

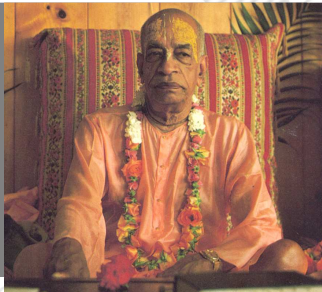
The Harmonizer

Science, Philosophy, Religion and Art are all branches of the same tree of knowledge

The Ultimate Goal of Human Knowledge

by

Srila A.C. Bhaktivedanta Swami Prabhupada



*idam hi pumsas tapasah
srutasya va svishtasya
suktasya ca buddhi-
dattayoh avicyuto 'rthah
kavibhir nirupito yad-
uttamasloka-
gunanuvarnanam
- Srimad Bhagavatam
1.5.22.*

Translation: Learned circles have positively concluded that the infallible purpose of the advancement of knowledge, namely austerities,

maya utilize advancement of knowledge for sense enjoyment. Sri Narada Muni has explained that all paraphernalia of the cosmic universe is but an emanation from the Lord out of His different energies because the Lord has set in motion, by His inconceivable energy, the actions and reactions of the created manifestation. They have come to be out of His energy, they rest on His energy, and after annihilation they merge into Him. Nothing is, therefore, different from Him, but at the same time the Lord is always different from them.

When advancement of knowledge is applied in the service of the Lord, the whole process becomes absolute. The Personality of Godhead and His transcendental name, fame, glory, etc., are all non-different from Him. Therefore, all the sages and devotees of the Lord have recommended that the subject matter of art, science, philosophy, physics, chemistry, psychology and all other branches of knowledge should be wholly and solely applied in the service of the Lord. Art, literature, poetry, painting, etc., may be used in

study of the Vedas, sacrifice, chanting of hymns and charity, culminates in the transcendental descriptions of the Lord, who is defined in choice poetry."

Human intellect is developed for advancement of learning in art, science, philosophy, physics, chemistry, psychology, economics, politics, etc. By culture of such knowledge the human society can attain perfection of life. This perfection of life culminates in the realization of the Supreme Being, Vishnu. The *sruti* therefore directs that those who are actually advanced in learning should aspire for the service of Lord Vishnu. Unfortunately persons who are enamoured by the external beauty of *vishnu-maya* do not understand that culmination of perfection or self-realization depends on Vishnu. *Vishnu-maya* means sense enjoyment, which is transient and miserable. Those who are entrapped by *vishnu-*

glorifying the Lord. The fiction writers, poets and celebrated litterateurs are generally engaged in writing of sensuous subjects, but if they turn towards the service of the Lord they can describe the transcendental pastimes of the Lord. Knowledge should be applied in the service of the Lord. There is no use presenting dry speculative theories for sense gratification. Advanced people are eager to understand the Absolute Truth through the medium of science, and therefore a great scientist should endeavour to prove the existence of the Lord on a scientific basis. Similarly, philosophical speculations should be utilized to establish the Supreme Truth as sentient and all-powerful. Similarly, all other branches of knowledge should always be engaged in the service of the Lord. In the *Bhagavad-gita* also the same is affirmed. All "knowledge" not engaged in the service of the Lord is but nescience. Real utilization of advanced knowledge is to establish the glories of the Lord, and that is the real import. Scientific knowledge engaged in the service of the Lord and all similar activities are all factually *hari-kirtana*, or glorification of the Lord.

On the Nature of Life and Consciousness

By Raxit J. Jariwalla, Ph.D.*

**Dr. Raxit Jariwalla is a biomedical scientist at a research institute in Santa Clara, CA*

Introduction

According to Vedanta, there are 8,400,000 species of living organisms on earth manifesting various states or degrees of consciousness^[1]. At the bodily level they all share the similar chemical composition consisting of major molecules like water and carbon, referred to as organic or bio-molecules. Given this chemical similarity of all living species, one may ask: Is life a product of the assembly of organic molecules formed in the universe or did it come from another source? Did life originate from an explosion of some star (Big Bang theory) or did it emanate from some other non-chemical, spiritual source?

