

# **EPISCIENCE AND BHAKTI : A NOVEL APPROACH**

**Prologue** : There have been sporadic attempts to break the water tight compartment between science and philosophy or religion. The field of science as well as philosophy are giants of research and knowledge which are literally unfathomable. More so, when individual biases of the scientists and philosophers mar the very humble attempts of finding a common platform of communication. Either very higher levels of both the fields work to find the basic level where the two fields emerge or there has to be a dialogue where we work out whys and hows of the two parallel running tracks meeting without collision. The present Article is an effort to smoothly dive and dig the fundamental areas where a common approach may be developed and research in this area of knowledge is initiated. As a scientist and chemist by training I have been researching on pure science, yet one or two of my attempts particularly in areas of molecular levels of consciousness or other physiological/neurological phenomenon, I have found this grey area viz. aspect of Bhakti or devotion which needs to be explored by us in terms of science. I am a Krishna devotee as a disciple of Pushtimarg, this is a valueless service to my lord (Shri Krishna). If I can contribute to this area of knowledge through this book as his humble servant.

## **Synopsis**

- Definitions and interpretation or meaning (Glossary)
- Pushti Bhakti
  - (a) What is devotion?
  - (b) Is it dangerous to mix bhakti with science?
- Bhakti as science
- Interpretation on the basis of holistic approach and its scientific prospective - Episcience.

The basis of my episcientific interpretations or description would be based on Bhakti explained in Manual of the devotional path of Pushti by Shri Sharad Goswami, an erudite scholar of the Pushti Marg and Vallabhacharya His Philosophy and Religion by Jetha R. Shah. Management of Purusharth Dharma, Artha, Kama-Moksha-Bhakti by Goswami Shyam Manohanji

### **EPISCIENCE - What is the meaning of the word**

Episcience in simple terms constitutes the environment in which particular forms of scientific knowledge and practices are generated and transmitted. It necessarily includes technology, medicine and their alternatives or even non-modern counterparts. Although my use of episcientific terms for interpretation is a serious and challenging question but honestly I am trying to keep a balance in my approach before I use 'Science and Bhakti' as my real objective. Using episcience instead would limit me from raising any controversy to begin with.

Brahman (ब्रह्मन—संस्कृत) connotes the highest universal principle. The ultimate reality in the universe. Philosophically it is the material efficient, formal and final cause of all that exists. It is the pervasive, infinite, eternal truth consciousness and bliss which doesn't change yet is the cause of all changes. The single binding unity behind diversity in all that exists in the universe as defined in metaphysical terms.

Upanishad describes, Brahma desired "I am one I may be many" and to entertain this wish Brahma acquired forms of all in sentiment objects and sentiment beings.

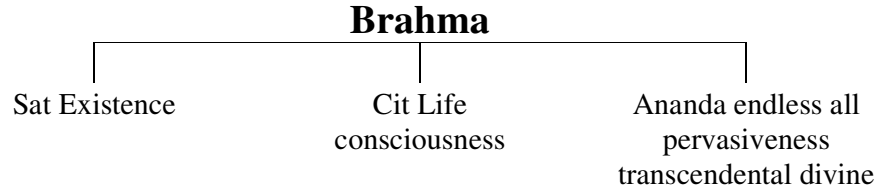
#### ***Sarvam Khalu idam brahma***

All this (universe) is indeed Brahma.

**Creation** : The act of causing something new to happen or exist.

The act of making the whole universe.

Creating by manifestation and concealment. In Upanishad Brahma has been narrated as having three attributes (to believe that something was caused or done by some body/something)



My reference next is chapter 5 of book Management of Purusharth written by Sh. Shyam Manoharji which necessarily includes an all perspective oriented description of Brahm (infinite substrate). He refers Upanishad and describes Brahma as a complete system. He explains the interpretation in two ways.

Brahm (infinite substrate) Satchiananda - Supreme truth, Supreme consciousness and ultimate bliss.

Brahm is also सत्यं ज्ञानं अनन्तम् the ultimate truth, the ultimate knowledge and infinite.

That which is 'truth' that which is conscious and that which is infinite is Brahm.

Now entering into episcientific interpretation of Brahm queries on the basis of definition are numerous. The similarities and contradiction put one to think and argue on this basic definition.

Is Brahm atom?

Is Brahm energy?

Is Brahm black whole?

Is Brahm electron?

