**SELF-REALIZATION– A SPIRITUAL AND MODERN SCIENTIFIC INSIGHT**

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**Abstract**

The concept of evolution as envisaged and developed by modern scientists will be reviewed. The concept of consciousness and its evolution in humans as enlightenment and self-realization as experienced and expressed in the Upanishads, Vedanta, Yoga Sutras, *Bhakti* Sutras and in the experiences and expressions of modern spiritual seers will be critically analyzed. And *self-realization* in individual leading one to and getting established in *jeevanmukta* state will be discussed. The possible *irreversible* physicochemical nature and implications of such consciousness evolution in humans will be discussed.

Key words: Self-Realization; Yoga; Conscious Process of Evolution; *Bhakti*; Consciousness Evolution; Physicochemical Nature of *jeevanmukta* state

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**Introduction:**

 Evolution is a modern scientific proposition for the explanation of emergence of life from matter and consequent life-systems (Table I). The emergence of plants, animals and humans as superior life-systems is explained by Darwin in the 19th century. That theory has been dominating scientific community since then and is a healthy rival to the theory of creation. Evolution is a process during which some things are dropped or deleted and some things are added and a synthesis of things takes place which is either final are still amicable and amenable for further evolution. Evolution though is both progress and regress depending on the changes and view taken by the observer most of the times evolution is equated with improvement and progress. Also evolution is mostly considered unidirectional, not reversible or retraceable.

**Modern scientific insight of evolution:**

It has been proposed by modern physicists that big bang has taken place trillion of years back and matter slowly started evolving. The order of that and later evolution of species is given as:

Evolution of universe;

Chemical evolution;

Molecular and macromolecular evolution,

Evolution of proto-cells, cells, tissues, organs and organisms,

Evolution of consciousness

 After the emergence of plants, animal have evolved on earth. First invertebrates have evolved and then vertebrates. Human being is the latest in the evolution of vertebrates. All vertebrates have, brain, spinal cord and nervous system to function mentally. Thus human-being though is known to be an emotional and intellectual being, is essentially a physicochemical being like other vertebrates. All of them breathe and subsequent rhythmic exchange of oxygen and carbon dioxide release energy which sources, under-takes, guides, sustains, and terminates all mental functions (Ramabrahmam, 1997, 2004, 2005a, 2005b). The only difference between other vertebrates and humans is, humans have language acquisition and communication abilities, which are missing in others. All vertebrates have consciousness and it has been evolving from the start of species evolution. Various schools of thought are available in modern science and Indian spiritual systems about the evolution of consciousness in humans during the evolution and also during the life time of the individual.

 Thus human body is the chemical factory where various biochemical and biophysical energy transitions and transformations happen simultaneously through the medium of biological matter and relevant energies resulting in various processes and functions. Humanconsciousness and human mind are aspects of human body just as any other task performed by it. Thus human consciousness and human mental processes are manifestations of physicochemical (physiological) processes taking place in and concerning human body. Human consciousness is a biological entity and activity present in humans and hence has to be amenable to be understood in physicochemical terms as any other biological phenomenon. Human consciousness is the awareness of mind (Guyton and Hall, 2004, Blakemore, 1977, Radhakrishnan, 1994, Ramabrahmam, 1997, 2004, 2005a, 2005b). Mind, which is an expression and part of consciousness, is an aspect of human body. Mind does all human mental functions which are physiological processes. Thus psychology is physiology. (See Tables II A, II B and II C)

**The Indian spiritual equivalent and its modern scientific translation of above understanding:**

***Infrasonic form of mind - conscious states or phases of mind:***

*JAGRAT SUSHUPTI*  WAKEFUL SLEEP *ADVAITA BHAKTI PARA*

 A series of ‘I -I’ pulses’ issue and virtual energy transformation takes place Mind is active if willed. Sense and action organs are alert and ready to function. Through meditation one reaches this state. State of *Visranta Drishti*, ***Bhakti*** Silence, Bliss, Peace,Unoccupied awareness, Pure ConsciousnessDivine consciousness,Real ‘I’ state etc.Normal or ground or original or natural state of mind. **Being*.***

*JAGRAT* WAKEFUL  *DVAITA*

Mind is active. Sense and Action organs are active are in working state. All knowing/expressions take place in this state. *VAIKHARI* *Bahirmukha Dristi* (awareness of without) **Becoming** Excited state of mind.

 *SWAPNA* DREAM  *DVAITA PASYANTI*

Mind is active. Sense organs are in dormant state. Actions organs will be functioning if necessary. *VIBHAKTI / MADHYAMA* *Anthramukha Dristi* (awareness of within).**Becoming** Excited state Excited state of mind

 *SUSHUPTI* DEEP SLEEP *ADVAITA*

A series of ‘I-I’ pulses’ issueandMind is in absorbedstate. No transformation of virtual metal energy.Sense andaction organs arenot in functionalstate. No awarenessof within or without of body *prapancham-*cognitions) or *vasanas*-cognition related or created remembrances. State of cessation ofmental activities

 Wakeful Sleep, deep sleep, wakeful or awakened and dream. These are the conscious states of mind discussed in detail above. Human consciousness is always on as conscious awareness and only mind rises or sets during these conscious states of mind causing cognition and cognition-related experiences, storing and retrieving them in respective phases. Human consciousness is the form, the structure and the consequence of breathing process and generates psychic energy that does all human cognitions and cognition-related functions. Cognition and cognition-related functions are the result of reversible becoming of this psychic energy and human consciousness bifurcates as consciousness that is aware of the cognitions and related activities and the occurrence of the activities themselves. When these activities are taking place, such a dual role is played by the human consciousness. There is also a phase when no cognitions or cognition-related activity is taking place and it is the original or normal or natural state of human mind, the non-dual or peaceful, blissful or silent phase of mind.

