

PRETYA BHAAVA – THE MECHANISM OF REBIRTH.

INTRODUCTORY:

A scientist should not accept or reject anything without evidence. Even for denying, s/he must seek evidence for its non-existence. Non-availability of evidence is not the same as non-existence. Evidence is the instrumentation (observation/experiment) for/against generating identical result of measurement under similar conditions that is spatiotemporally invariant. Validity of evidence is judged by spatiotemporal invariance of such perception or measurement. Everything is interconnected and interdependent as described in *Madhu Braahmanam*. Nature is anything that exists, manifests itself through some intelligible effect directly or indirectly, and can be described in a formal language. Theory is a statement that explains the process at all times unambiguously and universally without contradictions.

In all perception by everyone, though the object of perception changes, the perception itself as: “I know...(it is like that concept/information I perceived earlier; hence it is that)” remains invariant making it universal. It is not measurable, because measurement is a process of comparison between similars and there is nothing similar to consciousness to be treated as a unit to measure it. Hence we have to observe different aspects of life to know how consciousness reveals itself through inert objects to make it come ‘alive’. For searching answers to the question of life and rebirth, we should search clues from conscious beings. We will scientifically examine the descriptions of *Gita*, *Shrimad Bhagavatam*, the *Vedas* and other texts. Since freewill is associated with life and conscious actions, the perception of which is related to the uncertainty relation, causality (determinism) and according to some, retro-causality, let us discuss these first.

The left hand side of all equations or inequalities represents free-will, as we are free to choose (or vary within certain constraints) the individual parameters. The right hand side represents determinism, as the outcome is based on the input in predictable ways. The equality (or inequality) sign prescribes the special conditions to be observed or matched to achieve the desired result. Only conscious beings can have freewill, though it is not unrestricted.

KARMANYEVAADHIKARASTE MAA PHALESHU KADAACHANA:

When Heisenberg proposed his conjecture in 1927, Earle Kennard independently derived a different formulation, which was later generalized by Howard Robertson as: $\sigma(q)\sigma(p) \geq h/4\pi$. This inequality says that one cannot suppress quantum fluctuations of both position $\sigma(q)$ and momentum $\sigma(p)$ lower than a certain limit simultaneously. The fluctuation exists regardless of whether it is measured or not, implying the existence of a universal field. The inequality does not say anything about what happens when a measurement is performed. Kennard’s formulation is therefore totally different from Heisenberg’s. However, because of the similarities in format and terminology of the two inequalities, most physicists have assumed that both formulations describe virtually the same phenomenon. Modern physicists actually use Kennard’s formulation but mistakenly call it Heisenberg’s uncertainty principle. “Spontaneous” creation and annihilation of virtual particles in vacuum is possible only in Kennard’s formulation and not in Heisenberg’s formulation, as otherwise it would violate conservation laws. If it were violated experimentally, the whole of quantum mechanics would break down.

Our sense organs and measuring devices have limited capacity, so that they measure in phases (limited aspects in limited intervals) and then we generalize it. We see something when the radiation emitted by it interacts with that in our eyes. We touch mass that radiates light. Thus we do not touch what we see (radiation) and see what we touch (mass) – *anavarne ime bhumih*. Since time evolution is not uniform, but conditional on interactions, we do not see each step from flapping of the wings of the butterfly till it turns into tempest elsewhere. Creation is highly ordered and there is no randomness or chaos. Nature prohibits reductionism. Whole is a sum of its parts and more. We fault Nature to hide our inability to know everything fully. This inability introduces uncertainty in applying the result of past measurements to plan future actions.

