**THE PHYSICOCHEMICAL NATURE OF THOUGHTS AND IDEAS: AN ANCIENT INDIAN INSIGHT**

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**Abstract**

The concept developed in relation to *Atman* as infrasonic bio-mechanical oscillatorwill be used to delineate the physicochemical nature of thoughts and ideas. The insight available in the *Upanishads*, the *Brahma Sutras*, the *Vishnu Sahasranaama* and *LalitaSahasranaama* will be used to further and advance the understanding of mechanical, biochemical and electro-chemical nature of human thoughts and ideas. The conceptual clarity about these mental processes will be presented. A pictorial diagram of nature and forms of energy transformations involved in thought processes and idea generations will be given. Implications and application of this insight to the disciplines of physiological psychology and mind-machine modeling will be hinted.

**Key words:** Physicochemical nature of thoughts and ideas; mechanics of mind; forms of energies and their transformations during mental processes, physiological psychology, neurology.

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**Introduction:**

Life systems are auto-driven, -functioning and –dissolutions. But they have to have an initiator, sustainer and terminator within the system and with the system for various processes taking place in the living system. Such a ‘thing’ in humans and other vertebrates is called ‘*Atman*’1. The ‘*Atman*’ is the result of the breathing process and subsequent rhythmic gaseous exchange taking place in lungs. Thus ‘*Atman*’ must be made of O2 or CO2 components of air which is inhaled and exhaled. So *Atman* is a rhythmic oscillator or maser or laser which is made up of O2 or CO2 issuing out energy pulses that start, sustain and guide the life systems2-14.

**Gaseous exchange in lungs:**

 The interchange of life-giving oxygen for waste carbon dioxide takes place through alveoli. Air is breathed into the lungs contains about 21 percent oxygen, while air breathed out contains about 16 percent; the remaining 5 percent passes through the alveoli into bloodstream. Exhaled air contains over 100 times more waste carbon dioxide than inhaled in. The lungs contain around 300 million microscopic alveoli, grouped in clusters like bunches of grapes/ These alveoli have an internal surface area of about 70 square meters, equivalent to 35 times the surface area of skin covering body squeezed into the thorax. The large surface area is essential to ensure that enough oxygen is taken into the body in the fastest possible time to meet the body’s demands. Alveoli are surrounded by a network of bold capillaries that deliver oxygen-poor blood to the alveoli and remove blood enriched with oxygen. Together, alveolar and capillary walls form a thin respiratory membrane the interface between air and blood—just 0.001 mm thick—across which gaseous exchange takes place. Oxygen diffuses across the respiratory membrane from alveoli, where there is a high concentration of oxygen, to a low concentration in the bloodstream. Carbon dioxide diffuses in the opposite direction. The inner surface of the alveoli is covered by a fluid film in which oxygen dissolves before it diffuses across the respiratory membrane, thereby speeding up the process.

 Human consciousness is a biological phenomenon and entity. Human mind is the expression and part of human consciousness. Human mind is the consequential construction of interactions between matter and energy involving brain, spinal cord and nervous system and is responsible for human mental functions. Under the influence of hormones, mind also exhibits necessary emotional and physical cravings and urges. Mind is the software while brain, spinal cord and nervous system and neural transmissions, together with hormonal secretions, form the hardware part of human mental functions

The nervous system is a communication network that controls and coordinates most body activities. Every thought, memory, emotion or sensation a person has and every action she or he carries out is a reflection of the activity of this system. In addition, the nervous system works unnoticed to regulate a multitude of internal events, such as modulating body temperature or altering heart rate, in order to maintain **HOMEOSTASIS—**the state ofbalance and stability that exists inside a healthy body regardless of changes in external and internal environments.

 Making up this communication network are trillions of interconnected neurons, or nerve cells that extend throughout the body. These cells are unique in their ability to transmit electrical signals, called nerve impulses, at high speed, so that the information needed to run the body can be collected, processed and distributed in a split-second, and is constantly updated as the body’s internal and external environments change.