**Electro-chemical form of mind-cognitive and functional states of mind- as *Sapta lokas* - A *Gayatri Mantra* Perspective:**

 Seven states of cognition (*sapta lokas*) are identified in relation to ego-transcending or egoistic or self-conscious state of mind. These cognition states function around the, ‘I’-consciousness, ‘I-sense, the I-thought or feeling and I-expression or utterance or in the absence of such identification. Then no individual- specific information will be in the mental awareness and the mind transcends to a state or phase when the mental awareness becomes one with the consciousness and non-duality in the form of peace, bliss, or silence is experienced. Cognitions cease to take place but will take place if willed or necessary. The seven cognitive states of mind (Ramabrahmam, 2006) are:

 **Pure consciousness: Normal or original state of mind (***infrasonic form***):**

1. “I” Consciousness – No “I” Awareness of and about individual (*satya loka*). State of self-realization.
2. Meditative state of mind. One pointed awareness. (biochemical/biophysical form) (*tapo loka*)

**Egoistic and Functional States of mind:**

1. “I” Awareness/Sense/mood- Ego Sense - State of verb/meaning/understanding/experience/intuition/urge- Infinite form or present continuous form of verb without subject or object attached. (biochemical form of energy as potential energies) (*jano loka*)
2. Logic, reasoning, intellectual operations (awareness of within of the body)- State of sentence with subject-verb-object-perception (electrochemical form of energy infrasonic form being the carrier energy) (*mahar loka*)
3. ‘I” Thought/Feeling (awareness of within of the body)- State of sentence with subject-verb-object-perception (electrochemical form of energy infrasonic form being the carrier energy) (*bhuvaha loka*)
4. ‘I” Thought/Feeling (awareness of without of the body through sense organs- reception of stimuli through eyes, ears, nose, tongue, skin in light, sound, chemical and mechanical and heat forms respectively) in relation to outside physical world. Mind tuned to outside world through sense organs. “I” Utterance/Expression/also reception of stimuli from outside world and expression through action organs. (utterance - sound form, and facial expressions-mechanical form of energy)
5. No “I” Awareness of or about individual- No Self consciousness or ongoing of mental functions. State of cessation of all types of mental functions. (suvaha loka)

**Kinds of functional states of mind - A *Vedanta Panchadasi* Perspective:**

(a). Getting tuned to and sensing stimuli from external physical world through sense organs and reception (biophysical- *annamaya kosa-tanmaatras-* activitation of sense organs *- jnaanendriyas*).

(b). Actions, reactions or interactions with external physical world activated by hormones or stored information (mechanical form – *pranamaya kosa- activation of action organs - karmendrriyas*).

(c). Perception/thinking/reasoning/feeling in accordance with the stimuli from external world or information retrieved from inner mental world. (electro-chemical form – *manaomaya kosa – manas- buddhi- ahamkaaram antahkaranas* functional mode)

(d). Conversion of above information into intelligible information as sense or meaning or understanding or insight or experience (electro-chemical + biochemical form- *vijnaana maya kosa* - *chittam antahkarana* functional mode – *pasyanti* mode of *vyakarana*)

(e). Awareness of Understanding/intuition/urge/mood/experience/meaning/experience (*aanandamaya kosa*- *chittam antahkarana* functional mode- of *vyaakarana*- biochemical + infrasonic form). Becomes *para*/*tatpara/taatparya* mode in self-realized state (infrasonic form)

 While mind is functioning, there will be a differentiated perception of knower-knowing-known or subject-verb-object, which will be missing and absent when non-dual (*advaita*) awareness or pure consciousness becomes unoccupied awareness. Experiencing or understanding or getting insight of verb is state of experience and then knower-known or subject-object are not attached to the verb. Verb will be in a present continuous form or infinite form depending on it is absorption of information or understanding cognition or experiencing cognition or urge (to express or do) or intuition (result of perception or instinct took form or genetic knowledge expressed through hormones or like them) or sense or meanings of utterances received or to be expressed.

***Brahmajnaana* insight of human consciousness and mental functions and evolution of self-realization process in the invidivual:**

 *Atman* (***yasya gamanam satatam tat atma***) and *maya* (***yaya asantam pasyati sa maya***or ***ya ma sa maya***) together constitute and compose of human consciousness and are the ingredients that construct and operate human consciousness and human mental functions)8.

*poornam* ***adaha*** *pooram* ***idam*** *poornat pootnam udachyate*

*poornasya poornam aadaya poornam eva avasisshyate*

 The above *Upanishadic* expression informs about *Atman (****adaha or aham****)* and ***idam***, theinner mental world and mental functions taking place therein. ***Idam*** comes out as full from ***adaha*** – the full and after this release the ***adaha*** remains full. This means ***adaha*** or ***Atman*** or ***Brahman*** is both the instrumental and material cause (***upaadaana kaarana***) for the formation of inner mental world. ***Atman*** also gives us ***dristi*** or consciousness. ***Atman***, which moves always, rather oscillates in tune with the breathing process and is the result of it8, is both the source, guide of and absorber of ***maya***, the ***chit aabhaasa*** *or* ***pranavam*** or ***sphota***, the reflected form of the ***chit*** energy. And inner mental world is constructed by ***maya*** and associated mental functions are transformations of ***maya*** in forward and reverse directions, technically known as ***vivartanam.*** “***mayaamayam idam jagat”*** sentence informs this.

 All human learning, knowing, communication, perception, reasoning, experience, understanding and a state transcending these mental functions are the combined and simultaneous operation of *Atman, maya, antahkaranas* (inner mental tools), *pancha pranas,* sense organs and action organs3-5. Mental functions take place as the inter-play of *advaita (vishranta dristi*-unoccupied awareness-pure consciousness) and *dvaita* (simultaneous presence of *antarmukha dristi*-awareness of within of the body and *bahirmukha dristi*- awareness of the without of the body. Sense organs are activated by the *antahkarana manas* and this forms the *baharmukha dristi*- awareness of the without of the body. During this awareness of mind *tanmatras* (object-energy forms) are sensed by sense organs through tuned *manas*. Perception is a construct from the inputs through sense organs and *manas*. ***Manas*** gives ***dristi*** or awareness, of without and within of the body concerning the sensing and sensed and created object-energy forms.