The uncertainty relation was reformulated in terms of standard deviations, where the focus was exclusively on the indeterminacy of predictions, whereas the unavoidable disturbance (perturbations) during the processes of measurement was ignored. A formulation of the error–disturbance uncertainty relation, taking the perturbation into account, was essential for a deeper understanding of the phenomenon. Masanao Ozawa directly measured errors and disturbances in the observation of spin components. His inequality: $\varepsilon(q)\eta(p) + \sigma(q)\eta(p) + \sigma(p)\varepsilon(q) \geq h/4\pi$ suggests that suppression of fluctuations is not the only way to reduce error, but it can be achieved by allowing a system to have larger fluctuations. Nature Physics (2012 doi:10.1038/nphys2194) describes a neutron-optical experiment that records the error of a spin-component measurement as well as the disturbance caused on another spin-component. The results confirm that both error and disturbance obey the new relation but violate the old one in a wide range of experimental parameters. Even when either the source of error or disturbance is held to be nearly zero, the other remains finite. Thus, uncertainty is universal.

Gita says: you have control over your actions but not over other factors that influence the final outcome. Further, it warns: *maa karmaphalaheturbhuh* – do not think that if you do something in a particular way, you will definitely get the desired result – it can boomerang. You cannot exist without action (*maa te sangastwakarmani*), hence try to refine your skills. Result determined by natural principles (God’s Will?) will follow. Freewill can only respond to it – not prevent it. “Causa sui” (self-caused cause) also depends on degrees of freedom – hence not totally free. Quantum mechanics admits *statistical* cause. That only shows a band width and our inability to measure precisely. Atomic time is multiple readings of many clocks to find an average second because transition time between two energy levels of the cesium atom is not uniform. Yet, the numbers of transitions are still related to the old second - a fraction of the Earth’s rotation time.

Retro-causality in QM stems from Bell’s Theorem and the non-locality it seems to entail. Bell thought that “retro-causality” conflicts with freewill and certain basic assumptions of science, and the dilemma can be avoided if the properties of quantum systems are allowed to depend on what happens to them in both future and the past. But Past is not related to present in the same way as present is related to future. Space, Time and coordinates arise from our concept of sequence and interval. When it is related to objects, we call the interval space. When it is related to events, we call the interval time. When we describe inter-relationship of objects, we describe the interval by coordinates. *Past*, *Present* and *future* are segments of these sequences of intervals that are strictly ordered – all of future always follow present. The same sequence is not true for past, because any past event can be linked to the present bypassing the specific sequence of its occurrence but we cannot move from past to future or from present to distant future violating the

sequence. Further, we can think of or use the information relating to past with certainty, but cannot do the same for future. This proves unidirectional time – hence strict causality.

Fantasies such as a traversable wormholes or the region near hypothetical cosmic strings have been used by some to claim that causality can be reversible – effect can sometimes precede cause. This is negated in *Vaisheshika*. Consider an example: $A + B \rightarrow C + D$. Here a force makes A interact with B to produce C and D. The same force cannot act on C and D as they do not exist at that stage. If we change the direction of the initial forces, then B acts on A. Here only the direction of force and not the interval between the states before and after application of force (time) will change and the equation will be: $B + A \rightarrow C + D$ and not $B + A \leftarrow C + D$ (C and D did not exist then). Hence it does not affect causality. There is no negative direction for time.

God is called *Sat-chit-aananda*. *Aanada shakti* denotes absolute freedom (*swaatantryam*). When limited in individuals (*Jiva*), it becomes determinism (*niyati*). *Chit shakti* denotes omnipresence (*nitya satta*). When limited in individuals, it acquires six stages of time evolution (*shadbhaava vikaaraah*), which gives rise to time (*kaala*). These stages: being (situation leading to its creation), becoming (its creation itself), growth (due to addition of other molecules), transformation (as a result), transmutation (due to the same effect - incompatible addition), death (change of form as a consequence) are common to both living beings and inanimate objects. *Sat* is as defined in Chaandogya Upanishad: *sa+ti+yam*, which depict *icchaa-gnyaanam-kriyaa*. The *icchaa shakti* denotes eternal affluence (*nitya praapti*). When limited in individuals, it becomes craving (*raaga*). *Gnyaanam shakti* denotes omniscience (*sarvagnyataa*). Limited in individuals, it becomes knowledge/ignorance (*vidyaa/avidyaa*). The *kriyaashakti* denotes omnipotence (*sarva kartrhtwa*). When limited in individuals, it becomes part/limited exposition (*kalaa*).