Before entering into this grey zone and challenge, there are many valid questions particularly related to using science for interpretation or scriptures. One extreme is an article loud enough to discourage or even warn any one like me. It says

'Mixing Bhakti with science means bad science and confused bhakti (The Krishna Bhakti Site (<https://bhaktijiva.com>)). It states that "those who are attempting to use science to further the cause of bhakti, tend to do bad science because they are plagued by confirmation bias, rather than skeptical outlook required for *good science*. Their alarms cannot be taken seriously because of their ideological biases, which causes them to ignore contrary to inconvenient evidences." It further states that interpreting scriptures using science have two sets of problems. It is not clear that science is a valid hermeneutical method to interpret scriptures(?). Further, the efforts to reconcile the cosmology of Bhagvata Purana with modern cosmology are unclear. It mentions that with their own hermeneutical methods interpreting Bhagvata Purana is not meant to be taken as a quantitative description of universe at all" (Chaitariya Vaishuva Tradition).

There has to be an argument and description which firstly removes common understanding that Bhakti (devotion) and science are diametrically opposite. To my understanding both have a common objective of knowing the truth, the Brahman then why such a description is relevant. Layman understanding of concept science feeds on doubt is categorically refutable and has no stance. Similarly, Bhakti does not doubt is equally low and refutable.

The word science from Latin means knowledge, so it encompasses every area of human knowing. Although in English language it is more associated with natural or exact sciences e.g., chemistry, physics, biology and mathematics rather than humanities. Perhaps verifiability is so called distinction between two areas of science and humanities. Although deeply interpreting science offers us simple and facts of reality while artistic religious and even philosophical views are interpretation of the world. On this basis I am trying to put forward my '*Episcience*' term for the interpretation of Bhakti.

Indeed an interesting yet disputed as well as challenging subject. I have crystal clear object of exploring Bhakti (Pushti Bhakti) from my scientific training, yet no

distant interaction of either proving it as scientific or science nor/ a try to gain edge over so called schools of both sides, i.e. the science and the Philosophy. Yet pure and simple Surround Science interpretation of Bhakti.

### **Review of Literature**

Jens Zimmermann has written a book "Hermeneutics - A very short introduction, which explains one of the most characteristic human activity, the attempt to understand". Science is a distinct mode of knowledge which depends on tradition, personal involvement, intuitive sight and commitment like other modes of knowing. How ever science continues as a distinct or independent method of knowing. Yet, science is an articulate way of explaining system of human experience, which is accepted and sustained by individual commitment. The book on hermeneutics defines that in the methodologies of arts/humanities and science only difference is that the validation of truth by experience in humanities or arts is not exactly the same as the experimental verification which is mandatorily essential in science. The further description in putting it differently is while both streams of knowledge proceed basically from faith to understanding the faith element in arts/humanities is deeper, emotionally more intense and intellectually complex. The positive argument or basis of my understanding is that both scientific verification and aesthetic validation of experience testify to the same personal and interpretive quality of all human knowledge. The catch slogan from hermeneutic perspective is "*To know is to interpret*". More I research and read more precision on my fundamental understanding makes progress.

"The most beautiful and profound emotion we can experience is the sensation of the mystical. It is the power of all true science.

- Albert Einstein

I would fail in my duty as a researcher of episcience of Bhakti if I don't acknowledge enlightenment through Bruce- H. Lipton's book Biology of Belief. My point of making attempt to correlate Bhakti (Pushti Bhakti) and science has made me

to learn fundamentals of cell biology, genetics, chemistry (of which I am a student) and some small part of neurosciences to mention. It is very complex issue to prove my point as it seems but I am taking help of several books I have read and several articles I have gone through. It would not be apt here to cite them all, but I would list them in my bibliography section.

Occam's Razor holds that when we use several hypotheses to explain any phenomenon, it is the simplest hypothesis that accounts for most of the observations and should be considered first. Using this I have explored that the principles of cell biology and quantum physics offer the simplest explanation that account not only for science but also for philosophy.

The Gita (XVIII-55) says that if a devotee wants to realize God his devotion must be preceded by knowledge of God. Vallabharyaji's inclination towards knowledge is based up on Gita. Accordingly, he admits two kind of knowledge.

- (i) Theoretical knowledge or Jnana (knowing)
- (ii) Practical knowledge as Vijnana or experience.