 *Advaita* philosophy is an integrated psychology, which professes the sameness of the knower in both the self-conscious *(jivatma)* state and the **Witness** in the transcendent pure-conscious *(paramatma*) state with Being and Becoming in forward and reverse directions during the processes of Expression/Teaching and Knowing /Learning13. *Brahma sat jagat mithya jivo brahmaiva na aparah*- means **What is present always is *Brahman* and *jagat* (which is moving or transient) is *adhyasa* and *mithya* (unreal); *jiva* is *Brahman* Itself, not different or separate.**

 In *Advaita* (No Two or non-dual) state human mind possesses consciousness only. As *Prajnanam, Atman* gives *Dristi* to observe, be aware of and be conscious of understanding, meanings and senses of cognitions and cognition created experiences. In *dvaita* (two or dual) state of mind human mind exists as consciousness and awareness. Upanishads call consciousness as *Aham* and awareness of *vasanas* and *prapancham* as *idam*.

**The scientific and brain wave modulation/demodulation insight of above understanding:**

 *Atman* provides pure consciousness and it is the human consciousness and has following structure: Human consciousness, in the form of and characterized by *Being-Pure Consciousness-Bliss* is:

i) an *Oscillating Energy-Presence* i.e., an infrasonic bio-mechanical oscillator, which is the result of breathing process and the subsequent rhythmic gaseous exchange in the lungs, issuing out mental energy pulses frequency of 10 Hz (a time-period of 10-1 sec) is the real source of mental energy, the *Being of Mind* (***aham***) and

ii) its reflected (in *medulla oblongata or reticular formation*) *virtual* energy-pulse series (*becoming of mind* – mental awareness) (***aham + idam***) together constitute human consciousness and are the ingredients of human consciousness8

 Human consciousness based on this proposition can be viewed as comprising of Pure Consciousness (*Being of Mind*) and Awareness (*becoming of mind*). *Atman* (mental or psychic energy source) takes care of the consciousness part and *maya* (reflected mental energy virtual form) and its forward and revere-transformations take care of the awareness part in respective conscious states (See also Concept diagrams I and II). Thus *Atman* is proposed to be an *infrasonic* mechanical oscillator giving out mental energy pulses of frequency 10 Hz (time-period of 10-1 sec.) 10 Hz is the frequency of this mechanical oscillator according to both western science and eastern philosophy and theory of language acquisition and communication. The enormous number (300 million) and surface area (70 square meters) associated with alveoli constituting this bio-oscillator/.bio-maser produces enormous amount of mental energy though the frequency is in the infrasonic range. [It is interesting here to mention that the mental rhythms detected by the experiment by German scientist Hans Berger using EEG (electro-encephalogram) also have the same time- period of 10-1 sec]. Also see Table II A to II C.

 Simply put, according to *Upanishads*, human mental functions are the forward and backward transformations of *chidabhasa* or *maya* - the carrier (in the sense of carrier radio wave in broadcasting and reception process) cognitive-energy pulse series, *modulated* by energies sensed through sense organs or the stored information as potential energies retrieved (as *vasanas* - object-experiences first and then *jagat* [inner world] as feelings/thoughts/perceptions) and *demodulated* to give humans knowledge, experiences etc., in the respective conscious states. The transformation of *maya*, reverse transformation of *maya* and cessation of transformation of *maya* - the *dvaita* and *advaita* conscious states respectively- taking place simultaneously, consecutively and alternately is the structure, form, function, state and essence of human consciousness, mental functions and cognitive processes (Concept Diagrams I and II).

***Upanishadic* path to self-realization (*jeevanmukta*) state:**

*Self-realization consists in understanding the natures of* ***aham*** *and* ***idam*** *and changing either of them during the process of evolution of consciousness. Various ways of doing so are available in the Upanishads and are given in Table IV*. *Self-realization is also a process of transforming* ***dristi*** *about* ***sristi,******srasta*** *and* ***srujuna****.* Self-realization is a process reverse to generation of thoughts. Self-realization is achieved by using ideas, moods, urges, emotions, feelings, thoughts (*saguna bhakti*) and also transcending them (*nirguna bhakti*). Self realization can also be achieved by stalling cognitive process as is done in Yoga method. The methods of *Bhakti* and Yoga are discussed below.

***Jeevanmukta*** is one who is liberated mentally while alive. *Jeevan* (while alive) *Mukta* (liberated mentally) state is culmination of an evolutionary process in the individual. It is a distinct physiological process and change within the body of the individual. It is a distinct physicochemical state of mind functioning differently to stimuli from within and without of the body. The *jeevanmukta* continues to live in and as the state of liberation free from usual worldly entanglements.

The names ***suddhaaham, nirguna, jnaana, prajnaana, santa, mauna, aananda, bakti, para, nirvana, jeevanmukta*** are synonymous with self-realized state. It is a state of pure consciousness, unoccupied awareness and content-free contented state of mind. Being in that state is not removal of oneself and one’s self from worldly affairs. But transcending worldly entanglements and being engaged in worldly affairs and normal duties in an efficient way with equanimity of mind.

**Self-Realization through *Bhakti:***

*Bhakti* (Devotion) is the most profound human emotion that merges the individual’s identity with the Divinity. *Bhakti* has many definitions. We need to submit ourselves before Divinity by thought, word and deed. We then offer our self-consciousness and ego to the Lord and submerge our selves in Him. When we do like this, we will avoid the thoughts relating to I, me and mine. These thoughts not only stop but will permanently cease to arise in us. This cessation of thoughts forms is time-or mind-transcendence.

Two definitions are discussed here:

“*Sa (bhakti) tu asmin paramaprema roopa*” –is the most famous and popular definition of *Bhakti* from the *Narada Bhakti Sutras*. This means that *Bhakti* is the unalloyed love for God. This love is *paramam* (ultimate). *Paramam* also means that this love happens and exists without expecting anything in return. It is loving for the sake of loving. In this process we employ our sense organs (eyes, ears, nose, tongue and skin) to know about God and Divinity. Our eyes see his Divine Form. Our ears listen to his Divine Name and deeds etc,. We also employ our action organs (movements of hands, movements of legs, movement of vocal chords (speech) etc., to reach God through daily worship and chanting His Name and other prayers.