 Three linked functions drive the nervous system. Firstly, sensory input is provided by millions of sensory receptors that monitor changes—called stimuli—taking place inside and outside the body. Secondly, a processing and integration centre analyses, stores and collates sensory input and makes decisions about what actions should be taken. Thirdly, a motor output activates effectors—either muscles or glands—resulting in a response. So, for example, seeing a charging elephant (sensory input) means danger (processing and integration) so the leg muscles are activated (motor output) to effect an escape.

 The nervous system has two main parts: The central nervous system (CNS) consists of the brain and spinal cord and it fulfills the function of processing and integration described above. The peripheral nervous system consists of cable-like nerves that are made up bundles of two types of neurons. Sensory neurons carry sensory input from receptors to the CNS, while motor neurons transmit motor output from the CNS to muscles and glands. Motor neurons fall into two groups. Those of the somatic nervous system carry signals to skeletal muscles in order to make them move. The motor neurons that make up the autonomic nervous system (ANS) control involuntary activities, such as breathing rate and digestion, by activating glands and other organs. Thus the nerve system extends throughout the body to provide high speed coordination and control network and at its core are the brain and spinal cord which receive and send out messages along the nerves.

These processes conducted by the nervous system help the organism (humans) in cognition and communication. The participating matter is biological, acting and interacting in solid, liquid, gaseous and ionic phases simultaneously. The forms of energy are chemical, electro-chemical and mechanical. Thus, human mental processes are physicochemical energy transitions and transformations relating to brain and the nervous system. Proteins, which are made up of amino acids which are oriented in space as poly-peptides, are one of the basic macromolecules that take part in these cognitive processes. All this is the biochemical and biophysical part of human cognitive system and relates to physiological psychology and neurology disciplines.

The *Upanishads* are replete with many expressions which deal with human faculties and mental processes which can be used to understand and model human cognitive processes1-10. Indian spiritual wisdom contained in the *Upanishads*, *Advaitasiddhanta, Shad Darshanas* and other similar texts is not merely theological but is also psychological and scientific The *Upanishads* are traditionally commented on as theological texts1. But *Upanishads* are also texts of science of mind2-10. *Advaita* and *Dvaita* concepts can be successfully used to understand the theory of human mental processes3-5.*Atmajnana*, the essence of *Upanishadic*wisdom when interpreted from psychology and modern science point of view, yields a mine of information about phases of mind, cognitive states of mind and functions of mind3-9. The physical structure of mind and a model and possible theory of human cognition and language acquisition and communication processes can be presented when the ideas from *Upanishadic*wisdom, *Advaita* thought, *Gayatri Mantra* and*Sabdabrahma* theory are clubbed6,7. As a continuation to this approach, *Advaita* philosophy-the off-shoot of *Upanishads*, its chief idea *vivartanam*, *Atman* as the source of mental energy and mental time space by the generation of *maya* from***Itself*** and transformation of *maya* to form *idam* consisting of *jiva, prapancham, jagat* etc., and their modern scientific implications are presented from physics and electronics view and understanding.

 *Atman* (***yasyagamanamsatatam tat atma***) and *maya* (***yayaasantampasyatisamaya***or ***ya ma samaya***) 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****poornatpootnamudachyate*

*poornasyapoornamaadayapoornamevaavasisshyate*

 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 (***upaadaanakaarana***) 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***, 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.*** “***mayaamayamidamjagat”*** sentence informs this. [In *Vaishnava*tradition, *Sree (Lakshmi)* assumes the role of *maya*]. Both *maya* and *Sree* are energy forms of the Lord/*Brahman/Siva/Vishnu.*

*Maya* thus is synonym for mental or psychic energy that creates and retrieves and is the raw material or energy that builds inner mental world (***jagat***) in the form of mental functions and their cessation6-8. *Atman* can be compared to present-day electronic oscillator and can be considered as a bio-oscillator issuing out psychic energy pulses of period 10-1 sec.3-9 and thus relates to the field of bionics and cognitive sciences. *Atman* is construed to be the **Energy-Presence** which provides psychic or mental energy and mental time-space4,5. The psychic energy pulses when reflected in the *Medha*become *maya*- the virtual *chit* energy, *chidabhasa*.