If the impulse generated by the perception of something gives rise to craving (*anuraaga*) based on past experience, it generates thought, which is the inertia of mind that can stop only after getting the object of desire (*praapti*), or knowledge of the real nature of the object (*gnyaanam*) or sudden severe pain (*kashta*). Freewill for action is based on three factors:

- 1) Physical and genetic composition of the person that has its own interactive properties,
- 2) Sensory experiences of the past and the memory associated with it that leads to infatuation (*raaga*) or confusion (*moha*) or negative emotions (*dwesha*), and
- 3) Limited disturbance (depravity or affluence) to the ratio (both intra and inter) of fixed evolutionary (*shareera*) and functional evolutionary (*indriya*) components of the body.

These lead to diversity of response to the same situation. Diversity is a property of groups, which has many aspects across the social spectrum. Susceptibility to external conditions or emotions is an example of diversity of genetic composition. Our emotions are based on genetic imprint and past experiences. If we could map it properly, the chain of differential inertia can explain all behavior – the so-called freewill that is constrained (*vaddha*) by available choices.

DEFINING LIFE, BODY, SENSORY INSTRUMENTS, MIND AND INTELLECT.

Ayurveda says: breathing is the sign of life (*praana dhaaranam jeevanam*). Also possession of sensory instruments is the sign of life (*sendriyam chetanadravyam neerindriyam achetanam*). The Upanishads say: there are two causes of life: desire and breathing (*hetu dwayoh hi chittasya vaasanaa cha sameerana*). If either is detached, consciousness (*Chitta*) vanishes. The body is

defined as the base for holding a compact lot of atoms (*arthaashraya*) that is guided by the sensory instruments (*indriyaashraya*), to initiate conscious actions (*karmaashraya*). Recently, a group of scientists at NASA, working on ice samples containing pyrimidine (a ring-shaped molecule made up of carbon and nitrogen) and exposing it to ultraviolet radiation under space-like conditions, have produced uracil, cytosine, and thymine - all three components of RNA and DNA, to show that these hereditary materials can be created non-biologically in a laboratory. Since these are a compact lot of atoms, according to the above definition of the body, these are body material. The researchers found that when pyrimidine is frozen in ice mostly consisting of water (also ammonia, methanol or methane), it is much less vulnerable to destruction by radiation than it would be if it were in gas phase in open space. Instead of being destroyed, many of the molecules took on new forms, such as RNA/DNA etc. Thus *Aapomaya Parameshthee*, who is called *Chitta*, *Mahaan* and *Vaasudeva* in *Bhaagavatam* is called the creator.

Gita (18-14/15) distinguishes mechanical motion from conscious speech, mental and physical actions. It says all these have five concurrent causes: 1) base or ground or physical body on which action takes place (*adhistaanam*), 2) freewill or causal body (*kartaa*), 3) different sensory instruments (*karanam*), 4) energy that operates all systems (*cheshtaa*) and 5) external influences (*daiva*). Gita (18-16/17, also 13-27 to 32) declares that anyone, who thinks that the Self or *Aatmaa* does not induce, but does things; is misguided. While describing how a person after death acquires a new body; Gita 2-22 uses the word '*dehee*' to indicate the causal body (*linga shareera*) – not *Aatmaa*. Let us discuss the sensory process, as it is a sign of life.

Much has been talked about sensory perception and memory consolidation as composed of an initial set of feature filters followed by a special class of mathematical transformations which represent the sensory inputs generating interacting wave-fronts over the entire sensory cortical area – the so-called holographic processes. It can explain the almost infinite memory. Since a hologram retains the complete details at every point of its image plane, even if a small portion of it is exposed for reconstruction, we get the entire scene, though the quality may be impaired. Yet, unlike an optical hologram, the neural hologram is formed by very low frequency post-synaptic potentials providing a low information processing capacity to the neural system. Further, the distributed memory mechanisms are not recorded randomly over the entire brain matter, as there are preferred locations in the brain for each type of sensory input.

