Scientific Theory of Pauli-Jung vis- à-vis Ontology of Neo-Vedānta

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1.0. Introduction:

1.1. In the recent times the development of quantum mechanics has introduced the germ of subjectivity into modern science. Prior to the august emergence of quantum mechanics in the arena of modern physics, Einstein's theory of Relativity destroyed the notion of the absolute description of the universe. Subsequently, quantum measurement problem, as a result of the collapse of the wave function, opened the flood gate of subjective speculations in modern physics. Several interpretations grew up nourishing the subjective implications. The Copenhagen interpretation, the Einstein-Podoloski-Rosen paradox, Bell's Theorem, Aspect experiment, Wigner's interpretation etcetera set the stage for working out the intricate relation between the observer and the observed.

1.2. It has been observed in quantum mechanics that the state function of a system changes in twofold ways. Firstly a continuous causal change with time given by Schrodinger's time-dependent equation is observed. Secondly, a sudden discontinuous, probabilistic change occurs when a measurement is made on a system. Such a change cannot be predicted with certainty because in quantum mechanics the results are always probable and not certain. The sudden change in Ψ is caused by the collapse of wave function. The collapse of

the wave-function is related to the measurement of the event. A measurement is interpreted as a discontinuous change in the state of the system which is given by its wave function. The measurement issue is the most controversial issue in quantum mechanics. How and at what state of measurement the reduction process occurs is yet not clear.

1.3. In 1927, the all-time great scientists like Albert Einstein, Wolfgang Pauli, Max Born, Erwin Schrodinger, Werner Heisenberg, and others gathered in Brussels at the fifth Solvay Congress and had brain storming sessions on the implications of this novel frontier of physics. The uncertainty principle, propounded by Heisenberg, is not only a landmark in quantum physics but is a marvellous theory which has crumbled the age-long pillar of materialistic objectivity in science. The import of the principle was so great that the scientific doyens of the then times assembled at Copenhagen to bring out the subtle implications of this theory. Einstein, Neils Bohr, Heisenberg, Schrodinger, Wolfgang Pauli and many other stalwarts of Physics exchanged their views to bring out the best interpretation of the principle The conclusions of Copenhagen interpretation may be summed up as follows:

i. The wave function is a complete description of a wave/particle. Any information that cannot be derived from the wave function does not exist. For example, a wave is spread over a broad region, therefore does not have a specific location.[1]

[1] http://abyss.uoregon.edu/~js/21st_century_science/lectures/lec15.html accessed on 12.12.2013

ii. When a measurement of the wave/particle is made, its wave function collapses. In the case of momentum, a wave packet is made of many waves each with its own momentum value. Measurement reduced the wave packet to a single wave and a single momentum.[2]

iii. If two properties are related by an uncertainty relation, no measurement can simultaneously determine both properties to a precision greater than the uncertainty relation allows. So, if we measure a particle's position, its momentum becomes uncertain.[3]

1.4. The Wigner's Interpretation of quantum mechanics is centred round the measurement problem. He invokes the concept of von Neumann chain in his interpretation of quantum mechanics. Von Neumann starts his consideration from a quantum object an observable of which is to be measured. The object becomes entangled as a result of interaction of the object with the measuring instrument. Neumann extends his chain up to the human observer and naturally the brain of the obsever becomes entangled with the instrument and the object. According to Wigner, a state reduction takes place in the measurement. He further adds that a measurement is not completed before consciousness is reached. The consciousness selects randomly one product state out of the superposition of the product states which effects the state reduction. He also admitted that how consciousness effects the state reduction is unknown. Thus, he suggested that the theory of

[2] http://abyss.uoregon.edu/~js/21st_century_science/lectures/lec15.html accessed on 12. 12.2013

[3] http://abyss.uoregon.edu/~js/21st_century_science/lectures/lec15.html accessed on 12.12.2013

quantum mechanics should be modified in such a way that the state reduction due to consciousness may be taken into account. However, he stated that if conscious beings enter the picture the quantum equations of motion will cease to be linear. In view of these subjective interpretations of quantum mechanics, Wigner conceived of 'Two Kinds of Reality': Consciousness of the Individual and physical object. According to him, the content of consciousness participates in the construction of physical objects.