*Vivartanam* is the type of change that*maya* undergoes while *sristi* (creation of mental impressions or mental world) takes place.When*sristi* is being created or is in the *dristi* (Consciousness/awareness), we are mentally functioning. When *sristi* is in the awareness a veil is formed on*dristi*and creates*adhyasa*. According to *Advaita* thought only two mental situations are available for humans in the consciousness of the *Atman*. The situations are *nidra* or *sristi. Nidra*corresponds to the *sushupti* state of consciousness or phase of mind (Concept Diagram I). During this phase of mind, all mental functions cease to be in the awareness and *maya,* whose transformations these mental functions are, becomes *nirvishayasuddhavasanaapravaaham*. During this phase of mind *maya* does not bifurcate as *divyam (jnanasakti)* and *swaram (pranasakti*) as in *jagrat* and *swapna* conscious states and both sense and actions organs remain dormant and functionless (also see Concept diagrams II to IV)3-5.The following are relevant*Brahma Sutra*,*Vishnu Sahasranaamas* and *LalitaSahasranaamams* which further aid and clarify present article and enhance the understanding:

***Brahma Sutra:*** *Saastrayonitvaat*

***Vishnu Sahasranaama:***

*Aanadinidhanamvishnumsarvalokamaheswaram*

*Lokaadhyakshamstuvannityamsarvaduukaathigobhavet*

*Brahmanyamsarvadharmajnamlokaanaamkeertivarthvardhnam*

*Lokanaadhanmahadbhootamsarvabhootabhavodbhavam*

*Yatahasarvvanibhootaanibhavantyaadiyugaagame*

*Yasmin cha pralayamyaantipunarevayugakshaye*

*Yasyasmaranamaatrenajanmasamsaarabandhanaat*

*Vimuchyatenamaharasyaivishnaveprabhavishnave*

*Yogojnaanamtathasaamkhyamvidyaahasilpaadikarma cha*

*Vedaahasaastraanivijnaanamyetatsarvamjanaardanaat*

***LalitaSahasranaama:***

*JagratswapnasushupteenamsakshibhootyainamahSarvaavasthaavivarjitaainamahSarvoopadhivinurmaktachantainayayainamahTatwamarthaswaroopinyainamahPunaraavrittirahitapurasthaainamahMithyajagadadhisthaanaaainamahSrististhititiroodhaanasankalpaainamahSatyajnaanaanandaswaroopinyainamahIcchasaktijnaanasaktikriyasaktiswaroopaainamahPara pasyantimadhyamavaikhariswaroopinainamahNamaroopavivarjitaainamah*

**Scientific interpretation of above ancient Indian insight:**

 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), *panchapranas,* sense organs and action organs3-5. Mental functions take place as the inter-play of *advaita (vishrantadristi*-unoccupied awareness-pure consciousness) and *dvaita* (simultaneous presence of *antarmukhadristi*-awareness of within of the body and *bahirmukhadristi*- awareness of the without of the body. Sense organs are activated by the *antahkaranamanas* and this forms the *baharmukhadristi*- awareness of the without of the body. During this awareness of mind *tanmatras*(object-energy forms) are sensed by sense organs by 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, sensed and experiencing creating object-energy forms (Concept Diagrams II to IV)

Human consciousness based on above 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. 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 (Ramabrahmam, 2007a, 2007b, 2008a).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 {Adian and Matthews, 1934)}using EEG (electro-encephalogram) also have the same time- period of 10-1 sec]