The impulses from various sensory apparatus are carried upwards in the dorsal column or in the antero-lateral spinothalamic tract to the thalamus, which relays it to the cerebral cortex for its perception. However, both for consolidation and retrieval of sensory information, holographic model requires a coherent source which literally 'illuminates' the object or the object-projected sensory information – grid cells and place cells - at the site of sensory repository. For retrieval of the previously consolidated information from memory, the same source again becomes necessary. Since the brain receives enormous information that is present for the whole life (subject to comorbidity related mental disorders), such source should always be illuminating the required area in the brain where the sensory information (memory) is stored. Even in dream state, this source must be active, as there also local memory retrieval and experience (without physical limitations) take place. This illuminating source (*shuddha prakaasha maatra roopa*) of the expressed consciousness is intelligence (*vigyaaanam*).

The sensory agencies are different from sense organs. Eye is not ocular sensor (*darshanendriya*). But it is the power operating there that makes the eyes see things. Thus, when one dies, the eyes cannot see. The sensory agencies are called “*indriyam*” to indicate that functionally they belong to *Indra*, which, according to *Shatapatha Braahmanam* (6-1-2), is the central equilibrium point, which resolves into two equal and oppositely directed forces to initiate motion (*sa yoayam madhyepraanah esha evendrah*). Hence *Indra* has been described as the universal form of force (*valasya nikhilaakrhtih*). The sense organs function in that way (*paraanchikhaani vyatrhnat swayambhuh*) – they move out from their base in the body (like eyes etc) to interact with their respective objects and back so that we see proper pictures unlike inverted pictures in earlier cameras. These are sent to the brain through neurons with the help of mind for processing.

When we write on a computer, it had to move a collective of 0’s and 1’s - the machine representation of a Word document - from a temporary memory area (RAM) and send it to the CPU, through a bunch of wires. The CPU transforms the data into letters that we see on the screen. To keep that particular sentence from vanishing once we turned our computer off, the data representing it had to travel back along that bunch of wires to a more stable memory area such as a hard drive. Our mind and sense organs function like that.

At any moment, our sense organs are bombarded by a multitude of stimuli. But only one of them is given a clear channel at a time to go up to the thalamus and then to the cerebral cortex, so that like photographic frames, we perceive one discrete frame at every instant, but due to the high speed of their reception (*manojavittwa*), mix it up - so that it appears as continuous. Unlike the sensory agencies that are subject specific (eyes can only receive electromagnetic radiation, ears only sound, etc.); the transport system within the body functions for all types of sensory impulses. This occurs against concentration gradients with the input energy like the sodium-potassium pump in our body, which moves the two ions in opposite directions across the plasma membrane through break down of Adenosine triphosphate (ATP). When sodium interacts with the surrounding water, reaction starts in less than a millisecond. After 0.4 ms, ‘spikes’ of metal shoot out from the droplet, too fast to be expelled by heating. Each of the atoms at the surface of the cluster loses an electron in picoseconds (10^{-12} s), and the electrons shoot into the surrounding water, where they are solvated (surrounded by water molecules) giving a deep blue color (*pataro viklidhah pingah etat Varuna lakshyanam*).

In the sodium-potassium pump, concentrations of the two ions on both sides of the cell membrane are interdependent, suggesting that the same carrier transports both ions. Similarly, the same carrier (called *ubhayandriya manah*) energizing inter-neurons, transports the external stimuli from sensory agencies (sensory neurons and *gyanendriya*) to the cerebral cortex and back (through motor neurons and *karmendriya*) as a command. These carriers are the “*indriyam*”. Gita (3-42) indicates this sequence. **Mind cannot be perceived, but is inferred** from the knowledge or lack of external stimuli. Only if the mind transports different external impulses to the brain for mixing and comparison with the stored data, we (Self) know about that (for first time impulse received about something, there is no definite ‘knowledge’).