1.5. Though the concept of the central role of the conscious observer in physical observation is still debated, yet the subtle connection between mind and matter could not be overruled. This necessitates giving a fresh look into the subject of matter-mind relationship in an intensive way.

1.6. Quantum physicist Pauli along with Carl Jung has informally developed a scientific theory of nature which hints at the ideas involving matter and consciousness replacing hardcore materialism. Furthermore their scientific theory echoes the mighty projections of Vedānta philosophy. Neo-Vedānta, which speaks in the language science, propounds an integrated model of cosmology that lays down a rational account of the relation between matter, mind and consciousness. This model discards the concept of creation *ex nihilo*, which is axiomatically accepted in several standard scientific and philosophical theories─ projecting a rational concept of an unchanging substratum in the background of the mutable universe. Therefore, the scientific theory of Pauli and Jung studied in relation to the wonderful

theory of Neo-Vedānta may provide a new insight into the very nature of Reality─ Absolute as well as relative.

2.0. Pauli's Scientific Theory of Nature:

2.1. Wolfgang Pauli was one of the titans of quantum mechanics, who in his early life was a scientific prodigy. His encyclopedic essay on the theory of Relativity earned him an immense fame and wide recognition even when he was a student. In the later period, he made a substantial contribution to the development of quantum mechanics through his famous *Exclusion Principle*, which has won the Nobel Prize for him in the year 1925. He is considered as one of the principal architects who had laid the foundations of quantum mechanics. But Pauli stands out as a genius amongst his contemporaries owing to his intuitive approach to science. He had an outstanding mathematical prowess and yet he had the wonderful gift of intuition which enabled him to investigate the material world and at the same time peer into subtle region of psyche crumbling the narrow barriers of materialistic dogmas. His intuitive approach to matter and mind was marvelous in the truest sense.

2.2. In the backdrop of the subjective interpretations of quantum mechanics, where the observer, object, and the acts of observation are interlocked, Wolfgang Pauli speculated a scientific model of nature which is compatible with the lofty projections of Vedānta philosophy. Taking cue from the psychological insight of Carl Jung, Pauli thought off an integral model of natural science, which sheds a new light on the

matter-mind debate initiated with reference to the quantum interpretations in the contemporary period.

2.3. As a matter of fact, Pauli — in his later phase of life — had a strong antipathy to the 'merely rational' interpretations of science. He respected reason but was also aware of its limitations. In fact, he cherished a world-view which respects science but also finds its expression beyond the rigid boundary of logical reasoning. In this context, an insightful observation of the physicist and mathematician Arthur Eddington may aptly be cited. Eddington writes:

Here is a hint of aspects deep within the world of physics, and yet unattainable by the methods of physics. [4]

2.4. Wolfgang Pauli was deeply influenced by the psychological thoughts of Jung with whom he had long exchanges of ideas through letters[5]. The Jungian concepts like archetypes, symbols, collective unconscious, *unus mundus* etcetera were incorporated by Pauli in his scientific view of Nature. Though Pauli's Scientific Theory of Nature did not head for any formal publication, yet his train of thoughts, clearly expressed through his personal correspondences, brings home an integral theory of nature. Pauli himself admitted that his personal communications too must be treated as the impact of his thoughts on scientific ideas.

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[4] Arthur Eddington. *Space, Time, and Gravitation ,* London: Cambridge University, 1920, p. 182.

[5] Letter to Born January 21, 1951, quoted in von Meyenn, Wolfgang Pauli. *Wissenschaftlicher Briefwecshel*, Band IV, Teil I, 1950-1952, Berlin: Springer, 1996, p. 243.