These are fundamental questions that one encounters when inquiring into the origin of living species and they have grappled both scientists

and theologians alike. In an attempt to address these questions, this article will assess the state of scientific evidence developed from the biochemical or material sciences referred to as 'molecular biology' and at the same time present the spiritual wisdom from Vedantic science on the origin and symptom of life termed as 'consciousness'.

The View of Molecular Biology

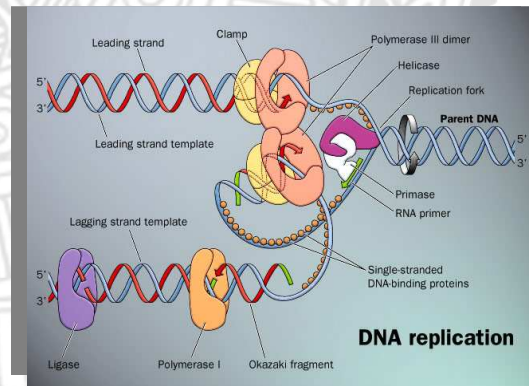
In the early 1950s, researchers at University of Chicago performed a classic experiment. In an artificial chamber, designed to simulate the gaseous environment of primordial times, they passed an electric current through a mixture of chemicals, ammonia and water that resulted in the generation of small organic molecules designated "amino acids", the primary building blocks of larger bio-molecules called proteins. The electric spark transmitted through the chamber was meant to resemble lightning and the mixture of chemicals and ammonia was meant to simulate the chemicals and gases that presumably existed in the earth's atmosphere in primordial times.

This experiment generated a lot of excitement in

the scientific world, leading to speculation that the bio-molecules constituting living organisms may have originated from raw chemicals on earth, and life itself may have come about from the spontaneous assembly or molecular interaction of bio-molecules in a primordial soup. Compelling though, this scientific theory may sound, there are a number of deficiencies in this view of the origin and nature of life.

Limitations of the Molecular Biology Viewpoint

The basic unit of all living organisms is a cell. We know that a reproductive cell such as an egg cell carries all the hereditary or genetic information necessary to specify a whole organism. The central dogma of molecular biology holds that transfer of information in cells that is vital to their growth and development flows from informational molecules such as nucleic acids (DNA or RNA) to proteins during the process of gene expression. Proteins are the work horses of the cells that function as catalysts or enzymes in mediating key



biochemical reactions within cells and are also required for the duplication of nucleic acids themselves. The central dogma posed a chicken-and egg paradox to origin-of-life proponents in deciding which molecule came first, nucleic acid or protein, since each is needed to generate the other.

This paradox was seemingly resolved in the late 1980s when researchers discovered that like

proteins, RNA molecules can also function as enzyme catalysts in mediating chemical reactions thereby ensuring their duplication or self-propagation (in the absence of protein). This discovery helped to revive an earlier theory proposed in the late 1960s by molecular biologist Leslie Orgel that postulated RNA world theory as the origin of life. Simplistic though this theory sounded, it was a quantum leap of imagination going from an RNA molecule to a living organism. In fact, no scientist to this day has been able to artificially synthesize or generate a living cell from basic raw chemicals, let alone a living organism. Further no "super enzyme" or "super catalyst" has been found that can accelerate the assembly of existing bio-molecules to form a living cell. All reports to date of the creation of synthetic organisms and genetically cloned animals have utilized pre-existing cells or organisms. More recent reports of the hopes of soon generating synthetic bacteria are based on inserting a chemically synthesized DNA fragments into a preexisting cell to bring about their assembly into a whole genome. These attempts to artificially generate life in the laboratory only reinforce the concept previously advanced by the renowned

exponent of spiritual science Srila A. C. Bhaktivedanta Swami Prabhupada that 'Life Comes from Life' ².