It must be known to us that we know through sense organs and all this information is stored as inner mental world in us. We get our thoughts and feelings based on this accumulated information. If we accumulate mundane information we get thoughts about mundane matters. If we accumulate sensual information we get sensual thoughts. If we accumulate information about God and Divinity we get thoughts about God and Divinity. We also act and react through action organs (hands, legs, speech etc.,) depending on the information known through sense organs and accumulated within us. This inner mental world with information about outside world has already been formed in us since our infancy. We can consciously change this inner mental world by rewriting on available information the information about God and Divinity. This, we can do by employing our sense organs as described and accumulate Divine Information. Then we automatically get pleasant and blissful thoughts and feelings. That is how our Elders have started the tradition of *Bhakti* in which all our faculties and organs are involved with Divinity.

In *Sivananda Lahari Sri Sankraacharya* says:

*Amkolam nijabija santati ayaskantopalam suchika*

*Saadhvi naija vibhum lata kshitiruham sindhussaritvallabham*

*Praapnoteeha yatha tatha pasupatehe padaaravinda dwayam*

*Cheto vrittihi upetya tisthati sada sa bhaktirituchyate*

**Meaning:** Just as the seeds of *Amkola* tree stuck to it again, iron needle is attracted to magnet, youthful woman reaches her husband, creeper entwines the tree, and the river flows into the sea, so an individual is attracted to and reaches *Pasupati’s* (Siva’s) feet*. Bhakti* is state of cessation of working or/and absorption in the Self of *antahkarnas* (inner mental tools- *manas, buddhi, chittam and ahamkaram*) and resting thus always.

Many more beautiful expressions about *bhakti* way of self-realization are available in our literature. The most famous bhaktas (devotees) are spread throughout our country. Some names are : The *alwars* and *nayanamars* of Tamil country; Chaitanya Maha Prabhu, Jayadeva, Tukaram, Sakkubai, Purandaradasa, Annamayya, Ramadasa, Kabir, Suradas, Haridas, Meerabai, Kshetrayya, Narayanateertha, Sadasivebrahmendra, Tyagaraja and many such eminent personalities. This is all *saguna bhakti*. ***In this process the idam is changed completely by filling with information about Divinity.***

Let us see *nirguna bhakti*.

*Swaswaroopa anusandhanaam bhakti iti abhidheeyate*– is a famous *nirguna* definition of *bhakti*. This has interesting implications. *Bhakti* is tuning our selves to our original state and form the state of *Saanta Rasa.* This original state (*rasa sthiti*) is the state of bliss, peace and silence. In these experience states, our identity as the individual is merged in the Real Identity that is- ego, time and thought transcending state of mind. This happens when we contemplate about spiritual expressions and arrive at the destination i.e., *rasa sthiti*. This approach is the path of *artha bhaavanam* (contemplation on the meaning). When we understand we experience. When we experience we understand. Experience and understanding are simultaneous. The experience of meanings and senses of uttered (heard) sounds and sentences or comprehension of Divine Utterances and their implications makes us reach the *tatpara* (absorbed and being one with *tat* (Divinity) or *taatparya* (purport or import or *rasa*) state of language. We must be aware that we use the same mind to learn and master the languages and rest of the disciplines as we use for doing our tasks in daily life. The state of thoughts or feelings is known as *vibhakti* state of mind. We all know that *vibhakti* is case forms, endings and terminations in the theory of language. *Patanjali* and *Bhartruhari* have initiated, nurtured and developed a theory of language acquisition and communication making use of the same *Advaita* concept of Vedantins. ***In this process aham - self-consciousness is changed completely to Pure Consciousness.***

*Bhakti* thus is description of devotion to favorite Deity and also the essential part and essence Vedanta.

Thus by God’s Grace we can transcend the psychological time-flow which exists in us in the form of thought-flow. Mind becomes calm and peaceful when we shed our ego and fill it with the insight about Divinity. Then we can live attributing everything and happening to God’s will and take everything with equanimity in our stride. Then we have more pleasantness and mind acquires strength to face life. We will tackle all problems with courage and calmness. We will be rid of thoughts about past or future. We live peacefully and blissfully not getting reminded of ego transcending time. We live in the present. We live in tranquility.

**Yoga – a conscious process of evolution of individual consciousness- the stalling and controlling of cognition process:**

Yoga Sutras compiled by Patanjali are store-houses of yogic method of enquiry. ***“Yogaha c hitta vritti nirodhaha”*** is the most famous yoga sutra of Patanjali. The famous *Brahma Sutra* – “***saastra yonitvaat***” states that all disciplines of knowledge have originated in the *Atman* or *Brahman*. Yoga Sutras use the word *Purusha* to signify the same. The word *maya* of the *Vedantains* corresponds to *prakruti* of yoga sutras. Thus *maya* and *prakruti* are one and the same and can be considered as *chit* or mental or psychic energy carriers. As mentioned earlier above as proposed by Ramabrahmam 2-9 *Atman* and *maya* and its transformations together constitute human consciousness. *Maya* undergoes *vivartanam* [forward (modulation) and reverse (demodulation) transformation or becoming of *maya* or *pravanam* or *prakruti*] and constitutes mental functions and cessation of such a *vivartanam* gives *nirvishayavasuddhaasanaapravaaham*.

***Vritti and Nivritti:***

*Vritti nama antahakarana parinamaha -* *vritti* means transformation of inner-mental tools (*antahakaranas*). All our mental functions come under *vritti. Nivritti* means cessation of such transformation. *Nivritti* phase is same as *Jagrat Suchupti* conscious state of mind. This is the state of *Atman* or *Brahman* as *nirguna* state.