Mathematics is the science of accumulation and reduction of numbers. It is deterministic, hence, a mechanical function. Numbers are the perception of differentiation between similars. If there are no similars, it is one. If there are similars, it is many, which, based on sequential perception,

can be 2, 3...n. Two (*dwi*) is so called because its perception is very fast (*drhtataraa samkhyaa*). Three (*tri*) is so called because its perception is also similar (*tirnatamaa*). It is established that these numbers can be perceived even by children and animals. However, the perceptions of higher numbers are difficult. Hence four (*chatwaara*) is the next number (*chalitasamaa*). Etc. A computer does not count “objects”. It only records the sequence of impulses. It cannot distinguish between three apples and three birds unless explicitly programmed for that.

Compared to a computer, in perception, data are the response of our sensory agencies to individual external stimuli. Text is the excitation of the neural network in specific regions of the brain. Spreadsheets are the memories of earlier perception. Pictures are the inertia of motion generated in memory (thought) after a fresh impulse linking related past experiences. Voice is the disturbance created due to the disharmony between the present thought and the stored image (this or that, yes or no). Video is the net thought that emerges out of such interaction. Software is the memory. Hardware includes the neural network. Bytes and bits are the changing interactions of the sense organs (including sound that produces words - string) with respective fields generated by objects evolving in time.

It requires an agent to mix the signals brought in by mind and convert them to electro-chemical information and submit to a conscious agent (operator) to cognize them. In perception, these tasks are done by a transitory neural activity in brain powered by intellect (*buddhi*). Though, it is not directly perceptible, it is inferred from its actions - firing of positrons in specific areas of brain during perception. Hence even after the breath stops, a person may not be brain dead as the intellect (and not the mind) may still be functional. While time independent mind facilitates the transport of various external impulses, the interpretation after mixing of the state of superposition of various thoughts/inputs in memory (*vikalpa*), is done by the transitory intellect. The conscious self that cognizes the information is different from all these and referred to by Gita (3-42) as He (*Sah*) to distinguish it from Ultimate Consciousness (which is referred to as *Aham* or *Ayam* – as in Gita 2-24). This conscious self is the base for the sensory instruments – hence called causal body (*linga sharira*), as it fulfills the definition of body described earlier.

What we call action can be divided into two categories: a sequence of initial preparatory phase (*prakrama*) – the components of a routine repetitive action (*abhikrama*). These are called subsidiary actions (*kratwartha karma*). A combination of such subsidiary actions leads to an essential action (*purushaartha karma*). A group of such essential actions make a stable structure (*karma vyuha*) that can perform directed composite actions. The performers of such actions are bound by the induced reaction (*vaddha jeeva*) till this inertia ceases and they come over to the automated time evolution format (perpetual functioning of their systems – *abhyudaya* and ultimately *nihshreyasa*). All other (free) species (*mukta jeeva*) are called perpetually evolutionary species (*aashwatthika jeeva*). They have two divisions: fixed evolutionary (*Brahma aashwatthika*) and functional evolutionary (*niyata karma aashwatthika*). The first category is inert like galaxy, Sun, Earth, Moon, atoms, etc, which have fixed orbital positions. Our body is constituted of these. The other category mimics sentiency. It does not have a fixed position and is in perpetual motion (quantum or *devaah*). Thus, there is no fixed position in the quantum world. Our sensory agencies belong to this category. The first category can be perceived directly (*bhaava pratyaya*). The second category is inferred from its effects (*upaaya pratyaya*). It has another category called *prakrhti layaah*, which reflects consciousness. Both categories are held

together by energy (*praana*) that arises from a base (*Aatmaa*) to constitute body (*pashu*). The mechanism is described in *Shatapatha Braahmanam* 14-4-4-1.