2.5. According to Pauli, physics is intimately related to psyche at a deeper level. The exclusive study of one neglecting the other provides only a truncated view of the reality and hence he sought for an extended scientific framework which would encompass both matter and mind simultaneously addressing the reality as a whole. He considered the science of human activities to be too subtle to be expressed only through rational enterprise. He writes:

I hope that no one still maintains that theories are deduced by strict logical conclusions from laboratory books, a view which was still more fashionable in my student days. Theories are established through an understanding inspired by empirical material…[6]

2.6. Pauli convincingly worked out the detailed scheme of his scientific theory with the basic assumption that matter and mind are connected at a basic level. He wanted to intuitively address the problem of Absolute Reality, which always eludes the grasp of science in general. As, according to the theory of Relativity, Nature does not have any preferential frame of reference, the measurement of anything in Absolute is an intangible concept to scientists and, as such, they stagger with utter confusion in their attempt to get the import of Reality in the absolute sense. This opens up a new episode of philosophical speculations in the world of science.

2.7. Pauli's approach to science was nurtured by some intuitive ideas. He conceived of a background reality which is symbolic in

[6] Harald Atmanspacher. 'Pauli's ideas on mind and matter in the context of contemporary Science', in *Journal of Consciousness Studies*, Vol. 13, No. 3, 2006, p. 10.

structure. He had a firm belief that there is a reality which cannot be directly accessed but can be symbolically referred to. Here, Pauli invokes the Jungian concept of symbol to define the background Reality. As Jung was metaphorical in furnishing his definition of Reality, Atmanspacher *et al* tried to interprete this concept of symbol in the light of Cassirer's philosophy of symbolic forms. According to Cassirer, as reason fails miserably to grapple with the true import of the Reality, human being endeavours to get hold of it with symbolic forms which are considered as the fundamental primitive function manifesting itself in all primitive culture including science. These symbolic forms are the 'essential function of consciousness' according to Cassier. He also asserted that this fundamental primitive function is the essential function of human consciousness. Some other interpreters also interpret that symbols beget ideas and concepts.

2.8. Pauli was convinced with the efficacy of symbols in scientific theory as physics has a general inclination to formulate mathematical models of the physical events. These mathematical models are nothing but symbolic constructions. So the existence of symbols at a fundamental level may not be so much unlikely. According to him mathematical description of a scientific state of affairs is predominantly symbolic. Pushing his conviction further, Pauli dared to propose that mathematical symbolism can be extended to a greater domain beyond the realm of physics. Combining the concept of symbols in the scientific speculations drawing an analogy of the mathematical symbols Pauli asserted:

Only a fraction of a symbol can be expressed by conscious ideas, another fraction acts upon the human 'unconscious' or 'preconscious.' The same holds for mathematical notation, for only those have a talent for mathematics who are capable of perceiving its symbolic power. [7]

The statement unravels a cardinal principle of Pauli's understanding of human nature. He considered symbols to be the basic principle underlying the conscious and unconscious thoughts of human being. These conscious and unconscious principles constitute the fundamental component of his theories.

2.9. Pauli derived his inspiration from Jung's ideas of Archetypes, though he was always guided by scientific rationale.

He indentified three layers of human psyche:

i. The conscious

ii. The personal unconscious

iii. The collective unconscious

The deeper realm of collective and non-personal character is known as Collective Unconscious whose contents are not individually obtained. It is a subtler realm of which personal unconscious is a part. Jung thought off the concept of archetypes which belong to the contents of Collective unconscious. These are the 'universal dispositions' which are common to human kind as a whole and, to some extent, resembles the instincts. The collective unconscious, according to him, is an entity beyond human experience. He further conjectured that the collective unconscious contains both material and non-material aspects.

[7] Letter by Pauli to Goldschmidt (1949): Goldschmidt, H.L. *Nochmals Dialogik*. Zürich: ETH Stiftung Dialogik, 1990

Archetypes are the subtle patterns within the collective unconscious which are not directly perceivable and are more primitive than the mental constructs. The archetypes manifest in the mental constructs. The totality of human personality comprises the conscious and unconscious aspects of psyche whereas each individual unconscious is a part of the collective unconscious.