 Human consciousness is the source, guide and energy-provider for the human mind and its activities. Human mind possesses three kinds of awareness consecutively/simultaneously. They are: (i) unoccupied awareness or pure consciousness (ii) awareness of within of the body and (iii) awareness of without of the body (last two together is known as occupied awareness). Human mind tunes itself to without of the body through sense organs and acts, reacts or interacts through action organs for cognitions and perceptions created by external stimuli from physical world outside the body. Information from external physical world is stored as inner mental world consisting of cognitions, perceptions and cognition-created or related experiences. All external physical world is projection of individual’s mind, with associated limitations and individuals deal with these mental projections some times in a biased way depending on individual’s ability to know, perceive, reason, feel, intuit, understand and experience the reality.

 Human mind tunes itself to the within of the body and senses aches, pains, inner mental world and also does intellectual operations. As described above inner mental world is made up of information known, sensed by sense organs and perceptions and experiences created by such cognitions and knowledge in the form of external stimuli. The same are retrieved by mind to create moods, intuitions in the form of verb, meaning, sense, understanding, insight, intuition, experience, urge, which become thoughts, perceptions and feelings in the form of sentences. The information about individual (self-consciousness with egoistic mind), the languages learnt together with meanings, senses of sounds (words) and utterances, forms of alphabet and objects of external physical world as words, sights, sounds, tastes, smells, touches and the perceptions and insight and understanding gained by the contemplation of perceptions, all form the inner mental world. All this knowledge acquired through sense organs in tune with mind can be termed as biophysical..

 Instincts, urges and similar impulses created and guided by hormones and gland secretions-which also constitute the knowledge possessed by the individual organism can be termed biochemical - also inspire and stimulate mind to act, react and interact. Human mind is also capable of being in a state where and when all mental functions and cognitions cease to be or the mind transcends ongoing mental functions and effects of stimuli from external physical world and will be a mere witness to them as an uninvolved and unaffected spectator or seer. This state is the original state of human mind similar to zero in number system and vacuum in physical sciences (Ramabrahmam, 2003, 2007a). Then the state of mind is pure consciousness or unoccupied awareness and exists as peace, bliss and silence. Thus human mind is sourced from human consciousness both materially, energy-wise and functionally. Human consciousness is always present. Human mind rises and sets depending on the phase or conscious state.

**The mechanics of mind:**

 The following is an interpretation and explanation of *being and becoming of mind* i.e., formation, structure and function of human consciousness, formation and retrieval of inner mental world and cognition-created experiences/senses/moods participating in the cognitive processes and explanation of mechanism of sensing/ knowing/ learning/ expressing/ teaching/ thought process/ perception/ experience/ understanding and experience of meaningful experience and experienced meaning as expressed in the *Upanishads***.** Human mind has four conscious states or phases, seven cognitive states and five kinds of functional states (Ramabrahmam, 2006) (also see Concept Diagram II). They are:

**Conscious states or Phases of mind:**

Wakeful Sleep, deep sleep, wakeful or awakened and dream. These are 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.

**Cognitive States of mind:**

Seven states of cognition 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 are:

**Pure consciousness: Normal or original state of mind:**

1. “I” Consciousness – No “I” Awareness of and about individual
2. Meditative state of mind. One pointed awareness.

**Egoistic State 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.
2. ‘I” Thought/Feeling (awareness of within of the body)- State of sentence with subject-verb-object-perception
3. ‘I” Thought/Feeling (awareness of without of the body) in relation to outside physical world. Mind tuned to outside world through sense organs
4. “I” Utterance/Expression/also reception of stimuli from outside world and expression through action organs.
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.

**Kinds of functional states of mind:**

(a). Getting tuned to and sensing stimuli from external physical world through sense organs and reception.

(b). Actions, reactions or interactions with external physical world activated by hormones or stored information.

(c). Perception/thinking/reasoning/feeling in accordance with the stimuli from external world or information retrieved from inner mental world.

(d). Conversion of above information into intelligible information as understanding or insight or experience

(e). Awareness of Understanding/intuition/urge/mood/experience/meaning/experience.