Once the heart starts beating in the embryo, it beats perpetually. This sustains life and its cessation is termed death. The energy that powers this perpetual action (*cheshtaa*) is called *Praana*. *Praana* is the kinetic state (*kurvadroopaavasthaa*) of force (*vala*), which is the potential state (*suptaavasthaa*). Its effect is action (*kriyaa*). Depending upon the nature of interactions, it can be of five types. The proximity-proximity variable (*antaryaama*) is called strong interaction, which determines nucleic composition (*gandha – gandh ardane, ard himsaayaam*) and generates smell. The proximity-distance variable (*vahiryaama*) is called weak interaction, which determines weak coupling like the n-p chain (*rasa – ras gatou*) that determines the chemical composition and generates taste. The distance-proximity variable (*upayaama*) is electromagnetic interaction that generates form (*roopa – roop vimohane*). The distance-distance variable (*yaatayaama*) is called beta decay that generates touch (*sparsha – sprhsh samsparshane*). We can feel touch only when something moves past us. These are intra-body functions. The inter-body functions are called gravitational interaction (*udyaama*), which is perceived through the intervening space as vibrating sound (*shabdah – shapam dadaati iti*). Hence *Prashnopanishad* (2-3 and 3-12) describes the same *Praana* functioning in five ways.

The difference between neurons in eye and the sensory instrument for ocular perception (*darshanendriya*) is that, while the former is a huge collection (*bhoota* from *bhoomaa*) of minimum units of form (*roopa tanmaatras*) that radiates electromagnetic energy, the later is a derivative (*vishesha*) of reflected consciousness (*asmitaa*). Like the image of the Sun reflected in water (hence *paraanchikhaani*) appears disturbed (*chidaabhaasa*) when water is disturbed, but the real Sun remains unaffected, similarly Conscious self, which reflects Ultimate Consciousness, is involved in actions, while the Ultimate Consciousness remains unattached (*Saankhya, Yoga and Brahma Sootras*) and only appears to act from a distance (*aaraadupakaaraka*). One example given in the texts is that of a crystal placed near a red flower.

Praana, when moves objects from center to periphery, i.e., vertically is called *Agni*. When confined, these are the 8 types of *Vasu*, which are the gluons (*paavaka*). When loosely propagating, it is called electricity (*Vidyut* or *pavamaana*). When moving out fully, it is called radiation (*Sooryah - sooyate iti* or *Shoochi*). The opposite (periphery to center) consolidating or magnetic effect is called cool *Ap*. When confined, it is called *Aapah*. When loosely propagating, it is called *Yama* (*Yamo vai avasaane isti*) as it collectively transforms one system to create another system (it is different from death - *mrhtyuh*, which is related to individuals and not to systems. Hence after death, the body becomes cold). When loosely propagating, it is called *Soma* (*sru gatou*). *Praana*, when moves objects horizontally, is called *Vaayu*. It has many functional categories (5, 7, 11, 122), but two main functions (*vaa gati gandhanayoh*): displacement (*prerana*) and structure formation (*vyuhana*). The creation depends on *Agni* and *Soma* aided by *Vaayu*. The *Vaayu* responsible for structure formation is called *Maatarishwaa*.

MECHANISM OF BIRTH.

Just before and after death, the only difference is the stoppage of heart-beat and it's after effect of gradual stoppage of all types of circulation (and about 20g weight loss). This must be related

to consciousness and life. But what starts the initial breathing? It cannot be fertilization of egg by the sperm, as action can produce only similar chain reactions due to inertia. Fertilization is transformative, whereas heart beat is perpetually repetitive. If we do not accept rebirth, we must admit that death is the end. In that case what is beginning and what is the mechanism of birth?

According to *Shrauta Sootras*, *Agni* is generated due to friction (*gharshana*) and *Soma* due to pressure (*abhishava*) between two bodies as in magnetism (which presses iron to magnets). According to chemical laws, rate of reaction rises as temperature goes up. Thus, *Rhk Veda* (5-44-14/15) says; when genital temperature rises (female is cool *soumyaa* externally, but its secretion - also electron charge - is hot *aagneya*) during fertility cycle; the not-so-hot (male is *aagneya* externally, but its secretion - also positive charge - is *soumya*) components seek mutual company. Copulation is friction, which raises temperature leading to pressing and ejaculation. This is called fertilization of egg by sperm (charge interaction in atoms). The proto-cells do not have a nucleus, but contain lipids that form membranes as described in *Rhk Veda* (1-164-4).