Thus *Bhakti, Nivritti, Jagrat Sushupti, Nidra*, all signify the cessation of mental functions and no *vritti (antahakarana parinama)* takes place during phase. Meditation is done to attain this state of mind. This state of mind is also known as Peace (*Saantam*), Bliss (*Aanandam*) or Silence (*Maunam*). We have different kinds of meditative processes to suit each mental make-up or individuality or ego or nature or method of enquiry10. One can choose one of them and practice to attain *chitta vritti nirodha.*

*Chitta vritti* (Yoga Sutras) and *chetovritti* (*Sivanandalahari*) are one and the same. We can attain these by using sense organs and action organs diverting them from material world to spiritual world. Choosing a favorite deity and chanting His or Her name incessantly is one method when the *chitta vritti* becomes *sattvagunabhooyistha.* One can start this as first step even without rigorously following *astaagayoga*, as a preliminary step. Ordinary seekers can follow this method without recourse to studying books or practicing *yama, dama* etc. strictly. The result will be the same i.e., attainment of *chitta vritti nirodha* or peace of mind. Strict following of *Astaangayoga* anyway gives the required result. *Chittavrittti nirodha* state and *chetovrittirupetya tistati* state are one and the same. The first one is *Yogamarga* and the other is *Bhaktimarga*. *Bhakti sthiti* is also *tatpara* or *taatparya sthiti* or state of experiencing the meaning of the word, sight, smell, taste or touch known, perceived, understood and experienced. *Tatpara Sthiti* is *Parmaatma* or *Paramapurusha sthiti*. The same is *Atmasthiti* or *Brahma sthiti* – **the self-realized state**.

By yogic methods of enquiry, like Yoga, *Bhakti* or *Jnaana* - contemplating, practicing, comprehending and experiencing such methods leads to *chitta vritti nirodha* and mental strength increases and *anistabhaavaparampara* (rise of unpleasant thoughts and feelings) can arrested and avoided. During *chittavrittinirodha vivartanam* of *maya (pravanam or prakruti)* does not take place. Ego merges itself in its source i.e, *Atman.* This ego-free or ego-transcending state is the result of *chittavritti nirodha*. Then we experience *aananda* the natural quality of *purusha*. Then *aananda* the personification of *nirvishayasuddhavaasanaa pravaham* becomes continuous and eternal that is exists in all the phases of or conscious state of mind as *sruti* and even if *sristi* is in *dristi*, (even though mental functions are taking place) we remain calm uninvolved in these mental functions. Ego will be shed and all happenings are witnessed as *Saakshi* transcending and uninfluenced by the associated happiness or sorrow and live efficiently with full mental alert non-attached but interested sufficiently for the smooth run of life. This state is compared in the Yoga Sutras to the unhindered flow of water once the farmer removes the obstacle in the fields. Thus we become the flow of unhindered bliss and peace and perform our duties efficiently and effectively.

**Kinds of Almighty’s Grace in attaining Self-Realization:**

*Method of self-realization is not unique. Single general method with mass instruction will not be fruitful. Just as the psychologist treats each case individually so also method of calming mind is individual-specific and heavily depends on one’s mental makeup. It is achieved merely by god’s Grace (maarjaala kisora nyaya) or also by individuals’ conscious effort (kapi kisora nyaya)*

God showers His Grace and takes us into His fold. And observation shows that God is sometimes partial in showering His Grace and does it selectively. Some devotees are pampered and also are dealt with special care and some others are tested and not cared for despite their sincere prayers and genuine devotion.

***Maarjaala kisora nyaya*** **(Genetical in nature):**

In ‘*maarjaala kisora nyaaya’* Lord takes care of the devotees as mother Cat takes care of its off spring. The Lord Himself on His own completely graces and guides them even before they make efforts to reach God. Such concern is shown in initiating and sustaining His love and affection for them.

***Kapi kisora nyaya* (individual’s effort):**

In ‘*kapi kisora nyaaya’*, the devotees cling and clutch to the Lord as the monkey infant clings and clutches its mother monkey firmly and strongly and the mother monkey appears indifferent to and unmindful of the infant and jumps from one branch to another with utter disregard for the safety of the off spring. The off spring alone appears concerned and the mother monkey not at all.

But these are only two different ways and the Lord is equally compassionate and merciful. Devotees are made to always think of Him in both the processes. Apparent indifference in the second case is sport of the Lord.

**Spiritual Experiences of Seers that transformed them-Examples of both the nyaayas:**

[1] Siddhartha’s realization under the peepal tree in Gaya transforming into the Buddha:

[2] Sri Ramana Maharshi’s Near Death Experience:

*Sri Ramana Maharshi on tapas or self-realization:*

(a) Find out wherefrom this ‘I’ springs forth and merge at its source; that is ***tapas***.

(b) Find out wherefrom the sound of the *mantra* in *japa* rises up and merge there; that is ***tapas***.

[3] Sri Aurobindo’s Narayana Darsana in Prison:

[4] Sri Ramakrishna Paramahamsa’s Divine Experience – The Vision of Kali:

[5] Sri Jiddu Krishnamurthy’s profound experience under pine tree in the US:

Even though apparently the individual experiences had by these seers and the technical terms they used to describe them, look not the same, they are all essentially the same process culminating in self-realization. The paths are different but the effect and the result is the same. And in view of their mental make up (which is a function of their respective genetic and educational and spiritual backgrounds), the methods they followed for self-realization, consciously or otherwise, intentionally or otherwise and other cultural background should have had respective influences. Many seers through generations in India and other places had many transformations and realized the self.

1. Self-realization is putting veil on our ignorance and unveiling our knowledge.

2. Self-realization is putting veil on our false identification and unveiling our real or true identity.

3. Self-realization is putting veil on our unreal or apparent or misunderstood nature and unveiling our true and real nature.

**TABLE I**

**EVOLUTION OF CHEMICAL AND BIOLOGICAL SYSTEMS**

**Evolution of universe; chemical evolution; molecular and macromolecular evolution, evolution of proto-cells, cells, tissues, organs and organisms, evolution of consciousness**

**Biochemical evolution:**

**Earth Micro- Euka- Macro- Amino Humans**

**Formed Organisms rytes Atmosphere Organisms Acids**

 **Oxygen**

 **-forming**

**4.5 3.5 2.5 2 1.5 0.5 0**

**Billions of years**

**TABLE II A**

**BRAIN WAVES**

 **Patterns of activation of brain neurons produce four types of brain waves:**

1. **Alpha Waves:** These rhythmic waves occur at a frequency of about 8—13 Hz. One hertz is one cycle per second. Alpha waves are present in the EEGs of nearly all normal individuals when they are awake and resting with their eyes closed. These waves disappear entirely during sleep. (*Jagrat Sushupti* - Wakeful Sleep Conscious State)
2. **Beta Waves:** The frequency of these waves is between 14 and 30 HZ. Beta waves generally appear when the nervous system is active—that is, during periods of sensory input and mental activity. [*Jagrat* (Wakeful/Awakened) and *Swapna* (Dream) Conscious States).
3. **Theta Waves:** These waves have frequencies of 4-7 HZ. Theta waves normally occur in children, and adults experiencing emotional stress. They also occur in many disorders of the brain.
4. **Delta Waves:** The frequency of these waves is 1-5 Hz. Delta waves occur during deep sleep in adults, but they are normal in awake infants. When produced by an awake adult they indicate brain damage. (*Sushupti* – Deep Sleep Conscious State).