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.

**Gist of Ancient Indian Scheme of idea generationand thought process and its Scientific Meaning:**

INFRASINIC OSCILLATOR *AATMADRISTI*

CONSCIOUSNESS/SELF AWARENESS/MIND/*MAANASIKA DRISTI*

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

*Pranavam/sphota + Icchasakti/Arthasakti + Jnaasakti + Kriyasakti*

**Speaker:** Modulation-*purodhana*

 *Vivartanam*-Reversible Becoming

 Volition /Urge knowing Expression

 Intuition/insight /understanding perception Action

Mood/Sense/ Experience/meaning logic/reasoning Reaction

 IMPORT/PURPORT VERB SENTENCE UTTERANCE

Biochemical/Genetic/ Inherent /HORMONAL Biophysical

  *tirodhana*- Demodulation **: Listener**

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

**Application of this presentation:**

 Several branches of learning take study of mental processes as one of their subject matters. Epistemology, psychology, physiological psychology, neurology, artificial intelligence and cognitive sciences contribute to the study of the mental processes in their own way. Up to now, however, little has bean done to combine the approaches -- let us say – of the physiological psychologists and neurologists who see cognitive process as a biochemical and biophysical energy transformation with the proponents of mind-machine modeling, who have a lot to say on pattern – recognition, memory and learning and the*Upanishadic* wisdom which has understood human consciousness and analyzed mental functions.

 Most of the present attempts try to model thinking as an isolated process which is the result of sensing. But if human mental processes are observed, it becomes obvious that thinking is but an intermediary process which transforms sensing into sense and sense into utterance/ expression. This sequence of human mental processes can be applied and the human cognitive model obtained thus can be refined and developed to build the soft-ware to model human understanding/experience process in conjugation with existing mind-machine models (Perlovsky, 2001, ). This can also be used by the physiological psychologists to model the biochemical and biophysical energy transforms that take place during human cognitive and language learning/communication processes.

It will be beneficial to use *Upanishadic* wisdom in clearing conceptual issues relating to consciousness, experience, understanding, etc., to reach the stage of extending available mind–machine schemes to model human consciousness and mental functions. Translating software obtained thus into artificial intelligent, combining existing mind-machine models will be a useful application. Further, physiological modeling of mental functions by combining the study of bio-materials such as neurons and proteins and energy transformations by and through them clubbed with *Upanishadic* awareness of mind and its functions helps to understand the physiological processes relating to psychological processes.

**Conclusions:**

A sequential reversible process by the stepwise transformation of : (i) infrasonic form of energy and transformation of information already stored in (ii) biochemical form within as memory, and retrieved as inner mental world into (iii) electrochemical and then into (iv) mechanical form while communicating ,and the reverse of it as the; (i) input stimuli from outside world as light, sound, chemical, mechanical and heat forms, into (ii) electrochemical, (iii) biochemical and finally into (iv) infra sonic form while acquiring and understanding processes is put forward and discussed. Comparisons will be made between energy transformations in electronics communication processes and these psychic energy transformations that give rise to cognitive processes.

**Table I**

**PSYCHOLOGICAL AND PHYSICS MEANINGS OF CHIEF *UPANISHADIC MAHAVAKYAS* ON HUMAN CONSCIOUSNESS**

 **1. *Aham Brahma Asmi*I AM BRAHMAN**

 Humanconsciousness is expressed by the term ‘I’. The real identity of ‘I’ is Unoccupied Awareness. ‘I’ is the psychic **energy presence** as an oscillator issuing out psychic energy pulses which are **transformed/modulated/demodulated** to enable the individual to know (through sense organs), act, react , interact ( through action organs), perceive, do intellectual operations (like reasoning, logic, etc.,), experience, understand, intuit , feel and express, urge, sense and express generated volitions and all mental functions related to knowing/learning, expressing/teaching enabling human-beings to know, learn, express, teach various disciplines, languages, acts, skills etc,.