When asked about his opinion whether scientists can find some special enzymes to accelerate chemical reactions to artificially generate life, Werner Arber, a distinguished molecular biologist and Nobel Laureate in medicine, replied ".....how these organic molecules.....come together such that some living primordial cell may become functioning. This, I don't understand" ".....I think that life could be beyond the assembly of bio-molecules" ³.

The Vedantic Viewpoint on the Living-Force within All Living Beings

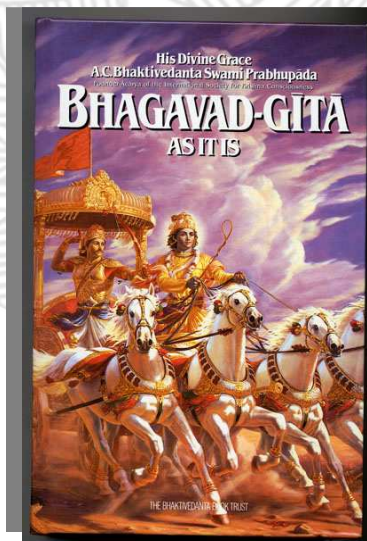
The inability of molecular biologists to create life from basic raw materials without the use of pre-existing life forms indicates that the biochemical view of life having originated from matter or combination of material elements is not persuasive, suggesting the need to examine other non-chemical, non-physical paradigms to explain life. A clue to the nature of life lies in understanding the properties of life itself.

An invariable characteristic of all living organisms, not manifested by inanimate matter, is consciousness. As living entities, we are conscious of our bodies as well as the environment around us. As we age, we become aware that our body has changed. The body that we had in childhood is not the same as the one we had in adulthood and as we grow older our body changes further with age. The cells in our body are constantly dying and it has been estimated that the body renews itself every seven years ⁴. This awareness of our changing body is due to our consciousness as living (animated) beings. Similarly, when we wake up after a night's sleep we become aware how well we slept, whether we had a restful or interrupted sleep.

consciousness, must be different from the chemically changing body.

Consciousness, the Symptom of the Living Entity

The ancient Indian scripture *Bhagavad Gita (BG)*,



which captures the dialogue between Lord Krishna and the archer Arjuna that took place about 5,000 years ago on the battlefield of Kurukshetra, defines the living entity and consciousness (BG:13.34) as follows:

yatha prakasayaty ekah krtsnam lokam imam ravih ksetram ksetri tatha krtsnam prakasayati bhārata

What is the entity that was aware or that witnessed how we slept or how our body changed? That entity which was able to watch the body, how it was changing, resting, etc, must be different from the body since body was sleeping when that entity witnessed these things. In other words, the living-force, which we call

“O son of Bharata, as the sun alone illuminates all this universe, so does this living entity, one within the body, illumines the entire body by consciousness”

In his purport, Srila Prabhupada explains that in this verse Lord Sri Krsna gives the analogy of the sun and sunshine to illustrate the meaning of consciousness. Just as the sun shining from one source illuminates the entire universe, in the same way the living entity lodged within (the heart of) the body, lights up the whole body through consciousness. Further, just as sunshine or light is the proof for the existence of the sun, so also consciousness is the proof for the existence of the living entity. In other words, consciousness is the symptom of the living entity, which is distinct from the body that composed of chemical elements. As long as the living entity is there, the body is alive and conscious but as soon as the living entity leaves, the body is dead. Since the body is composed of material elements, which return to the earth’s crust upon death of the body, the living entity cannot be a product of matter or combinations of earthly chemical elements, which are merely constituents of the

spirit soul called the spiritual atom is smaller than the size of material atom, it is beyond the power of measurement of material science. Consequently, scientists deny the existence of the spirit soul. However, measurable or immeasurable by physical methods of science, which in themselves are limiting, the fact remains that the spirit soul is there in the heart along with the Supersoul (BG: 13.17 & 13.18) and it is from that region of the body that all energies for bodily movement are derived. Medical science does not deny the fact that the heart is the centre from where all energy for bodily activity is derived.

