

## Relevance of Consciousness in Sciences

Narendra Nath\*

Consciousness it is associated with awareness about the self or state of being able to use one's senses and mental powers to understand what is happening. As per ancient Indian scripts, the corresponding word *chetna* relates to the soul/life force associated with a living body. It is thus a kind of awareness that permits an object to live. The scriptures of ancient India clearly indicate that the life force or *chetna* resides independently in each smallest biological constituent of a living body. It is a wonder that we can now investigate scientifically what is going on at the cell level. Detailed scientific study of various biological interactions is bound to quantify the nature of consciousness at different levels.

**How did the Universe come into being? What existed before the Big Bang? Was it nothing? It appears sensible to assume that consciousness exists universally and permanently, even without visible matter and energy. Scientists may even stipulate the existence of a potential field with tremendous strength and built-in logic, to result in the creation of a physical**

universe, conceptualised in the space/time continuum. It will demand better understanding about the non-physical consciousness. As per the dictionary meaning, it is associated with awareness about the self or state of being able to use one's senses and mental powers to understand what is happening. As per ancient Indian scripts, the corresponding word *chetna* relates to the soul/life force associated with a living body. It is thus a kind of awareness that permits an object to live. Thus, we may say that consciousness gets associated with individual, a collective group and even the cosmic aspect. As it leaves, the object loses any awareness.

Scientists have a tendency to confine it to the brain, as that organ is open to their investigations. In this context, it appears relevant to examine what

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we mean by the human mind. Certainly, it cannot be considered confined to the organ 'brain'. How one may elaborate it then? As per ancient Indian scriptures, *chetna* is just not confined to the brain. Each tiniest part of the body, viz. the biological cell of the body can live and die independently of the body as a whole. A collection of cells is called membrane. There are different membranes that sustain and control various body functions in coordination with the brain. Let us also examine where the thoughts originate. Certainly, their origin is not confined entirely within the brain but external stimuli generate them too. The totality of human consciousness can thus be better associated with the mind, as it covers the body as well as the outside with which human being interacts. Thus, the mind provides an extension of individual consciousness to sensing external objects. Only such a

background may provide a proper study of consciousness in a rational manner.

### Philosophical Aspect

Let us start with the Western philosophers who are in plenty to be referenced in this connection. Let us consider what Descartes opined in essence: 'I think therefore I am'. This goes well with almost all of us. Penrose defined consciousness to be centered in the brain. He represented it in terms of microtubule grids of organic molecules that lie on a sheet. The sheets roll into cylindrical shapes and their offsets have free edges that may associate with one another in the creation of such structures, so as to provide humans with thinking capability of a high order. Such an order has lower capability in animals and plants. Thus, they have lower levels of consciousness.

Philosophers with scientific inclinations introduced physical parameters like casualty, determinism, observation and freewill. This led them to talk about cause and effect, symmetry or order, time invariance, propagation in free space, local/non-local duality etc. These concepts helped them build modern science through logical analyses of observations.

There are human activities involving different professions, of which science happens to be one. Observations and

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reproducibility of results provide logical strength to science. In other professions, human feelings and emotions may well play significant roles. However, some latest scientific reports indicate mixed aspects. The emotional nature of living beings is being seen as precursor to the thought processes. One will then have to admit that the emotional aspects are intrinsically woven into rational thinking. However, rationality follows from the intellect as logical analyses are conducted with varying degrees, depending on one's capability.

On the other side, religions emerged to introduce discipline and values in human behaviour. Both science and non-scientific streams together cover the entirety of human activities. It may be noted that almost all religions followed the living examples of their

respective great prophets. However, each religion evolved through later-day disciples who were not on the same level of spirituality as the prophets. Thus, distortions crept in, which have gradually led to the erosion in great visions different religions started with. Also, the so-called reformist movements were initiated in almost all the major religions. Such a history clearly indicates that 'change is the law of nature'. Changes in circumstances and outlook with the passage of time required modifications in the way a religion was practiced. Essential tenets with permanent values continued to sustain the basic relevance. The underlying strength however comes from the great human spirit or consciousness!

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### Thought Component

Individuality of human beings gets reflected through their distinct personality. The latter has a major component of intelligence-cum-wisdom and a minor component associated with characteristics of the body that may be considered as peripheral. The former is dependent on the strength of thoughts and analytical ability of processing. As knowledge advances, one needs to become more intuitive to discern the significance/consequences of different thoughts. The level of thoughts may be

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categorised differently, as confined to the body-self, the community or a host of communities/societies and the entirety of creation, respectively, with successively higher order of significance.

There is a strange but strong connection between silence and quality of thought. As the mind gets trained to be 'quiet', the quality of thoughts gets enhanced. The intervening moments of thoughtlessness get dominance over the basic randomness of the individual thoughts. Persons who have practiced meditation and yoga usually vouch for experiencing enhancement in their level of consciousness. It enables them to live close to 100 per cent in each moment of their wakeful state. The saints of India in the ancient times practiced *tapa* (solitary meditation) in isolated locations for long periods of time. They literally lived on water, air and may be some shrubs that grew naturally in their living environment. Their works in the form of *Vedas*, *Puranas* and *Upanishads* are considered great revelations of their direct experience of communion with the Creator of the universe.