2.10. Thus this concept of human personality led them to discover the interrelationship between matter and psyche. Pauli and Jung considered that matter and psyche are far more interfused than generally thought of. The inter-relationship between matter and psyche has been expressed in proper term by Carl Jung. He convincingly affirms:

Psyche cannot be totally different from matter, for how otherwise could it move matter? And matter cannot be alien to psyche, for how else could matter produce psyche? Psyche and matter exist in one and the same world, and each partakes of the other…[8]

The corresponding relation between these two aspects not only forms the core of Pauli-Jung theory but opens up a new vista of philosophical speculations in science. Pauli firmly believed that the theory of relativity and quantum mechanics have a philosophical as well as a psychological perspective. Pauli together with Jung ventilated their opinion in the volume of 'The interpretation of Nature and the Psyche'. Pauli attempted to explore the role of Unconscious in the scheme of the scientific theory. He further related as to how the archetypal images

[8] Carl Jung. *The structure and the dynamics of Self*, Complete Works of C.G. Jung. Vol. 9, part II. New York: Princeton University Press, 1968 (2nd ed.), p. 261.

form the basis of scientific theory. On the other hand Jung contributed the article entitled 'Synchronicity: An acausal connecting principle.'

2.11. According to Jung this synchronicity refers to two or more seemingly accidental and not necessarily simultaneous events fulfilling the following three conditions:

1. Assumption of causal relationship between the events is inconceiveable.
2. The events correspond with one another by a common meaning expressed through symbols.
3. Each pair of synchronistic events contains an internally produced component and an externally perceived component.

So, synchronistic phenomena correspond to psycho-physical phenomena, which cannot be exclusively studied by material science alone.

2.12. In the perspective of quantum mechanical observations the role of observer influencing the observation of an event is an accepted fact. Jung, however, conceived that human psyche has a place in the quantum mechanical observation about which Pauli was skeptic. But both of them agreed that matter and psyche are the complementary aspects of same reality which is governed by common ordering principles, the archetypes. This evinces that archetypes are the elements of the realm beyond matter and psyche. These are the fundamental entities, which generate the underlying structure of both psyche and material world. Jung conceived of the concept of the underlying reality which manifests as matter and psyche. He termed this underlying

Reality *unus mundus*. The *unus mundus* is the unitary reality sustaining the empirical world of multiplicity. He explains:

Undoubtedly the idea of the unus mundus is founded on the assumption that the multiplicity of the empirical world rests on an underlying unity, and that not two or more fundamentally different worlds exist side by side or are mingled with one another. Rather, everything divided and different belongs to one and the same world, which is not the world of sense but a postulate whose probability is vouched for by the fact that until now no one has been able to discover a world in which the known laws of nature are invalid .That even the psychic world, which is so extraordinarily different from the physical world, does not have its roots outside the one cosmos is evident from the undeniable fact that causal connections exist between the psyche and the body which point to their underlying unitary nature.[9]

3.0. Neo-Vedānta: A scientific approach to Advaita Vedānta:

3.1. The Advaita Vedānta conceives of the Brahman as the sole Reality and the world of appearances as an illusion. This illusion does not correspond to the Absolute non-existence of the World but implies its unceasing changefulness. This paradigm of Advaita Vedānta is called *Satya-Mithyā* paradigm. The modern phase of Advaita Vedānta pioneered by Swami Vivekananda is popularly known as Neo-Vedānta of Ramakrishna-Vivekananda. According to Neo-Vedānta Brahman is Absolute, *Nitya* and the world is relative, *Lila*. This neo-paradigm of

[9] Harald Atmanspacher. 'Pauli's ideas on mind and matter in the context of contemporary Science', in *Journal of Consciousness Studies*, Vol. 13, No. 3, 2006, p. 18.

Neo-Vedānta may be expressed as the *Nitya-Lilā* paradigm. Thus the transition of Advaita Vedānta to Neo-Vedānta is marked by the paradigm shift from *Satya-Mithyā* to *Nitya-Lilā*. The *Nitya-Lilā* paradigm is simply the restatement of *Satya-Mithyā* paradigm in scientific parlance. To put in form of equations:

Satya = Nitya= Śiva= Absolute

Lilā= Mithyā= Śakti= Relative or Manifestations

The cardinal tenets of Neo-Vedānta may be summed up as follows:

1. Reality is both Absolute and Relative. *Nitya* is Absolute— *Lila* is relative.
2. The One and the Many are the same Reality perceived by the same mind at different times and different attitudes.
3. The worldly existence is the manifestation of spirit and evolution of matter.
4. There is a unity of all existence and there is solidarity of the Universe.
5. Individual being is of the nature of the Supreme divine.
6. Macrocosm=Microcosm
7. Science and Vedānta can be synthesised and Vedānta itself is the 'science of Consciousness'.
8. Neo-Vedānta also accepts the validity of Sāṃkhya-Yoga within the relative domain.
9. Monism is at all levels: physical level, psychological level, spiritual level and in the Absolute level.