 **2.*Tat TvamAsi* YOU ARE THAT**

Self-consciousness (ego) is part of human consciousness and relates to individual’s senses and thoughts regarding one’s body and its features, gender, mental traits, status in society etc,. Pure consciousness is original and natural state of human consciousness when the individual is bereft of self-consciousness in the mental awareness and is termed as mental solitude or Silence. Peace, Bliss, Calmness- Thought and sense transcendence are its characteristics. Pure consciousness is **forgetting or being unaware of** self -consciousness. Self and Pure Consciousnesses are same in nature, content, structure, form (function) and presence. At a given moment either self-consciousness or pure consciousness will be present. Self-consciousness is super imposition over pure consciousness. Pure consciousness is continuous, self-consciousness is transient and transitory.

 **3.*AyamAtma Brahma* THIS ATMAN IS BRAHMAN**

 *Atman* is *Brahman* – Unoccupied Awareness –- Energy Presence without transformation.

 **4.*Prajnanam Brahma*PRAJNANAM IS BRAHMAN** *Brahman*– as *Atman* –– Energy Presence – is Mental Time- Space and Continuous Awareness. *Prajnanam*is Unoccupied ( by cognitions, thoughts, cognition-related and created experiences, senses or their retrieval) Awareness in Pure Consciousness.

 ***5. RasovySaha* AWARENESS OF MEANGFUL EXPERIENCE AND EXPERIENCED MEANING IS BRAHMAN** Experience of Essence of the meanings of all *vakyas* (sentences) , the cognition-related experiences in the awareness of the *Atman*. Meaningful Experience. Silence. Peace. Bliss.Experienced Meaning. Purport.

 **6.*Anando Brahma* BLISS IS BRAHMAN** Unoccupied Awareness is Bliss.

 **7.*SarvamKhaluIdam Brahma* ALL IDAM IS BRAHMAN**

All the world -*idam*, *prapancham* or *jagat* (collection of cognitions sensed by sense organs through the medium of *manas*) – is composed in, made up of, sustained by, rests in and ceases to be because of and part and parcel of psychic energy pulse generator – *Atman*.

**Table II**

***Upanishadic* Definition of HUMAN CONSCIOUSNESS**

The term ‘I’ denotes human consciousness.

‘I’ is **not** a term denoting any of an individual, individual’s body, self-consciousness, the social status, age, gender etc.,

‘I’ is the **unoccupied awareness** in the individual in the *JagratSishupti* (wakeful sleep) consciousness state when peace, bliss, silence and oneness or non-duality are experienced.

‘I’ is not a person, a thought, a sense, an experience or an understanding. ‘I’ is an **awareness** which transcends all these and is a non-transforming **seer** and **witness** to all these and is revealed and experienced as peace or bliss or silence in wakeful sleep conscious state- the mind-transcending phase when all mental activities in the form of thoughts and senses etc, -cease to be. And one has to refer to this natural mental state when one refers to ‘I’.

**‘I’ is unceasing, undivided continuous blissful awareness**.

‘I’ is an awareness present always and is super-imposed but untouched by mental functions during wakeful (*Jagra*t) and dream (*Swapna*) conscious states and becomes sense/mood or thought or expression. Self-consciousness arises in these two states and then ‘I’ is identified with individual’s body, sense and thoughts about I, me, mine, mental capabilities, gender, social status, age etc, and masks pure consciousness /. In deep sleep (*Sushupti*) conscious state (like zero in number system without value but is essential and significant) there is no awareness of the body, the within or without of the body. No ‘I’ expression, thought, feeling or sense or experience relating to individual exists in this mental phase.

‘I’ is an eternal awareness transcending the three conscious states – wakeful, dream and deep sleep- and observes all the mental activities or cessation of such activities taking place in these three mental phases. ‘I’ is also present during these phases as continuous consciousness/awareness to happenings within and without of the body.