**TABLE II B**

**PHYSIOLOGICAL UNDERSTANDING OF HUMAN MENTAL PROCESS**

Human brain, spinal cord and nervous system take care of mental functions. The physiology there in is understood well. Cerebrum does the integrative functions.

**Integrative functions of the cerebrum:** We turn now to a fascinating, though incompletely understood, function of the cerebrum: integration, the processing of sensory information by analyzing and storing it and making decisions for various responses. The *integrative functions* include cerebral activities such as sleep and wakefulness, learning and memory, and emotional responses.

**Wakefulness and Sleep:** Humans sleep and awaken in a 24-hour cycle called a *circadian rhythm* that is estab;lished by the supra-chias-matic nucleus of the hypothalamus. A person who is awake is in a state of readiness and is able to react consciously to various stimuli. EEG recordings show that the cerebral cortex is very active during wakefulness; fewer impulses arise during most stages of sleep.

**The Role of the Reticular Activating System in Awakening:** How does the nervous system of a person make the transition between these two states, i.e., wakefulness and sleep?

 Because stimulation of some of its parts increases activity of the cerebral cortex, a portion of the reticular formation is known as the **reticular activating system (RAS)**. When this area is active many nerve impulses are transmitted to widespread areas of the cerebral cortex, both directly and via the thalamus. The effect is a generalized increase in cortical activity.

Arousal or awakening from sleep, also involves increased activity in the RAS.

For arousal to occur, the RAS must be stimulated. Many sensory stimuli can activate the RAS; painful stimuli detected by nociceptors, touch and pressure on the skin, movement of the limbs, bright light or the buzz of an alarm clock. Once the RAS is activated, the cerebral cortex is also activated and arousal occurs. The result is a state of wakefulness called consciousness.

**Sleep:**

Sleep is a state of altered consciousness or partial unconsciousness from which an individual cn be aroused. Although it is essential, the exact functions of sleep are still unclear. Sleep deprivation impairs attention, learning, and performance. Normal sleep consists of two components: non-rapid eye movement (NREM) sleep and rapid eye movement (REM) sleep.

**Integrative functions of the cerebrum:**

Sleep and wakefulness are integrative functions that are controlled by the suprachiasmatic nucleus and the reticular activating system (RAS).

Non-rapid eye movement (NREM) sleep consists of four stages.

Most dreaming occurs during rapid eye movement (REM) sleep.

Memory, the ability to store and recall thoughts, involves persistent changes in the brain, a capability called plasticity. Three types are: immediate, short-term, and long-term memory.

**TABLE II C**

**THE PROCESS OF SENSATION**

The process of sensation begins in a sensory receptor, which can either be a specialized cell or the dendrites of a sensory neuron. As previously noted, a given sensory receptor responds vigorously to one particular kind of stimulus, a change in the environment that can activate certain sensory receptors. A sensory receptor responds only weakly or not at all to other stimuli. This characteristic of sensory receptors is known as selectivity.

 For a sensation to arise, the following four events typically occur:

1. ***Stimulation of the sensory receptor:*** An appropriate stimulus must occur within the sensory receptor’s receptive field, that is, the body region where stimulation produces a response.
2. ***Transduction of the stimulus:*** A sensory receptor transduces (converts) energy in a stimulus into a graded potential. Graded potentials vary in amplitude (size), depending on the strength of the stimulus that causes them and are not propagated. Each type of sensory receptor exhibits selectivity. It can transduce only one kind of stimulus. For example, odorant molecules in the air stimulate olfactory (smell) receptors in the nose, which transducer the molecules’ chemical energy into electrical energy in the form of graded potential.
3. ***Generation of nerve impulses:*** When a grades potential in a sensory neuron reaches threshold, it triggers one or more nerve impulses, which then propagate toward the CNS. Sensory neurons that conduct impulses from the PNS into the CNS are called *first-order neurons.*
4. ***Integration of sensory input:*** A particular region of the CNS receives and integrates the sensory nerve impulses. Conscious sensations or perceptions are integrated in the cerebral cortex. You seem to see with your eyes, hear with your ears, and feel pain in a injured part of your body, because sensory impulses from each part of the body arrive in a specific region of the cerebral cortex, which interprets the sensation as coming from the stimulated sensory receptors.

These functions are reflected as **brain waves** whose frequency varies depending on the conscious and functional state of mind.

**EEG and Brain Waves:**

 At any instant brain neurons are generating millions of nerve impulses (action potentials). Taken together these electrical signals are called brain waves. Brain waves generated by neurons close to the brain surface, mainly neurons in the cerebral cortex, can be detected by sensors called electrodes placed on the forehead and scalp. A record of such waves is called an electroencephalogram or EEG. Electroencephalograms are useful both in studying normal brain functions, such as changes that occur during sleep, and in diagnosing a variety of brain disorders, such epilepsy, tumors, trauma, hematomas, .metabolic abnormalities, sites of trauma, and degenerative diseases. The EEG is also utilized to determine if “life” is present, that is, to establish or confirm that brain death has occurred (See Table II A).