Further, theoretical knowledge is derived from scriptures whereas practical knowledge is called vijnana (science) or experience. There cannot be a better citation than this, for scientific imagination or scientific interpretation of Bhakti, although it is expressed that the practical knowledge is dependent on God's will, by which one seeks God and Feels him in his heart\*. (Phantoms in the Brain : has an interesting explanation) yet vijnana used by him definitely relates to experience or science.

Interestingly there are many similar approaches to explain Bhakti. The things that includes experience according to Sadhguru are your body, mind and emotions. Fourth one is energy which makes them to happen. He calls them realities of life, the body, mind, emotion and energy. Perhaps it is similar to four purusharth as Dharma, Arth, Kam and Mokshya. If you want to do it with yourself, these are the four levels. To reach the ultimate, using emotion is termed as Bhakti. To differentiate he calls it

Bhakti yoga. Devotion is a way of transforming your emotion from negativity to positivity or pleasant men Devotion is an enhanced version of love with the ultimate or God. Even he further reiterates, that devotion is another dimension of intelligence, to conquer truth. The interesting paradox is that devotion cannot decipher but it can be experienced whereas intellect can decipher but can never be experienced (the sole difference in philosophical and scientific interpretation of Bhakti). Conclusively being a devotee is the most intelligent way to exist.

Next approach in favour of Bhakti as science is some sporadic articles and literature available including one by B.L. Kapoor (Bhakti, The Perfect Science, Back to God head). Although interesting but not exactly on the exploratory approach at advanced levels as Pushti Marg (?) (BIAS \_ EGO \_ ?). Yet analysis is good, with sound arguments, The catch slogan here is countering the myth that Bhakti and Science are diametrically opposite. The Bhakti is supposed to rest on blind faith and absolute surrender of human reason, whereas science works on doubt, observation and experiment (experience ?). The article explains that Bhakti is as much scientific as natural sciences, since it is based on observation and experiment and even results are verifiable. Only difference is that it is a transcendental science, wherein the experiments are different. **A transcendental experience as per Cambridge dictionary** : A transcendental experience, event, object or idea is extremely special and unusual and cannot be understood in ordinary ways". Does it mean anything which is not ordinary and cannot be understood is questionable and is unscientific? No, we have limits and deficiency of understanding. So kind of escape to avoid frustration and our inflated ego (?) to accept and challenge it. There is a tendency to put science against spiritually or religion as if they are intrinsic enemies, which is not a fact. Einstein commended "Religion without science is blind; science without religion is lame".

The power of science is in its accepting limitations, as scientists do not jump to conclusions sans sound evidences. I would also attempt to explore scientific interpretation of Bhakti with limitations and flaws. However, with all due scope for

further research on this I have grey zones as well as short comings. To make my attempt simple and understandable I would like to give list and meaning of terms which need to be known before digging deep into the matter.

The basis of my empirical approach to explain scientificness of Bhakti has been serious focus on two scientific faculties, genetics and neuroscience along with chemistry which is mother of my knowledge base. The books which have been tools or rather arsenals of my struggle are the biology of belief. Bruce H. Lipton, *Phantoms in the Brain : Probing The Mysteries of the Human Mind*; Sandra Blakesles and V.S. Ramachandran and *The God Gene : How Faith is Hardwired into Our Genes* : Dean Hamer. Although a number of other articles and books have helped me, which I would acknowledge and cite in bibliographical section.

### **1. Transcendental Experience :**

Self transcendence is described as a Spiritual feeling which is independent of traditional religiousness. It gets to the heart of spiritual belief. The spiritual people to mention have strong sense of "at one-ness" and see them selves as part of one great totality. Self transcendence is a key concept for spirituality as well as Bhakti.

Bhakti : The etymology of the word Bhakti implicates sense of service. It is derived from the root Bhag which means to serve. The termination 'ti' connotes the sense of love. So in all it means love with service. Theoretically meaning goes as service or love through divine worship. Thus in Pushti Marga (Path of divine grace) service is obligatory for one who is initiated into this Marga, through the vow of consecration as Brahma Sambandh.

### **2. How Psychology Approaches Spirituality :**

Modern psychologist Abraham Maslow was one of the founders to tackle problem of measuring spirituality separate from religion. The term humanist psychology was once popular in 1960s. Not going into details and just to make it a supporting idea, this is being included.