In the *Bhagavad Gita*, Sri Krsna further explains the nature of the spirit soul (BG: 2.20):

*na jayate mriyate va kadacin
nayam bhutva bhavita va na bhuyah
ajo nityah sasvato 'yam purano
na hanyate hanyamane sarire*

“For the soul there is neither birth nor death at any time. He has not come into being, does not come into being, and will not come into being. He

body.

We Are Not Our Bodies, We Are Spirit Souls

What is the nature of the living entity that powers the body through the force of consciousness? In *Bhagavad Gita*, Lord Sri Krsna instructed Arjuna about the living entity as follows (BG: 2.17):

*avinasi tu tad viddhi yena sarvam idam tatam
vinasam avyayasyasya na kascit kartum arhati*

“That which pervades the entire body you should know to be indestructible. No one is able to destroy that imperishable soul”

This verse explains that the force that spreads through the body (i.e. consciousness) is the spirit soul, which is imperishable. This spirit soul has been described in the *Svetasvatara Upanishad* (5.9) as one ten-thousandth part of the upper portion of the hair point in size. The same version of the Upanishad states that “There are innumerable particles of spiritual atoms, which are measured as one ten-thousandth of the upper portion of the hair”. According to the *Mundaka Upanishad*, the spirit soul resides within the heart of living entities. Since the basic particle of the



is unborn, ever-existing and primeval. He is not slain when the body is slain”.

Unlike the physical body, which undergoes at least six different transformations during its lifetime

namely, birth, growth, maintenance, transformation, deterioration and finally death⁴, the soul remains unchanged and is not affected by the changes occurring in the body. He is eternal, ever-existing and primeval, having existed since times immemorial, without a trace of when it came into being. He is not affected when the body perishes.

Conclusion

Modern science is facing difficulty in understating life and its prime symptom (consciousness). Life

and consciousness seem to be violating all the existing laws of physics and chemistry. Even though the body of a living being is dead matter, still because the conscious living being is within the body, it causes the living body to violate the laws of physics and chemistry. To have a proper knowledge of life and consciousness we have to adopt a different approach than we use within modern material science. The Vedic literatures state that the living entity is eternal. Hence life can only come from life; it cannot be generated from a combination of material elements. Thus we have to adopt a proper process to study the science of eternal life.

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3. T. D. Singh and W. Arber, *Dialogue on Life and Its Origin*, In: Savijnanam, Journal of the Bhaktivedanta Institute, Kolkata, Vol 1, November 2002, p8.
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be noted that the activities of the living beings are not simply physical. Many scientists face great difficulty explaining human behavior only in mechanical or material terms and feel such limitations intuitively. James Watson, the co-discover of double helix model of DNA structure, says, "There are still very major problems to solve on how information is stored and retrieved and used in the brain. It's a bigger problem than DNA, and more a difficult one. . . . we still don't know how the brain works. . . ." ¹ Recently, Stephen Hawking also expressed in a lecture, "As Dirac remarked, Maxwell's equations of light, and the relativistic wave equation . . . govern most of physics, and all of chemistry and biology. So in principle, we ought to be able to predict human behavior, though I can't say I have had much success myself. The trouble is that the human brain contains far too many particles, for us to be able to solve the equations." ²

According to Vedanta, the brain in developed living beings is an important organ of the body machinery in which the symptom of consciousness is transmitted. The conscious energy is

What is life?
By T. D. Singh, Ph.D. (Srila Bhaktisvarupa Damodara Maharaj)



*T. D. Singh, Ph.D. is the Founder Director of Bhaktivedanta Institute

Life according to Vedanta can be described in the following representation:
Living Being = Genome (Physical/Material Body) + Mind, Intelligence & False Ego

(Subtle Matter) + Spiriton (Spiritual Life Particle)

According to Vedanta, the topmost scientific and philosophical treatise of Indian spiritual and cultural heritage, all living beings are animated by the presence of a non-chemical or non-molecular fundamental spiritual particle - "spiriton" (called atman in Vedantic terminology).