It is pertinent to mention here some personal experiences of Albert Einstein in the years preceding 1905, the year of his epoch-making discoveries. He had been experiencing distractions in

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working out solutions for the scientific problems at hand. His thoughts appeared to work at cross purposes when suddenly innovative ideas came out of the blues. These ideas were noted by him to be of origins external to his thought process.

However, he was able to discern their uniqueness, as he had the capacity and tools available to implement the same in working out the solutions required. Einstein thus had the humility to admit that such ideas did not originate from his own thoughts. It is worth noting that excellence and innovation may well lie in the domain of ego-less, quiet and disciplined mind. One may be gifted with such a mind from birth or one may orient his mind through yoga/meditation or other practicing techniques worked out for achieving a quiet and disciplined mind.

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### Rationality Aspect

Sciences get developed to understand the nature and behaviour of matter in physical, chemical and biological forms. Because of their complexity and variety, biological matter still presents a lot of scope for adequate understanding. To quote one such recent finding (<http://www.dailygalaxy.com/2009/01/human-cells-hav.html>), it is indicated that a powerful electric field exists within each human cell independently. Such a study became possible due to the development of nano-structured voltage sensitive dyes that act as nano dimension voltmeters. This discovery will enable diagnosis and treatment of diseases at the basic level of a single cell!

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Another scientific discovery by Prof Eccles, a Nobel award winning neurologist of Oxford University, noted the neurons of a particular (supplementary motor) area in the brain

to show activity when none was expected. He believes that there is external stimuli involved that interacts with such neurons and the same gets recorded too in a non-physical covering around the said brain area. That covering does not die with the body and thus carries such records for posterity. Implicitly, there appears a significant role of consciousness in such conjectures of scientific nature. Detailed scientific study of such biological interactions is bound to quantify the nature of consciousness at different levels. There is a parallel here with the concepts of *prarabhs/samskars* in ancient scriptures that are carried as a consequence of actions performed in the previous births of an individual soul. The latter not only determine the initial conditions in the present birth but also determine the intrinsic nature of the person born.

Yet another scientific study relates to

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the brain waves using EEG (Electro-Encephalography). It has been possible to associate specific wave patterns with different states of human existence, i.e., waking, dreaming, deep sleep and meditative states. The waking state shows a frequency range of 12-36 hertz (cycles per second) named the beta state. Abnormally higher frequencies of above 36 hertz get associated as gamma state when information processing puts demands on different areas of brain simultaneously. The next lower range of frequencies of 8-12 hertz are associated with alertness in which processing is restricted to a specific confine of the brain area. This state corresponds to good coordination in a relaxed manner and is linked to creativity. The theta waves of frequency range 4-8 hertz assigns a state between wakefulness and sleep. It may be associated with the subconscious. It may well relate to intuition, fantasy, emotions and sensations. Some examples may be meditation, prayer and spiritual awareness. The last category is concerned with deep sleep and it is named delta state with frequencies in the range of 0.1-3 hertz. Here, awareness and objective knowledge gets rested. What about a state involving highest contemplation? It may well be a mix of deep sleep and high internal awareness. Rishi Patanjali in

Yogashastra talks of the meditative state where one reaches the pinnacle of creativity. In the spiritual sense, individual consciousness may achieve the highest possible overlap with universal/cosmic consciousness in this state.

### Conclusions

The author has personally experienced the power of meditation and yoga practice in the enhancement of consciousness. It leads one to experience the disciplining of a 'wayward' mind towards 'quietness'. It enhances the moments of 'thoughtlessness'. The latter in turn contributes positively towards enhancing the capability of innovation/excellence in a human being. Intrinsically, elements of silence and freedom from existing bias are involved in any such transition.

The composition below may provide a symbolic end to this presentation:

What is this life if full of care,  
 One has no time to stand and stare!  
 Does life move all the time,  
 Or can one make it stand still!  
 What is the worry about getting tired,  
 Why not leave it for consciousness to retire!  
 When one lives fully in the existing moments,  
 One starts to live preciously, ever happily!  
 Neither birth nor death are in one's

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control,  
Why not strengthen universal love,  
peace and brotherhood!

Hail the universal consciousness,  
The source of one and all in  
the universe!

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### Tent of Moses

Boethius was executed in 524, and with the extinguishing of that last glittering lamp the darkness closed in. The climate during the Dark Ages grew literally colder, as if the sun itself had lost interest in the mundane. The few Western scholars who retained any interest in mathematics wrote haltingly to one another, trying to recall such elementary facts of geometry as the definition of an interior angle of a triangle. The stars came down: Conservative Churchmen modeled the universe after the tabernacle of Moses; as the tabernacle was a tent, the sky was demoted from a glorious sphere to its prior status as a low tent roof. The planets, they said, were pushed around by angels; this obviated any need to predict celestial motions by means of geometrical or mechanical models. The proud round earth was hammered flat; likewise the shimmering sun. Behind the sky reposed eternal Heaven, accessible only through death.

Timothy Ferries  
*Coming of Age in the Milky Way*, pp. 44-45