What else is nature but god? asked Seneca the Younger a Roman Philosopher, 2000 year ago Einstein in the modern times put it other way, "Try and penetrate with our limited means the secrets of nature and you will find that behind all the discernible concatenation there remains something subtle, intangible and inexplicable. Veneration for this force beyond anything that we can comprehend is my religion".

### **3. Pushti Marg**

Pushti Marg is termed as "Path of Divine Grace" this implicates that God-realization is the aim of every soul and this is dependent upon God's will or God's grace. According to Vallabhachargaji devotion or Bhakti is means of realizing God; which is not possible without grace of God. When God enters the heart of devotee and takes it's possession only then he is chosen by God for his grace.

### **4. What the Cell Biology Interprets**

Fundamental unit of our existence as biology says is "cell". The cell which engages in behaviour through the brains, (Cell-membrane in any cell), by responding to environmental signals. Extremely interesting part of this game is that every functional protein in our body is made as a complementary "image" of an environmental signal. Thus it make clear that we are part of a bigger universe/God (Loud ?). Although not a simile at all, yet the nearest interpretation in Shuddha-dvait for soul, explains this kind of consciousness or behaviour. This is simplistic though, explanation says that souls are many and they are God's parts representing consciousness (chit) together with being and God's bliss is concealed in them. They, so differ from the world in having "Being" with consciousness of God. The latest scientific understanding leads us to view world unlike earliest civilization. (where every material object in nature was thought to have spirit). The present world is of quantum physics where matter and energy are completely entangled in one another (Gaia, is world in which the whole planet is thought to be one living breathing organism) in Greek mythology it is the personification of the earth and one of the Greek primordial deities). Not going deep on the issue, the science indirectly support

the concept of part and whole (in terms of consciousness and environment or universe (Too extreme).

The conclusion is, every protein in our bodies is a physical/ electro magnetic supplement to something in the environment. Very crude way of expressing this fine relationship can be, we are machines made out of protein as an image of environment or larger world, universe or God.

Switching from cell biology to neuroscience is not smooth for me but yet the argument needs a sound support which is based on pure science to say. In the book. I have frequently cited) by V.S. Ramachandran, a complete chapter on "God and the Limbic System" is dedicated to the neuroscientific interpretation of God. A machine called Transcranial Magnetic Stimulator, has been devised to stimulate particular parts of brain and seeing its effect. When a Canadian psychologist Dr. Michael Persinger got this machine, he stimulated parts of his temporal lobes, and wow! the surprise was, as he claimed he experienced God for the first time in his life. It is said that the temporal lobes of our brain, particularly left lobe are involved in religious experience.

Does this mean that our brains contain some circuitry that is infact specialized for religious experience? Has this been inherited in us?

There are serious question which relate to curiosity regarding the format of Pushti Margiya Seva Padhati starting from iniliation to Chanting Kirtan, Mantra diskshya and abjeet surrender to God Krishn. There are many questions but apparently to me plausible question : Is Bhakti or devotion some how outcome of activating temporal lobe of the brain and by practicing making a stable circuitry for the practice of it? I would try to make some explanations through proper arguments particularly regarding Bhakti.

The word Purshi derives from root push which means to nourish, to develop or to feed. At the same time the Pushti Margiya interpretation clearly relates it to the path for development of soul, which has to be made strong by the love of God. Love, they say is the food which is nourished and developed so as to enjoy bliss of God. The

word also means grace of God. Even Bhagvata describes the nature of Pushti as 'Poshan Lila'.

I am neither over emphasizing this aspect nor wish to rate or classify it.

A great many people think they are thinking when they are merely rearranging their prejudices - William James.

A very structured form of spirituality is religion. The origin and even evolution of religion has been intriguing for philosophers, theologians or even historians for centuries. An interestingly useful concept that may offer some insight into it is one developed by Richard Dawkins, a geneticist. He named it 'Meme'. The definition of 'Meme' is transferable units of culture idea behaviour or style that spreads by way of imitation from person to person within a culture and open carries symbolic meaning representing a particular phenomenon or theme. It is transmitted from one mind to another through writing, speech, gestures, rituals or other imitable phenomenon with a mimicked theme. Supporters of the concept call it "gene", that self-replicate, mutate and respond to selective pressures. Proponents even theorize 'memes' as viral phenomenon which evolves by natural selection analogous to biological evolution. Not much going deep into this idea, it finally reflects understanding of 'Bhakti' at genetic level to fit the jig-saw puzzle of the sort. Memes are like genes only difference is that genes use cellular enzymes or (viruses), whereas memes use imitation. Even they can be called 'selfish', like genes as they only care whether they are copied or not and never care what happens to the copier. Yet, memes may be useful for understanding transmission of culture as genes do to understand biology.