**TABLE III**

**Gist of above scheme of idea generation and thought process and reverse of it as self-realization its Scientific Meaning:**

INFRASINIC OSCILLATOR

**STATE OF SELF-REALIZATION (*JEEVANMUKTA***) - PHYSIOLOGICALLY TRANSFORMED

CONSCIOUSNESS/SELF AWARENESS/MIND

 ***PARA PASYANTI/*IDEA *MADHYAMA/*THOUGHT *VAIKHARI***

*Pranavam/sphota + Icchasakti/Artha sakti + Jnaanasakti + Kriyasakti*

**Speaker:** Modulation-*purodhana*

 *Vivartanam*-Reversible Becoming

 Volition /Urge knowing Expression

 Intuition/insight /understanding perception Action

 Idea/Mood/Sense/ Experience/meaning logic/reasoning Reaction

 IMPORT/PURPORT VERB SENTENCE UTTERANCE

Biochemical/Genetic/ Inherent /HORMONAL Biophysical

  *tirodhana* - Demodulation **: Listener**

***BHAKTI - NIRGUNA/YOGA-NIVRUTTI/JEEVANMUKTA STATE***

*Experiences/Perceptions of* mind are the reverse process of generation of *bhavah / artha* (thought/feeling/sense/meaning/understanding/insight) leading to and establishing one in *jeevanmukta* **permanently transformed** physiological state

**TABLE IV**

**PHASES OF MIND AND SELF-REALIZATION**

***DRISTAYAH ---* CONSCIOUSNESS AND AWARENESS**

***ATMA DRISTIHI PRAJNNANA ROOPENA SADAA VIDYATE***

*Maanasika dristihi atmadristyaam upari adhyasa*

***Atma dristihi Visranta dristihi:* *Maanasika driste dve; Bahirmukha Dristihi Aantarmukha Dristihi iti***

**SELF-CONSCIOUSNESS DIVINE CONSCIOUSNESS**

***BAHIRMUKHA DRISTI ANTARMUKHA DRISTI VISRANTA DRISTI***

*PARAACHI PRATEECHI SANTIHI*

*SANGAH YOGAH TYAGAH*

*VIJNAANAM PRAJNAANAM\*\* MAUNAM*

*STITHIHI SARGAHA PRALAYAHA*

*JAGARITAHA SWAPNAM SAMPRASAADAM*

*KARMA TAPAHA NIDRA*

*BHOGAHA SAAYUJYAM MUKTIHI*

*DIVAS SANDHYA RATHRI VA NISA*

*Atmanah vismarana samayam Atmaanushandhaana samayam Armaanubhava samayam*

***Dvaita Dvaita Advaita***

**CONSCIOUNSEEE+AWARENESS CONSCIOUSNESS+AWARENESS CONSCIOUSNESS ONLY**

AWARENESS OF WITHOUT AWARENESS OF WITHIN UNOCCUPIED AWARENESS

***JEEVA STHITHI JEEVA STHITHI PARAMAATMA STHITHI***

***INDIVIDUAL INDIVIDUAL DIVINE (Ego-transcending)***

***HUMAN-BECOMING HUMAN-BECOMING HUMAN-BEING (DIVINE)***

***STATE OF EGO STATE OF EGO EGO-TRANSCENDENCE STATE***

***TUNED TO OUTSIDE WORLD TUNED TO INSIDE WORLD TUNED TO SELF***

***INITIATION TO SELF-REALIZATION MEDITATION ON SELF STATE OF SELF-REALIZATION***

\*\* This *Prajnaanam* is **not** the *Prajnaanam* in *“Prajnnanam Brahma”*

**TABLE V - TEN *UPANISHADIC* WAYS OF SELF-REALIZATION**

|  |  |  |  |
| --- | --- | --- | --- |
| **NAME OF *VIDYA*** | **QUALITIES OF *ATMAN*****MEDITATED ON** | **BRIEF DESCRIPTION AND SEER ASSOCIATED**  | **RELEVANT *MAHA VAKYAAS***  |
| ***1. BHOOMA VIDYA*\* @ !** | Being (***sat***) and Pure Consciousness (***chit***)***Nirgunopasana***  | To identify the oneness of ***jagat*** in ***sat***. To ignore the name and form ofsuper imposed ***jagat*** over ***sat***. To know about the reality and relation between ***sat*** and perceived world (***jagat***) and be ***sat*** always.**ADI SANKARA** |  *“Yatra (yada) na anyat srunoti, na anyat pasyati sa bhooma” “Sarvam khalu idam brahma”**“Poornamadah poornamidam poornat poornamudachyate poornanyasya poornamadaya poornamevaavasyshtate”* |
| ***2. SANDILYA VIDYA* \* @*****Amsaparigana paddhati*** | ***Sat-Chit-Ananda******Saginopaasana Bhakti******“ Bhaktihi tu asmin parama prema roopa” “Swaswarropaanusandhanam******Bhaktihi iti abidheeyate”*** | To revel in the ***srusti*** and admire the creative abilities of the **CREATOR**. **RAMANUJA** | *“Sarvam khaklu idam Bahma”**“Rasovai saha” “Sah esha sarva bhootantaraatmaa”**“Isaavaasyamidam sarvam****”*** |
| ***3. SAMVARGA VIDYA*** **& @ # !*****Amsarahita paddhati*** | ***Mukhya prnaodgeetha vidya. Prana vidya. To observe swara sakti. Praannaayaamam. Vaayu bootoopaasana Prajnaanam*** | To breathe in and breathe out by meditatively observing inhaling and Exhaling**ANCIENT SEERS**  | *“Vidyaya amrutamasnute’**Amrutam*means shedding ego and attaining ego-freeDivine consciousness state“*Prajnaanam Brahma*” |
| ***4. AKSHARA UDGEETHA VIDYA******& #* $** |  ***Sat-Chit-Ananda Pranavopaasana***Silence ***Rasa Swara*** ***Ahamsphoorti******Atmaspoorthi Tatpara******Taatparya*** Pranavasakti contains both breathing and all the modes of speech***-pasyanti,******madhyama and vaikhari******To experience continuously the pranavamoola Mauna sthiti***Being Pure consciousness Bliss | Omkaaram is paramamam swaram of Atmasakti. Pravanam is the root of all sounds and ***aksharas.*** Through words every thing is suggested. With concentrated awareness on should meditate on the ***Pranavam,*** the subtle sound emanated from the ***Atman*****SRI DAKSHINAMURTY****SRI RAMANA MAHARSHI** | *“Tasya vachakah pranavah*”*“Om iti ekaaksharam brahma dhyam sarva mumukshubhi”****\*\**** *“ Om bhooh om bhuvah**Om suvah om mahah om janah om tapah ogum satyam om tatsaviturvareanyam bhargodevesya dhimahi dhiyo yo nah prachodayat Om aapo jothi rasomrutam brhama bhoorbhuvassuvah Om”* |
| ***5. UPAKOSALA* VIDYA\***  **@ !** |  ***Chit*** Pure Consciousness***Jabali*** instructed this *vidya* to ***Upakosala***  | One must not merge with the seen but the seer and realize that the seen is the ***vibhuti*** of ***chit sakti*** *the creator of seer-seen seeing* | *“Yavat drishtihi bhuvoormadhye raavat kaalam bhayam kutah”**Drasta drusyam dristyam leenam bhavataw* |
| ***6. DAHARA VIDYA \* @ #*** **!** | ***Sat Nijaswwaroopa dhyanam Ahamsphurana moolopaasana Chidaakaasopaasana***Being**Sri Ramana Maharshi** | ***Akasa*** is subtle phase of ***chit*** and provides consciousness and awareness of ‘I’. One must immerse self-consciousness in this pure consciousness | *“Aham brahma asmi”**“Tat tvam asi”**“Aham sat-chit-anando**asmi* |
| ***7. VAISWAANARA \* @ # VIDYA* $** | ***Sat-chit-ananda*** **Ancient Seers** | To make vaiswanara, seer of wakeful state as real ‘I’  | *“Aham brahma asmi”**“Prajnanam brahma”* |
| ***8. BHRUGU VIDYA* \* & # $** | ***Ananda Rasa Tatparya*** Bliss***Bhrigu*** | To make ***ananda*** continuous state of mind | *“Anando brahma”**“Rasovy saha”* |
| ***9. JYOOTIR VIDYA \* @* !** | ***Chit*****Ancient Seers** | To meditate on ***chidaabhasa*** | *“Satyam jnaanam anantam brahma”* |
| ***10. MADHU VIDYA*\* @ !** | ***Chit*** **Ancient seers** | ***Gayatri upaasana*** | *Gayatri mantram****\*\**** |