Females do not conceive every time they copulate. This is because *Maatarishwaa Vaayu* moves the fertilized egg sideways (vibrational bonding, which slows down reaction as temperature rises) to be confined in a process like magnetospheric reconnection that creates hydrothermal vents with pockets of warm water (*Aapah*) in the womb, a condition, which is believed by scientists to have created life on Earth (Lost City expedition). RNA chains get longer, evolving complex life forms like amoebas, worms, and eventually humans, though shorter RNA molecules reproduce faster. Longer RNA chains hide near hydrothermal ocean vents, where unique temperature conditions helped these complex organisms evolve. The mechanism of transformation of salty and alkaline fluid is described in *Gopatha Braahmanam*. The sideways motion by *Maatarishwaa Vaayu* (as *udaana*) creates a reaction couple (*apaana-samaana*) due to inertia of restoration. This starts heart beat perpetually (*vyaana*) in the new life form. This local perpetual motion is like functioning of mind (*hrhdayaakhya manah*. In the case of universe, it is called *Swavashyas Manah*) that created three different streams of motions, habitats and structures, as described in *Rhk Veda* 6-69-8 and *Aitareya Aaranyaka*. While *Maatarishwaa Vaayu* functions from the heart, mind functions from the brain. For this reason, Ayurveda describes its location in the brain above the palate. Hence *Prashnopanishad* describes that the new life form is due to the causal body (formed by *Rayi-Praana* that constitute *linga shareera*) brought in through the mind (*manokrhtenaayaatyasminsharire*). This proves the role of mind as explained earlier in the process of reproduction. But this cannot explain life. Conception is subject to uncertainty. Hence even during IVF births, multiple trials are required (God's will?).

A recent report in *The Journal of Neuroscience* Volume 35 Number 10 reveals that not only brain cells communicate via electrical missives, created by ions as they travel across the membranes of those cells, but altering the electrical properties of these cells during the process leading to brain forming in an embryo or fetus can dramatically change how the ensuing brain develops. Before the development of a normal brain, the cells lining the neural tube, a structure that eventually becomes the brain and spinal cord, have extreme differences in ionic charge within and outside the membrane that houses the cells. In other words, these cells are extremely polarized (*Praana-Apaana*). Even the patterns of electrical potential in cells away from neural tube were crucial to normal growth. In ancient times, priests could ensure the birth of a boy through '*pumsavanam*' without testing the sex of the fetus. Researchers also identified the

molecular mechanisms - particularly the role of signals from calcium ions - involved in this effect. This mechanism-level understanding helps clarify ongoing questions about electricity's (*Aindra vidyut*) part in shaping the brain. From gene-editing, researchers are moving to genome alteration techniques called germline modification.

PNA, tPNA, RNA, DNA, TNA, PAH, proteins, amino acid, etc., can be likened to accessories (for example: like electric wires, switches, bulbs, etc), but they are not the energy (electricity) that powers the system to make them functional. Atoms also are able to reproduce (so-called decay to other atoms or isotopes or isomers), able to grow (similarly as stated) and able to respond to stimuli (charge interaction). Since according to modern science these are features of life, atoms also can be described as having a life (scientists frequently use the term half-life). However, they are not sentient (*prasupta spandana*). Plants and animals have limited intelligence (*savaasanaavilaa*). Human beings exhibit increased intelligence (*pravrhddha spandana*). There are higher forms (*prakshipta spandana*) also.

Information encoding that passes from a cell to its descendants can go in many directions. RNAs can be written back into DNAs or a DNA strand can be reoriented by a protein, thereby changing the genetic program. Information polymers are molecules, which themselves are broken apart in water. In replication, cells create copies of themselves using enzymes, which are the proteins that underpin complex reactions, such as digestion. One property that distinguishes living beings from inert objects is their freewill - capacity to initiate action (*pravrhti saamarthya*). Inert objects cannot do this – they only respond to stimuli. The effect (*phala*) of Freewill is either harmonious to our genetic composition (*sukha*) or not (*duhkha*) based on release of free radicals or not. This determines our response to subsequent impulses making everything deterministic. Freewill of living beings can be physical, mental or through speech form. While the first two are similar to mechanical functioning, inert objects cannot initiate these functions. The third function has two divisions (*Saraswati Vaak* – a derivative of *Bhrhgu* and *Ambhrhni Vaak* – a derivative of *Angiraa*, both derivatives of *Parameshthee Prajaapati*). While the later is mechanical and related to functioning of the physical world (as explained in *Rhk Veda* 10-125), it requires a conscious agent to program or initiate it (*Aham Rudrobhiih...*). The former is a fully conscious process and though some machines or computers can mimic human speech, they cannot interpret the meaning according to the context. Writing through computers we find proof for this. If you type deer in place of dear, it accepts without question. As a lady complained, when she types her name Dipti, it suggests modifications including dirty.