4.0. The World-view and Reality in the light of Neo-Vedānta:

4.1. The world-view in Neo-Vedānta can be obtained through the lofty projections of Swami Vivekananda reflected in his lectures. Swami Vivekananda was the pioneer, who interpreted Vedānta in the scientific parlance. He worked out an integral model of cosmology which not only charmed the eminent physicist like Nikola Tesla of his times, but at the same time resonates with the scientific theory of Cyclic Cosmology developed by Steinhardt *et al* in the recent times.[10] Swamiji's projection was unique in the sense that in a single stroke of genius he addressed the cosmology, psychology and spirituality developing an integral model of ontology. He developed his theory on the basis of the vedāntic wisdom without tampering the real spirit of Advaita Vedānta at any level. He substantiated the Absolute nature of the non-dual reality simultaneously justifying its relative manifestation.

4.2. Swami Vivekananda in his famous Lecture 'The Absolute and manifestation' has laid down the general outline of the theory of Vedānta in regard to the import of Reality. The Advaita Vedānta conceives of Brahman as the Absolute, which is one without a second. It is Absolute existence (Sat), Pure Consciousness (Cit) and infinite Bliss (Ānanda). It is the unconditioned Reality, which is beyond the space time and causation. It is self existent and self-revealing. Swami Vivekananda interprets:

For in the Absolute there is neither time, space, nor causation; It is all one. That which exists by itself alone cannot have any cause. That

[10] Rajeshwar Mukhopadhyaya, 'Cyclic Cosmology and Vedanta', in *Prabuddha Bharata*. Kolkata: Advaita Ashrama, June 2014.

which is free cannot have any cause; else it would not be free, but bound. That which has relativity cannot be free. [11]

The non-dual Absolute appears as the world of relativity when viewed with reference to *Māyā*. This *Māyā*, being of the nature of cosmic power, is the substratum of space, time and causality; and as such, it is essentially the statement of the fact and is not an illusion. The Absolute is self-revealing and beyond the space, time and causation whereas the world being relative is the product of space, time and causality. The principle of *Māyā* is a marvelous concept in the philosophy of Advaita Vedānta. The pure consciousness appears to be the manifest existence due to the association with the primal nescience called the *Māyā*. It hides the Absolute nature of the Reality and projects its relative aspects. The manifest existence is but the animation of *Māyā*, which belongs to the relative level of existence.

The relative existence according to Vedānta may be primarily classified into three levels:

1. Physical level
2. Mental level
3. Spiritual Level

4.3. Regarding the apparent evolution of the physical world Swamiji declared that *prāṇa* and *ākāśa* are the primordial manifestations at the beginning of the cycle. At the commencement of a new cycle, under the cosmic spell of *Māyā*, the first element to appear in the potential universe is the *ākāśa*. This *ākāśa* is associated with the universal

[11] Swami Vivekananda. *The Complete Works of Swami Vivekananda*, Vol. II. Calcutta: Advaita Ashrama, 1989, p. 132.

cosmic energy called the *prāṇa*. The *ākāśa* corresponds to the universal material of which all the material of this universe has been derived. At the beginning of the cycle, the *prāṇa* remains in the form of potential within the *ākāśa*. When the differentiation starts the *prāṇa*, becomes active and starts generating vibration on the *ākāśa*. As the vibration becomes faster, *ākāśa* begins to inflate bringing out *vāyu*, *tejas*, *ap* and *pṛthvī* in succession. These fundamental elements combine and recombine to give rise to the world systems. The *prāṇa*, in course of time, manifests as all the energies and force-fields available in nature, like the gravitation, electromagnetism, dark energy, light energy, heat energy, strong and weak forces etcetera. The universe expands for a certain period of time and then undergoes a contraction. Finally, the entire world-system resolves back into *ākāśa* and the different forms of energies merge into the *prāṇa*. At the end of the cycle the *prāṇa*, as cosmic energy, quiets down and becomes potential. Swamiji observes:

The forces permeate all matter; they all dissolve into Akasha, from which they come out; this Akasha is the primal matter.[12]

In his lecture on cosmology Swami Vivekananda upholds the unceasing cyclic nature of cosmic evolution. The universe is not absolutely created or destroyed. It undergoes sequential transformation from the non-manifest to the manifest state through phases of periodic expansions and contractions. Swamiji writes:

Creation cannot have either a beginning or an end; it is an eternal on-going.[13]

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[12] *Ibid*., Vol. III. Calcutta: Advaita Ashrama, 1989, p. 400.

[13] *Ibid*., Vol. II. Calcutta: Advaita Ashrama, 1989, p. 436.

4.4. Vedānta further asserts that the process of creation is not restricted within the physical level. The physical universe evolves from the psychological world termed the cosmic mind. Swamiji says that in the cosmic mind, the *prāṇa* ¸ manifests as psychic forces and *ākāśa* as *tanmātra* or fine particles. They are so subtle and fine in the cosmic mind that it is very difficult to perceive and differentiate them. It is also considered as the sum total of all the individual minds. The cosmic mind is also called the Hiraṇyagarbha. It is a very profound concept in the cosmology of Vedānta. The word Hiraṇyagarbha etymologically means the Golden Womb. It is the womb as it conceives the material universe of names and forms. The material world issues from it. It is the first manifested being which is the substratum of physical matter and energy[14]. It is the consciousness associated with the subtle body. The attribute 'golden' signifies its self-effulgent nature. The *ṛgveda* eulogizes it as the sole master of the universe as it is the illuminator of inner being of every individual. The *Nirukta* explains it in a profound way:

hiraṇyagarbho hiraṇyamayo garbho hiraṇyamayo garbho 'syeti /

The interpretation reveals the multiple attributes Hiraṇyagarbha. It reads:

This deity is the effulgent womb or intellectual womb; or it pervades all the existence and is the inner light; or it is pure in the sense that it is womb of the supreme consciousness devoid of all qualifications; or it is

[14] *Cf. hiraṇyagarbhaḥ sam avartāgre bhūtasya jātaḥ patir eka āsīt* (*ṛgveda* 10/121/1).

the deity which permeates the inner being, or it is the individual soul; it is golden or self-effulgent.[15]

It is not only the progenitor of the material universe but is also the illuminator of the mind stuff of the individual being. It supplies the life force in all the beings and enlightens their inner being. The entire universe is connected at this level of Hiraṇyagarbha. Most probably Pauli and Jung thought of such a concept like Hiraṇyagarbha in their conjecture about the Collective Unconscious. As the individual unconscious is a part of the collective unconscious similarly the individual mind is a part of the cosmic mind or Hiraṇyagarbha.

This Hiraṇyagarbha, which contains the seed of the physical universe, comes into being from the higher sphere of existence where *prāṇa* and *ākāśa* remain indistinguishable being merged in the primal energy called the Īśvara. The Īśvara as the primal energy manifests from the Absolute Existence, the Brahman, which is beyond all dualities through the projection-power of *Māyā*. This Īśvara is the efficient and the material cause of the universe. This level of existence may be considered as the spiritual level. The entire world of manifestation remains embedded in it in the potential form. It is the supreme Reality which contains the potentiality of every manifestation. The vision of the universal form of the Īśvara by Arjuna in the *Bhagavadgītā* reveals that the entire universe, variegated in the endless ways, rests in the singularity. The *Bhagavadgītā* reads:

tatraikasthaṃ jagat kṛ tsnaṃ pravibhaktam anekadhā/

[15] *Nirukta* 10.23.2.

apaśyad devadevasya śarīre pāṇḍavas tathā//

'There in the body of the God of Gods, the son of Pandu then saw the whole universe resting in One, with its manifold divisions.'[16]

These are primordial patterns which exist in potential form in the Īśvara. Probably this concept of *unus mundus* floated by Pauli and Jung approximates to the concepts of Īśvara. The archetypal patterns may find resemblance with these infinitely variegated forms. The Upanishad further observes:

tad sṛṣṭvā tad evānu prāviśat

'That having created entered into that very thing. And having entered there, It became the formed and the formless, the defined and the undefined, the sustaining and the non-sustaining, the sentient and the insentient, the true and the untrue.'[17]

So, the forms in their primordial form embedded in the primordial being, as it were, manifest as this variegated universe.

