



SCIENCE & SPIRITUAL QUEST

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

Science-Spirituality Dialogue The Internal Strength in Nature



A Discussion with
Professor Werner Arber (left),
Nobel Laureate in
Physiology or Medicine and
Dr. T. D. Singh (right),
Physical Organic Chemist,
Founding-Director of
Bhaktivedanta Institute

Dr. T. D. Singh : I would very much appreciate your thoughts regarding the role of God in chemical evolution. It seems to me that complex biomolecules alone, whichever way we may try to put them together, may never result in a primitive living cell. Life is surely not purely chemical. ...

Professor Werner Arber : Yes. The principle of duality of the functions of the genome is very important for me. I think that until recently no one thought that there are other genes than those helping your own life. I have the genes that are important for my own individual life as a multicellular organism. The same is true for plants and microorganisms. But we also carry genes that ensure a steady evolution of the populations of organisms. I find this is exciting from the philosophical point of view and is very important. Of course, we are aware that when genetic variants occur, they do so not as a direct response of some pressure from outside. They occur more randomly. We cannot see any scientific evidence that nature would do this reflectively. It is by natural selection, a concept introduced by Charles Darwin, that in the long-term the most appropriate life forms overgrow the less adapted organisms.

Now we could ask where and what is that internal strength in nature? Certainly, the products of evolution genes are involved, and the structure of matter, atoms, electrons and molecules has also some intrinsic potential for self-evolution and self-organization. I must confess that I don't know how. It must be this internal strength that allows for a steady evolution to occur towards higher complexity and biodiversity in various forms of life.

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**SHOULDERS of
GIANTS**



Kurt Gödel

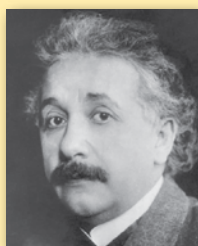
► **VEDANTA and
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*Synthesis of Science and
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► **NEWS BIRDS**

*2018 Summer School
"Space and Time in Science
and Spiritual Traditions"
28th June - 1 July 2018
IIT-BHU, Varanasi*



*"A calm and modest life brings more happiness than the
pursuit of success combined with constant restlessness."*

— Albert Einstein
Nobel Laureate in Physics

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

The properties of life and its high diversity are absolutely remarkable. ... When I look around me, what I can identify is that on our planet, life is manifested in a very high diversity. If the living conditions change, we will have new adaptations that can take over and replenish biodiversity. ... Whether you want to assign the evolutionary process to a divine force is, to my mind, a matter of philosophical definition of divinity. This is outside the reach of natural sciences. We are here at an interphase between the natural sciences and religious beliefs. Take the doctrine that all things are in God, referring to a universal influence of divine causality. This doctrine can be consistent with an evolutionary process based on self-organization as seen by the natural sciences.

It is clear to me that for human beings there is still another dimension of God, which is a matter of cultural evolution. ... In our cultural evolution, the civilization of human beings needed this moral help in which the role of God comes into picture. Note that these considerations are not a theme of the natural sciences. At most, they relate to human behaviour and reflect a search of human beings for a transcendent guidance.

[Excerpt from the book, *Savijnanam vol-5-6— Scientific Exploration for a Spiritual Paradigm*, Bhaktivedanta Institute, Kolkata]