**\* *divyam* & *swaram* @ *maitram*  # *varunam* ! *amsa tyaga / rahita paddhati* $ *amsaleena paddhati***

**CONCEPT DIAGRAM I**

***YOGAHA BHAKTI CHA-* PATH OF SELF-REALIZATION (*JEEVANKUKTA* STATE)**

***Dhyanam* as *ek vastu chintanam* or *artha bhaavanam* are the reverse process of generation of *bhavah* (thought/feeling)/ideas and leads and establishes one in *jeevanmukta* state**

**BREATHING**

**PROCESS**

***NIVRITTI*  YOGAHA  *BHAKTI CHA visrantam Nidra***

***ATMAN***

***PURUSHA***

 ***chittavritti nirodhana,* *Sristi pralaya or viraama samayam***

***BHAKTI Raama Samayam***

***MAYA / CHIDAABHAASA / PRAKRUTI / PRAVAVAM***

***YOGAH VA***

*DHYAANAM*

***SUDDHA VAASANAH***

***NIRVISHAYA***

***ANUBHAVAH***

***antarmukham***

***tirodhaana***

 ***MITHYAAHAM*  *VIVARTANAM bahirmukham***

 ***purodhaana***

 ***VIBHAKTI SRISTI***

***CHITTAM (smaranam) CHITTA VRUTTAYAH BUDDHI*** *VICHASHANA*

***ANTAHKARANAANI***

***BHAAVAH***  **(*grahanam*)**

***PANCHAPRANAAAH***

 ***MANAH AANTARAJAGAT IDAM AHAMKARAM*** *JIVA BHAAVAAH/LAKSHANAANI*

***JNAANENDRIYAANI***

***KARMENDRIYANI***

***BAAHYA JAGAT***

***VA***

***BAAHYA VISHAYAAH***

***KRIYAAH***

***VA***

***PRITIKRIYAAH***

**CONCEPT DIAGRAM II**

**SCHEME OF MENTAL FUNCTIONS AND SELF-REALIZATION**

Unoccupied,

Awareness,

Bliss, Silence,

Peace,

Meaningful

Experience

**Real I State**

Sense organs

Cognitions

Stimuli

***YOGA Knowing knower-knowing-known***

Demodulation/Modulation

Perceptions

Self-consciousness

Thoughts /feelings around individual/ego

 **Human**

Demodulation/ Modulation Experience/Meanings of cognitions UnderstandingMemory

**Cognition**

**Process**

 *JNAANAM*

Action organs

Responses

 **I-sense**  I**- I-expression**

*Sattva guna Rajo guna* **I-thought** *Tamo guna*

**SELF REALIZATION** ***SPHOTA +* VERB** ***VIBHAKTI (SPHOTA AS SENTENCE)***

 ***MAUNAM / BHAKTI / RASA***

Verb with

subject and object in respective tense

Sentence

*Madhyama*

*SUKSHMA*

Experienced

Meaning

Purport

*Rasa*

*Tatpara*

*Para*

*Tatparya*

 **Utterance**

 Movement of

 vocal chords

hearing

 Ear

*Vaikhari*

*STHULA*

Verb in infinite or present continuous form without subject and object-senses /

meanings

*Pasyanthi*

*KARANA*

**Human**

**Language**

**Acquisition and**

**Communication**

**Process**

*Pranavam/sphota + Icchasakti/Artha sakti + Jnaasakti + Kriyasakti*

 Volition /Urge knowing Expression

 Intuition/insight /understanding perception Action

 Mood/Sense/ Experience/meaning logic/reasoning Reaction

Biochemical/Genetic/ Inherent /HORMONAL Biophysical

*Experiences/Perceptions of* mind are the reverse process of generation of *bhavah / artha* (thought/feeling/sense/meaning/understanding/insight)

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