### **Mystic Experience - and Monoamines**

Monoamines are neuro transmitters, important bioactive substances that are present in brain. They participate in many physiological activities of body such as emotion, learning and memory. They are derived from single amino acids and are thus named monoamines. Some neuro modulators that modulate well defines behaviours

are dopamine, noradrenaline, octopamine and serotonin. The monoamines are derived from aromatic amino acids such as phenyl alanine, tyrosine and tryptophan.

Velyn underfill a writer on Mysticism recognizes validity of mystical experience subject to following rules as tests :

- (i) It is practical and not theoretical. It is a practice and practical way of experiencing God through prayers, worship or devotional act (Bhakti & Seva).
- (ii) it is entirely a spiritual activity sans self-seeking or for worldly gains.
- (iii) Objective of the method is God's Love.
- (iv) it entails a definite psychological experience.

Vallabhacharya's path of grace, the devotional method is with an element of God's grace for realization of God. The method as ascribed by him includes :

- (i) Nine fold type of devotion i.e. Remembering him, reciting God's glories and deed's falling prostrate before his image, serving him, (2) Prayers and Hymns including fasts and vows (3) Employment of body and wealth in service of God. (4) Experiencing pangs of separation from God. Japa or repeating Shri Krishna Sharaman Mandali : "Lord Krishna is my refuge" Each aspirant has to follow these modes of mystical experience as per the development of aspirant.

My curious question is regarding Bhakti and its development can it be related to activation of genes responsible for spirituality in us.

In 2004, Dean Hamer Published a book The God Gene : How Faith is Harwired Into Our Genes. What is god gene? How it is associated with spirituality? To answer these questions a number of papers have appeared during last few years. To simplify the complexity of subject for a common reader, it would be apt to explain, the questions in relatively simpler words. My hypothesis is to interpret 'Bhakti' in scientific terminology without biases and taking a humble approach to touch upon a

difficult, well researched area of faith. However, I have no intention to claim any established (hither to) principles having deficiency in this knowledge area.

After review of literature it is amply clear that this area, that is episcientific interpretation of various religious or spiritual facts (?) is grey and needs extrusive studies before trying to correlate the two fields science and spirituality. My hypothesis on this basis is based on following facts :

- (i) Since human behaviour is through lot more complex yet spirituality is basically a global fact irrespective of cultural difference or religious beliefs.
- (ii) There is no doubt there is genetic basis of spirituality, including Bhakti.
- (iii) Pushti Bhakti as established by Shri Mahaprabhuji has an extremely scientific basis, may be methodology, is different.
- (iv) Bhakti or the Pushti Bhakti has not been interpreted on scientific basis and this area is first to be explored. My article is such first attempt to open this interesting area of research.
- (v) Vallabhacharyaji's mysticism is based on Bhagvata, which gives importance to devotion, and selfless love for God, which is most proper way of soul's contact with God.

### **Limbic System and Bhakti**

The limbic system of brain is the one which regulates number of behaviours essential for the survival of all vertebrate (possessing vertebra) including humans. Very interesting study is available in a review article, published by Katie Sokolowski and Joshua G. Cobin of Children's National Medical Center, Center of Neuroscience Research, Children's Research Institute, Washington D.C. in Front Mol. Neurosaence, 2012 (<https://doi.org/10.3389/frimol.2012.000-55>) (Mechanism of Neural Circuit Formation). The article opens up interesting correlation between limbic system and how it controls predominantly appropriate response to stimuli with social, emotional or motivational salience. This includes innate behaviour such as mating, aggression

and defense. Bhakti and Pushti Bhakti in particular is emotional and social part of us which results into motivational salience and becomes innate behaviour (Practice - Generally). Activation of such circuit in brain regulating these behaviours initiate with sensory stimulation (It is primarily through olfactory system in rodents). The stimuli is then processed in the brain by structure included in the amygdala and hypothalamus. Though not that simple yet Bhakti can be correlated to the limbic system if we dig deep into the neuroscientific interpretation.