All life forms evolve inside the analog Conscious Sea that pervades everything, like the natural sea pervades coral, sea weed and fish. Structures form and perish - the sea is unaffected. Since it is analog like space and time and contains everything, it is called *Brahman* (*Brhattwaat* and *Brhhanattwaat*) and *Mahaan*. Since it is present in the smallest of particles, it is called *Anu*. We are inside the sea, but being ignorant, are searching for the sea.

PROOF OF REBIRTH:

Due to perception of determinism, sequence, classification, universality of physical laws and causality, rebirth can be proved. The living organisms as well as inert objects are made out of the same constituent material in specific combinations. But there is a universal law that restricts

groupings of the body matter of living beings to organic category. Thus, though scientists are searching for the role of signals from calcium ions in development of the brain, it can only be meaningful as an organic compound and not as inorganic calcium. There is a universal rule of causality that everything cannot produce everything. Thus, the birth of a baby cannot be random interaction of atoms, but has to be only by conscious beings after the causal body of sense organs and mind, with their ability to perceive happiness/pain, are acquired by the physical body (*sambandhastu dehendriyabuddhivedanaabhih*). But can we link the causal body (*linga shareera*) including mind of the new born to that of a previous birth?

While the cause and effect sequence have been established earlier and the effect of all actions are deterministic, freewill can change the projected outcome generating not only uncertainty, but also deterministic variety subject to universality of physical laws, which can be classified into different groups. But who determines the universal laws? If there is such an Agency (God?) and if causality operates universally, then what is the effect of death? Every action has invariably a determinate reaction that may materialize immediately (eating satisfies hunger) or after certain interval, when suitable conditions appear or reactions take place (taking medicine cures later). Though the reactions take place in the physical body, they are cognized by the causal body. Cognition can initiate reaction in physical body. If we see a snake and become afraid, the cause of fear (snake) is away from us, but the adrenalin flow shoots up within our body. The causal body is unable to initiate action without a physical body. Hence what does the causal body do when physical body is destroyed? There is no proof that it also is destroyed. Thus, it must seek a new physical body. In that case, the new body must exhibit symptoms of prior knowledge.

A new born child has to start learning everything starting with a blank slate. How do all new born babies know that if they cry, someone will look after their needs? How does it learn to suckle when the mother brings her breast near its mouth? Other children also show some intriguing behavior. For example, a rhino mother faints after giving birth. The new born child moves far away from the mother before she regains consciousness. The child returns only after its skin hardened just like hens laying eggs sitting on walls are not broken, as it is spongy at the beginning, which hardens immediately thereafter. Surprisingly, both the mother and the child rhinos recognize each other. This is done because the soft skin of the new born cannot tolerate the affectionate licking of the mother's thorny tongue. How does the new born rhino know to move away immediately after birth? Since this identical perception is generated every time we look at a new born baby, it proves some prior to birth connection.

If deeds of past birth are like punishing one person for the sins of another, as some opine, what explains differential behavior among twins born to the same parents? Effect is always spatially related to the cause. Since causal body is the initiator and enjoyer of the result of actions; and since the effect cannot cease without being channelized, the causal body cannot be destroyed before such exhaustion (*krhtahaanimakrhtaabhyagamashcha*). The only conclusion is rebirth is real. There are much more, which will require a separate book. Hari Aum.

basudeba.