In Vedanta there are two aspects of reality—the spiritual nature and the material nature. It should

transmitted from the spiritual soul or 'spiriton'. In biology textbooks, life or living beings are generally defined as having potential to grow, reproduce, move, respond to such stimuli as light, heat and sound and are sustained by the processes of nutrition, respiration and excretion. But what makes these living systems grow? Biologically, we explain that growth is due to multiplication of cells through various types of divisions like mitosis or meiosis. But why any cell starts dividing at the first place? Why a fertilized egg (after the sperm cell unites with egg cell) undergoes divisions which result in the formation of the whole body?

Vedanta describes that due to the presence of 'spiriton' the body is animated and active and undergoes six types of transformations.³ It takes birth, lives for some time, grows, produces some offspring, gradually dwindles, and at last vanishes into oblivion.⁴

It is just like the analogy of a car and the driver inside. When the driver goes away, the car cannot move. Similarly, when the spirit soul, spiriton

goes away, or what we call death, the body can no longer be animated in spite of the fact that all the molecular machineries that make up the body are still intact.

Srimad Bhagavad-Gita mentions about 'spiriton' being different from matter as follows:
bhumir apo 'nalo vayuh kham mano buddhir eva ca ahankara itiyam me bhinna prakrtir astadha apareyam itas tv anyam prakrtim viddhi me param jiva-bhutam maha-baho yayedam dharyate jagat

Translation: "Earth, water, fire, air, ether, mind, intelligence and false ego—all together these eight constitute My (Lord Krishna's) separated material energies. Besides these, O mighty-armed Arjuna, there is another, superior energy of Mine, which comprises the living entities (spiritons) who are exploiting the resources of this material, inferior nature."⁵

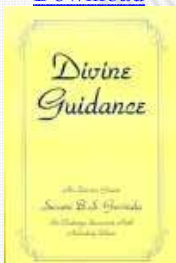

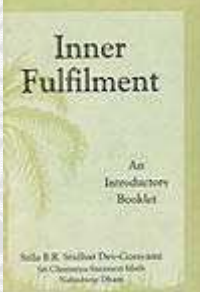
According to Vedanta, the science of the soul or spiriton (atman) is the sublime essence of spirituality. The Bhagavad-Gita refers to this science as—*raja-vidya raja-guhyam pavitram idam uttamam pratyaksavagamam dharmyam su-sukham kartum avyayam*, meaning, "This knowledge is the king of education, the most secret of all secrets. It is purest knowledge, and because it gives direct perception of the self by

realization, it is the perfection of religion. It is everlasting, and it is joyfully performed." According to Vedanta, the ultimate purpose of human life is to find our real spiritual identity and our relationship with the Supreme. Thus, Vedanta strictly deals with life from a spiritual perspective and gives it pre-eminence over non-sentient matter.

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1. A Conversation with James Watson, Scientific American, 2003, 288(4):66-70. Also refer to the extended version of this conversation at Scientific American's website www.sciam.com
2. Lecture by Stephen Hawking on "Gidel and the End of Physics" at Texas A&M University in College Station, Texas, March 8, 2003; adapted from <http://www.damtp.cam.ac.uk/strtst/dirac/hawking>
3. We should note that some religious traditions do not accept the existence of the soul and some others proclaim that the soul is present in human beings only. However, ancient Vedic science of India does not accept such statements and states very firmly that all living entities have spirit souls.
4. A. C. Bhaktivedanta Swami Srila Prabhupada, *Bhagavad-Gita As It Is*, Bhaktivedanta Book Trust, Bombay, 1997, verse 2.20 purport.
5. Ibid., verses 7.4-5.

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