### **Is Bhakti Innate Behaviour?**

It would be appropriate here to mention experiments of Dr. Persinger, who used transcranial magnetic stimulator to stimulate parts of his temporal lobes and experienced God for first time in his life. V.S. Ramachandran reports that left temporal lobe is involved in religious experience. It can be inferred that our brains contain kind of circuitry that is specialized for religious experience. Question is again if such a circuit exists where did it come from? Possibly our brain has a "God Module". Could it be a product of natural selection as natural as in the biological science language or stereoscopic vision?

Interestingly, the relationship can be grossly made to 'God Gene' here and how the gene regulates these would be elucidative attempt for understanding Bhakti in episcientific way.

Out of 35,000 genes present in human, function of hardly only about one third is known. A gene is basic physical and functional unit of heredity. These are made up of DNA (Deoxyribonucleic acid), and some of them act as instruction to make proteins. However, many of them do not code for proteins others, code for well known proteins like globins that carry oxygen in the blood, the crystallins that make up lens of the eye and gut enzymes that digest our food. Another one third of genes have non-human homologies, that are, present in other species (we are animals, too). However, about 10,000 of remaining genes are still unknown. We understand genes are codes for protein synthesis but yet do not know those proteins and what they do. This is

speculative and a mystery that they control such interesting phenomenon like spirituality and Bhakti. We know that functions of so many genes remains mystery. We cannot make out a person's height for example, though we know genes responsible for height. Thus we cannot by simply looking at genome say where the God genes that create a predisposition to spirituality are? Further, by knowing their biochemical function, we cannot know how they interact with one another or environment to develop a trait as complex as spirituality. It may look bit over simplistic yet, the correlation between Bhakti, Spiritreality or even God can be traced to genetic codes or the 'God Gene'. This would be easy now to interpret deep seated correlation between the spirituality and genes or chemical codes for protein synthesis.

Gerald Edelman may be termed as Pasteur of consciousness. He is a Nobel prize winner in biology and a probing intellect like Pasture, having abiding a faith in experimental method. He has proposed a testable theory on consciousness called Edelman's theory of consciousness. He has described in details this theory in his Books, Bright Air, Brilliant Fire and A universe of Consciousness. It would be difficult to express in short his findings and concept, yet without this it would be truly difficult to propose or explain my hypothesis of episcientific interpretation of Bhakti.

Edelman's theory distinguishes two types of nervous organizations, thalamocortical system (containing thalamus and cerebral cortex). The second one is ancient type of nervous system called limbic-brain stem system. The area between spinal cord and thalamus, is really connoction between body and the brain and includes the limbic system's amygdala and hypothalamus. Not going into the details of anatomy it plays key roles in the emotional responses. It also plays important role in the brain's memory archives. The role of thalamocortical system is to receive rapid series of signals from outside world via sight, sound, taste, smell and touch. It also coordinates motor movement, perception and categorization in response. The beuty of this is to join bits and pieces for act speedy and pinpoint - accuracy, and such communication occurs in milliseconds to seconds. On the other hand limbic system is made for comfort contrary to speed. It controls knowing of the brain, so that brain can

make necessary adjustments. It knows what's going on in the body, heart, gut or even the blood stream. It can be called slow in time frame ranging from seconds to even months.

But more simple yet very precise to understand is that components of limbic - brain stem system communicate with one another in varied way. The network is more like fan rather than mesh, having its base in a limited number of cell groups (nuclei) in the brain stem and hypothalamus. The information conveyed is about values, not sights or sounds or not that something is green or red but is it good or bad. So conclusively the limbic-brain stem system is that rules emotions and not scenes.

Coming how it does via the earlier explained monoamines. Limbic-brain stem system is the place where mono-amines intersect with consciousness. Thus the cells of this limbic-brain stem system communicate with brain through these neurotransmitters. The neurotransmitters make a person feel good or bad, depending on which chemical is released (Dopamine, Serotonin etc.). In spite of having all these parts i.e. thalamus, cortex or limbic system. Other animals do not have such sophisticated consciousness as we humans have. The Eelman's theory describes that the Thalamocortical and limbic-brain stem system were in fact linked during evolution, in such a way that they are complementary to each other. The theory links the physical senses to emotions using widely distributed brain networks. This is point where monoamines and a gene VMAT2 which is a monoamine transporter gene comes to picture. VMAT2 is abbreviation for vesicular monoamine transporter 2. The monoamines are not freely available to brain and they are responsible for actually making us feel happy, sad, excited or anxious. They are biochemical mediators of our emotions and values. These monoamines VMAT2, as per Dean Hamer's postulates contribute to the sensations associated with mystical experience like Bhakti or even presence of God. He defines spirituality as "being in spirit" which is self transcendence. Further, varying levels of mono amines neurotransmitters influenced by VMAT 2 probably make it more or less likely that one would feel spiritual.