On the Shoulder of Giants

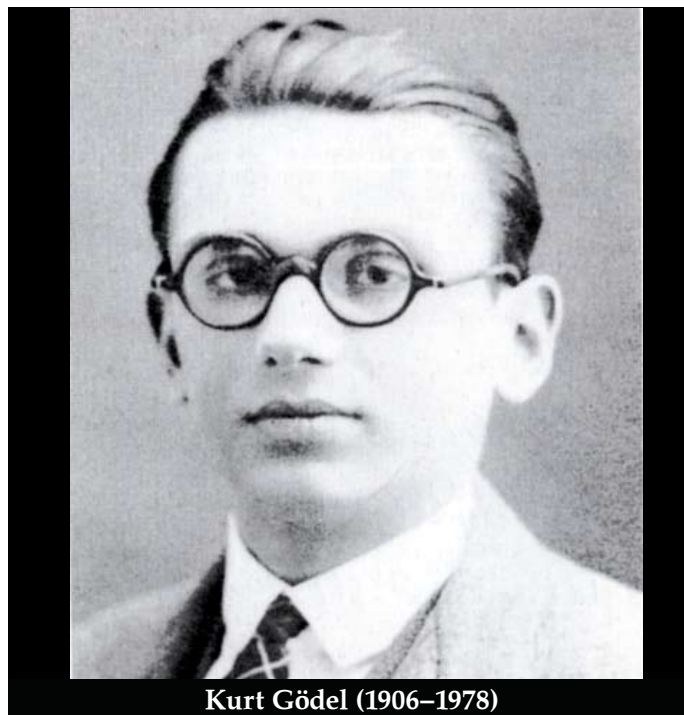
Kurt Gödel

(A Mathematician Who Believed in God)

Kurt Friedrich Gödel is one of the most outstanding mathematical logicians of the twentieth century, best known for his Incompleteness Theorem. Kurt Gödel's seminal works include the completeness of first-order logic, the consistency of the axiom of choice and of the generalized continuum-hypothesis, as well as other axioms: set theory, decision problem, intuitionism and notions of computability.

As a child, Gödel was exceptionally inquisitive. At about the age of four, Gödel acquired the nickname "*Der Herr Warum*" (Mr. Why) because he persistently asked "unanswerable" questions. Gödel advanced rapidly through school, excelling in mathematics, languages, and religion at a German high school in Brno. By the age of seventeen, he had mastered the university level mathematics. In 1930, he received his doctorate in mathematics with his dissertation providing the completeness theorem for first-order logic. In the very next year, Gödel published his work of incompleteness theorem that brought him worldwide recognition. The implications of his incompleteness theorem are vast, applying not only to mathematics but also touching on areas such as computer science, economics, physics, philosophy, and epistemology. John von Neumann, Princeton's "human calculator," in a speech given in 1951 when Gödel received the Einstein Award, remarked: "Kurt Gödel's achievement in modern logic is singular and monumental – indeed it is more than a monument, it is a landmark which will remain visible far in space and time."

From 1943, after his great success in logic, Gödel was chiefly occupied with philosophy and metaphysics. When he was at Princeton University, Albert Einstein was one of his closest friends. Like Einstein, he too expressed that the interaction between science and philosophy was fruitful for both fields. His project in philosophy was to find an exact theory of metaphysics. Gödel characterized his philosophical outlook in the following



Kurt Gödel (1906–1978)

way: (i) "My theory is a monadology with a central monad [namely, God]. It is like the monadology by Leibniz in its general structure. (ii) My theory is rationalistic, idealistic, optimistic, and theological."

An important aspect of Gödel's theological work shows that he was not only a theist but a personalist. He rejected the notion that God was impersonal, as thought by Einstein. He remarked, "Einstein's religion [was] more abstract, like Spinoza and Indian philosophy. Spinoza's God is less than a person; mine is more than a person; because God can play the role of a person". Gödel argued in private discussions that a system of postulates could be phrased for notions such as "God" and the "soul". Based on this far-reaching rational belief he attempted to formalize Anselm's ontological proof of the existence of God. The proof was less than a page long, which caused quite a stir when circulated among his colleagues in the early 1970s. In his correspondence and conversations, we come across Gödel's discussions on deeper aspects of reality such as afterlife, theological world-view, time, mathematical intuition, mind and matter. These explanations link a familiar and fundamental human concern with more or less abstract philosophical deliberations. In one of his letters, Gödel writes, "we not only don't know where we came from and why we are here, we also don't know what we are But if we could once look deeply enough within ourselves with scientific methods of self-examination in order to answer this question, it would probably turn out ... with quite definite characteristics."

Indeed there is growing attention to Gödel's work due its increasingly widespread relevance in computer science. However, it could point towards other aspects of reality, just like Einstein's work, as expressed by Gödel himself, "... Einstein's discoveries in the first place made the atom bomb possible, is an erroneous comprehension. ... but the essence of his work lies in an entirely other direction." Hao Wang, who was in close contact with Gödel in his last years, made a similar statement about the connection between Gödel's work and computer science. In his book "*Reflections on Kurt Gödel*", Hao Wang remarked, "The 'entirely other direction' is fundamental theory, which constituted the (central) purpose of life for both Gödel and Einstein".

