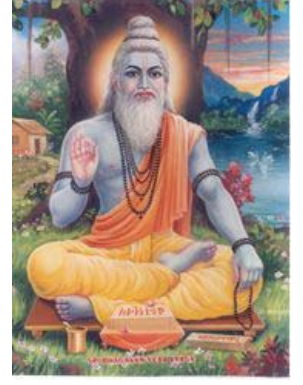
An Introduction

Vedanta is the topmost scientific and philosophical treatise of the spiritual and cultural heritage of India. It is a composite Sanskrit word, combining two words – *Veda* and *anta*. *Veda* means knowledge and *anta* means end. So, the word Vedanta means the end of knowledge or the Ultimate knowledge of truth. It should be noted that the word Vedanta refers not only to *Vedāntasūtra* but also to all the Vedic literature that describe the conclusions of the Vedas, specifically the *Bhagavadgītā*, the *Śrīmadbhāgavatam*, the *Upaniṣads*, etc. It is the spiritual science which is the basis of all knowledge, *sa brahma-vidyā sarva-vidyā pratiṣṭhā* (*Muṇḍaka Upaniṣad* 1.1.1).

The scientific and intellectual contents of the Vedic literature have attracted the attention of some of the world's finest scientific minds such as Erwin Schrödinger, Robert Oppenheimer and Albert Einstein. The *Vedāntasūtra*, expressed in the form of aphorisms, is the essence of all Vedic knowledge. Its author is *Śrīla Vyāsadeva*, known as the literary incarnation of Lord *Śrī Kṛṣṇa*. *Śrīla Vyāsadeva* also wrote the *Śrīmadbhāgavata Purāṇa*. It is mentioned in the *Garuḍa Purāṇa* that the *Śrīmadbhāgavata Purāṇa* is the natural commentary of *Vedāntasūtra* by the author himself.

A *sūtra* is defined as an aphorism or a code or a formula that expresses the essence of knowledge in a minimum number of words. It must be universally applicable and faultless in its linguistic and philosophical presentation. *Vedāntasūtra* consists of aphorisms or formulas that reveal the conclusions of the Vedic knowledge of truth

in a very condensed form. The *Vedāntasūtra* speaks of fivefold *tattvas*, truths or realities. These are, (1) *Īśvara* or God; (2) *Jīva* or Soul; (3) *Kāla* or Time; (4) *Prakṛti* or Matter; and (5) *Karma* or Action.



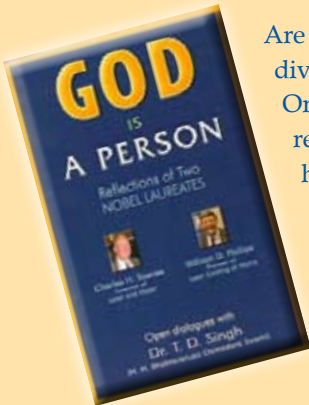
Śrīla Vyāsadeva

In Vedanta there is never a conflict between science and spirituality. It is unique in Indian thought. This is because science studies mainly the material nature whereas Vedanta studies both the material nature and the spiritual nature. The spiritual nature includes the deeper study of realities beyond material nature, which is beyond atoms and molecules. Thus Vedanta reveals the existence of the soul, *ātman* and consciousness, *cetana*, the quality of the soul. In other words, Vedanta provides an elaborate background to demonstrate that there is a different dimension of reality, including the reality of the existence of God, who can be perceived by the spiritual senses and spiritual mind.

Thus a scientist who has some background in Vedanta has no difficulty in seeing the different roles that science and spirituality provide in the search for knowledge. Both are complementary to each other. At present, many scientists are not exposed to spirituality. Hence, there is an important need to bring in the paradigm of spirituality in scientific studies. In the words of Henry David Thoreau, "whenever I have read any part of the Vedas, I have felt that some unearthly and unknown light illuminated me. ... the great teaching of the Vedas ... is the royal road for the attainment of the great knowledge."

[Excerpt from the book, *Vedanta and Science Series: Life and Origin of the Universe*, Bhaktivedanta Institute, Kolkata]

BOOK — GOD IS A PERSON: Reflections of two Nobel Laureates



Are God and His personality mere imagination of the human mind? Or does He really exist with divine attributes? Is He like us with physical bodies shaped by genome and acting in space-time? Or is He a transcendental personality beyond the comprehension of our tiny brains? The fine reflections of these remarkable thinkers of our times presented in this volume will certainly help readers further shape their perceptions about the nature of the Ultimate Reality or God.

God is very personal. He has very personal interactions with us ... I think there is continuous interaction between God and this universe, especially with us personally. That is very important to our lives. ... I believe that and I feel it.

--- Charles Townes (Nobel Laureate in Physics)

I think that what God wants from us is to have a personal relationship with Him and to have good personal relationships with each other. That's why we are here.

--- William Philip (Nobel Laureate in Physics)

pp.120, Softbound; Rs.125/ US\$5;

Bhaktivedanta Institute, Kolkata

Online Store:

<http://www.binstitute.org/bookstore>

News & Information

A Glimpse of the Celebration of Science and Spirituality Year 2012



Celebrating the Vision of Dr. T.D. Singh: Bhaktivedanta Institute announced Year 2012 as Year of Science and Spirituality in honor of 75th Birth Anniversary of Institute's Founder and Science & Spirituality Dialogue Pioneer, Dr. T. D. Singh. The Institute has been organizing various conferences and Symposia around the world on various themes of Science and Spirituality.

A glimpse of the programs organized towards this celebration are:

- *Dr. T. D. Singh Memorial Lecture on Science and Spirituality by Nobel Laureate in Chemistry, Prof. Richard Ernst, Jan 5, 2012, Utkal University, Orissa.*
- *Conference on Science, Spirituality and Human Values in the 21st Century, March 25, 2012, Niser, Bhubaneswar, Orissa.*
- *Seminar on Science and Spirituality, March 31, 2012, College of Agriculture, Sambalpur, Orissa.*
- *'Inspiring Billion Minds' Lecture Series at more than 20 premier institutions in western and northern India from Jaipur to Kalka to Kurushetra - including lectures at NIT Jaipur and NIT Kurushetra, April 5-28, 2012.*
- *Seminar on 'Search for God in the Age of Science and Technology', April 22, 2012, Delhi Technological*

University (DTU), Delhi.

- *A Short 3-day Course on Science and Spirituality, May 18-20, 2012, Navadvip, W.B.*
- *Special Lecture on Thermodynamics of Life, July 23, 2012, IISc, Bangalore, by Prof. S. C. Mishra, IIT Guwahati.*
- *Lecture on 'Vaisnava Vedanta', Rupa Goswami Conference on Vaishnavism, July 30-Aug 1, 2012, Gopinath Bhavan, Vrindavan, U.P.*
- *Lecture on 'God's Mechanics', August 3, 2012, Institute of Energy Management and Research (IEMR), Gurgoan, Haryana.*
- *Conference on Symbiosis of Science and Spirituality for Holistic Growth, August 9, 2012, National Dairy Research Institute (NDRI), Karnal, Haryana.*
- *Seminar on Science and Spiritual Quest, August 14, 2012, Science College, Osmania University.*
- *7th All India Students' Conference on Science and Spiritual Quest, September 1-2, 2012, IISc Bangalore, Karnataka.*
- *1st International Congress on Vedanta and Science, 14-15 December 2012, Manipur University, Imphal, India*

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