Although his study had a sample size of 1000 individuals, and has not been scrutinized or peer reviewed.

Bhakti in the nearest possible explanation can be understood in simplistic way using this approach, as this idea of VMAT 2 gene or so called God gene explains that human spirituality has an innate genetic component as the gene does not make people believe in God, but human's inherit a pre disposition to be spiritual to look for higher being VMAT 2 may not be "the" God gene but God is the creator of genetics, monoamines or even VMAT 2.

This means that our genetic makeup helps to determine how spiritual we are. The Vallabhacharya's path of devotion Pushti-Marga' or path of Graces also indicates through classification of Jiva and those who are following Pushti Marg (have interest) are Pushti Jivas. The worship of Shri Krishna is dearer to them than any other sort of achievement including liberation. Thus it seems Bhakti is in our genetic map, by practice we can activate those codes which increase our devotion, the brain's reward chemicals. The two similar chemicals dopamine and serotonin play vital role in the temporary change which as a consequence make long lasting effect in the behaviour through mono amine transporter gene VMAT 2. The spirituality thus can be called genetic which is based on consciousness. Thus Bhakti is as much a science as natural sciences like physics or chemistry, only difference being it is a transcendental science whose experiments are different. It is based on observation experiment and inference which are verifiable. Difficulty with this hypothesis is the question that the non-material aspects of reality may not be studied by those living in world of matter. The mechanistic sciences are based on the foundation that reality is ultimately reducible to simple mathematical sets of equations. The failure of such a model is that it should account for two important aspects of reality consciousness and complex biological form Pushti Bhakti offers method of obtaining knowledge with added aspect of attaining ultimate goal of existence for every individual soul that is conscious. Thus episcience may be in true sense explaining tool to conclude Pushti Bhakti in the truest sense of consciousness and God Krishna as real objective.

## **Summary**

The article attempts to correlate Bhakti with scientific interpretation. Using tools of biology, neuroscience and behavioural sciences it has been an attempt to enquire whether our genetic map has predisposed structure for God? The relevant literature based on research in genetics and neurology indicates a positive, affirmative yes. The second angle, though less mechanistic and more philosophical superficially touches the vision of Pushti Marg which is elucidated in the article (may be not scientific or science), extremely episcientific. This too, as the science in our present form focusses main on materilistic explanation and proofs, it does not and may not put emotional, behavioural as well as faith based science in their right perspective. That never means they are not scientific. It genetics and neurobiological phenomenon and deeply embedded chemistry explains partly. Thus, the research required and pursued would in future make this hypothesis proved. The approach needs and invites serious breaking the biases as well as resumption from both the schools of knowledge for the advancement of deep understanding of the devotional and emotional sides of human behaviour.

## **Bibliography and Reading References**

1. The biology of belief Bruce H. Lipton, Hay House India.
2. Phantoms in the Brain. Sandra Blakeslee and V.S. Ramachandra, Harper Collins.
3. The God Gene, How faith is hardwired into our genes. Dean Hamer First Anchor Book Edition, USA.
4. Shrimad Vallabhacharya, His Philosophy and Religion. Prof. Jethalal G. Shah, The Pushti Margiya Pustakalaya (Library) Nadiad, Gujarat.
5. Management of Purushartha, Goswami Shyam Mahoharji.
6. Bhakti and Neuroscience. <http://www.jiva.org>.
7. Is there a "God gene"? Fact or Fancy? Peter N. Landless and Zenol. Charles - Maical <https://advenlisreview.org/house-call/2111-69>.

8. Wired for Behaviours from development to function of innate limbic system circuitry Katie Sokolowsk and Joshia G. Corbin (Front Mol. Neuro Sci. 26 April 2012).
9. VMAT 2 gene. The God gene and Neurotransmitters. Genetic life lacks [https://www.genetic-life-facts.com/VMAT 2 gene the god-gene and neurotransmitters](https://www.genetic-life-facts.com/VMAT-2-gene-the-god-gene-and-neurotransmitters).