Vedanta & Science

Synthesis of Science and Spirituality for Lasting World Peace

The prime contribution of spirituality is to recognize that the Supreme Being, God, is the foundation of reality. He has created both animate and inanimate objects with a divine purpose. And as such, animate objects are not merely a product of complex molecular reactions but a combination of inanimate matter and spiritual particles (spiritons, or *atmans* in Sanskrit) or the eternal living entities. In other words, the fundamental particles of matter do not become or evolve into spiritual particle (spiriton or life). They are distinct and separate entities. But at the time of creation of the physical world, the spiriton or *atman* interacts with material particles, atoms and molecules, by a divine plan and law, forming into an animated entity called the embodied living being. The interaction is described in the ancient Vedic literature and Vedanta of India.

Atoms and molecules have no meaning. They become meaningful, however, only in association with life, the spiritual entity. For example, a piece of paper, which is made up of cellulose, has no value. However, when state officials assign certain values to it in the form of paper money, it has meaning and is useful. Similarly, molecules which form the human body have tremendous value as long as a person is alive. However, when the person is dead, the material body has no value. Likewise, without meaning and purpose, atoms and molecules have no value. Furthermore, peace is a key ingredient of meaning, purpose and fulfilment of life and without peace there will be no happiness and value in life.

The word 'meaning' has a special significance in any peace-making dialogue. It is a general perception that the scientific approach to life is reductionism and materialism. Here the purpose of life is to promote social and economic progress through the use of scientific thinking. In this view, human life's goal and meaning will be to earn as much money as possible and enjoy as much as one can without any concern for ethics and values. Materialists try to fill the vacuum created by the denial of God and spirituality with ideologies like racism, communism, nationalism, etc. In our modern scientific culture we are experiencing that some sections of human society are materializing religion, which is certainly the root of global unrest today. But a false meaning to life will never be able to bring lasting peace in the world.



A solution to the question of meaning lies in a complementary approach to science and spirituality. The spiritual world view, or the religious world view in its purest form, develops the moral nature of humanity by understanding the inner dimension of reality. Science, on the other hand, helps humanity to comprehend some aspects of physical reality. Thus when considered together, these two systems of knowledge are complementary. For example, spirituality or the pure form of religion guides humanity with the proper vision for creating a just and meaningful society, while science gives the means and skills to accomplish it, thus paving the way for a lasting world peace.

Acting in accordance with the spiritual understanding and knowledge would require us to realize the unity of all living entities as being children of God and to appreciate that the cosmos is one whole family. Thus we are all His children tied together by a rigid bond of brotherhood and sisterhood. One can observe this propensity in that many persons keep pet animals and birds and love them as their own family members. Thus, spirituality transcends all walls of separation.

The more we recognise that we are brothers and sisters of a common spiritual family, the easier will it be for us to understand the meaning of a universal connection with one another. Thus an important part of the peace process is to appreciate and support one another despite cultural and religious differences. Then again, a culture of partnership among different religious communities and nations including the partnership of science and religion will catalyze and facilitate further progress in peace-making.

[Excerpt from the book, *Towards a Culture of Harmony and Peace*, Bhaktivedanta Institute, Kolkata]



Towards a Culture of Harmony & Peace

pp.424, Softbound; Rs.1125/ US\$25
Bhaktivedanta Institute, Kolkata

BOOK

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

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Summer School - 2018

SPACE & TIME

in Science and Spiritual Traditions

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Visionary

Dr. T. D. Singh, Founder Director, Bhaktivedanta Institute

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Prof. Manoranjan Sinha, IIT Kharagpur
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A brief introduction
- ▶ The Mystery of Time
Perspectives from modern science and spiritual traditions
- ▶ Space and Time
Relative vs. Absolute
- ▶ Space & Time in Vedanta
- ▶ Space-Time, Mind & Consciousness

Important Dates

- Last date for registration: 15 June 2018
- Last date for extended abstract for poster: 1 June 2018
- Last date for poster in final form: 18 June 2018

Note: Poster presentation is not mandatory for all.



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