*Upanishadic*awareness uses the terms *Atman, Brahman, Sat (*Being*), Chit (*Pure Consciousnes*s), Ananda* (Bliss), *Prajnanam* (mental time-space – Unoccupied Awareness), *Santhi* (Peace), *Maunam*(Silence/Quietude/Mental Solitude) synonymously

**CONCEPT DIAGRAM I**

*SAT-CHIT-ANANDAATMANAHAM-AHAM* BIO OSCILLATOR Generator of psychic energy pulses ***Advaita* Consciousness** /**Being Frequency 10 Hz**

*MAYA* OR *CHIDABHASA*OR PRANAVAM*Virtual chit – energy Pulses 10 Hz*

*Bio-/ Electrochemical*

 *Mechanical*

*Inner mental tools*

*Five kinds*

***Electrochemical-Manas***– Perception – Recording& Recollection of cognitions***Ahamkaram***– Self-consciousness***Buddhi***- Intellectual functions &***Chittam***– Cognition created Experience/ MeaningUnderstanding–*vasanas*Recording & Recollection memory/hormones –&***biochemical***

*Praana,Apaana ,Vyana, Udaana,Samaana*

*Karmendriyas*

**Action Organs**- Movements of -Leg, Hand, Vocal Chords, Reproductive organ, Bowels.

 *MANAS*

***Stimuli****-Jnanendriyas*– eyes, ear, nose,Tongue, skin – **Sense organs**

ACTION/REACTIONACCORDING TO SENSING, EXPERIENCE /VOLITION /UNDERSTANDING /INTUITIONMOOD/INSIGHTPERCEPTION, THOUGHT OR URGES

**Mind – *the series of becoming*- is a combined operation of all these**

Source of mental energy/mental time-space

***ARCHITECTURE OF MIND AS EXPRESSED IN THE UPANISHADS***

**MIND- *Dvaita* Awareness**

**CONCEPT DIAGRAM II**

**PICTORIAL DIAGRAM OF HUMAN COGNITON AND COMMUNICATION PROCESSES- A PHYSICOCHEMICAL INSIGHT**

**A: *Upanishadic* and*SabdabrahmaSiddhanta* insight:**

**Consciousness (Being-*Sat*) Awareness (Becoming-*idam*)**

**Speaker:** Modulation-*purodhana*

*Brahman/Atman chidaabhaasa/maya/pranavamantahkarananikarmendreyani / jnaanendrayani*

Import experience/understanding/insight feeling/thought/perception actions/reactions/cognitions

*Vivartanam*-Reversible Becoming

*Bhakti sphota+icccha/arthasaktivibhakti/ jnnanasaktiucchaarana/kriyasakti*

*Para/tatpara/Tatparyapasyantimadhyamavaikhari*

Purport mood/ urge/sense/ verb sentence/ subject-verb-object sentence in sound form

  *tirodhana*- Demodulation **: Listener**

**B:Translation into modern scientific terms:**

**Consciousness (Being-*Self*) Awareness (Becoming-*inner mental world*)**

**Infrasonic Oscillator Reflected virtual form of infrasonic energy**

**Issuing mental energy pulses frequency 10 Hz pulse series of frequency 10 Hz**

**Speaker:** Modulation-*purodhana*

*Infrasonics Infrasonics/biochemical electrochemical mechanical/stimuli*

*Brahman/Atman chidaabhaasa/maya/pranavamantahkaranankarmendreyani / jnaanendrayani*

Import experience/understanding/insight feeling/thought/perception actions/reactions/cognitions

*Vivartanam*-Reversible Becoming

*Bhakti sphota+icccha/arthasaktivibhakti/ jnnanasaktiucchaarana/kriyasakti*

*Para/tatpara/Tatparyapasyantimadhyamavaikhari*

Purport mood/ urge/sense/ verb sentence/ subject-verb-object sentence in sound form

*InfrasonicsInfrasonics/biochemical electrochemical mechanical/stimuli*

  *tirodhana*- Demodulation **: Listener**

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