4.5. Thus the physical level, mental level and spiritual level constitute the ontology of Vedānta philosophy. The world of manifestations in its entirety is explained through these three levels of existence. In fact, while interpreting the essence Vedānta, Swami Vivekananda advocated monism at the physical level and the mental level apart from the monism at the spiritual level and Absolute level as posited by Advaita Vedānta. All these levels of relative existences are fundamentally the animation of *Māyā*. Only Brahman, the Absolute Reality is the independent of *Māyā*. *Māyā* is the generator of plurality

[16] *Bhagavadgītā* 11.13.

[17] *Taittirīya Upaniṣad* 2.6.1.

and Brahman its cause is singular. As a single object, when placed in a gallery of mirrors is observed to be multiple, similarly the one and only absolute consciousness, the Brahman, when observed through the 'mirror' of *Māyā* appears to be manifold.

4.6. The idea of mind in Neo-Vedānta is a very significant concept. Neo-Vedānta, in concordance with modern science, does not accept the external sense organs as the organs of perception but consider the corresponding centres in the brain as the senses of perception. As for example, the external eyes are of no avail unless it is stimulated by the brain centres. These brain-centres together with *manas, buddhi, ahaṃkāra and citta* constitute the internal instrument called the Mind. Swami Vivekananda explains:

The real vision belongs to the internal organs, the brain - centres inside. You may call them what you like, but it is not that the Indriyas are the eyes, or the nose, or the ears. And the sum total of all these Indriyas plus the Manas, Buddhi, Chitta, Ahamkara, etc., is what is called the mind…[18]

Mind (*manas*) is the recording faculty, Intellect (*buddhi*) is the determinative faculty, ego (*ahaṃkāra*) generates the sense of egoism and memory (*citta*) cogitates. This *citta* is the reservoir of all subconscious thought. This internal instrument is also called the *antaḥkaraṇa*.

4.7. However, powerful may it be, mind is nothing but matter in the subtle form. The difference between the mind and matter is only that of

[18] Swami Vivekananda. *Op.cit*., Vol. III , p. 402.

degree. Similar to gross matter, mind too does not have any power to perceive. Self, the pure consciousness, is the only perceiver. It is non-matter. Mind is the instrument through which the Self cognizes the external objects. The external world offers perturbation in form of disturbance to the mind-stuff which subsequently produces the thought waves. The Self identifies itself with theses thought waves to perceive the external world. So the perception of the external world is merely the animation of mind. Therefore, for any sort of phenomenal perception, mind is the instrument of the Self. Thus from this view point of perception, mind and the physical world are complementary to each other. Pauli also suggested that mind and matter are the complementary aspects of the same reality. He writes:

It would be most satisfactory if physis and psyche could be conceived as complementary aspects of same reality.

In terms of phenomenal reality mind is the internalized matter and matter is the externalized mind.

However, this complementarity does not correspond exactly to the complementarity of quantum mechanics.

5.0. Synergy:

5.1. The study of world-view of Neo-Vedānta unfolds the striking similarities between the scientific theory of Pauli-Jung and the projections of the seers of Vedānta. The similarities may be summarized as follows:

a. Both the theories are in agreement with the fact that mind and matter are connected at a basic level.

b. According to Pauli-Jung theory every individual has a conscious and a sub-conscious mind denoted by personal conscious and personal unconscious. The concept of Vedānta in regard to mind is also deep and insightful. The mind, according to Vedānta, also has conscious and unconscious counterparts. Furthermore, there is a superconscious aspect of mind apart from its conscious and subconscious aspect.

c. Pauli and Jung consider that mind and matter in totality constitute the whole of reality. Vedānta considers the phenomenal universe to be the evolution of matter and manifestation of consciousness.

d. According to Vedānta there is a cosmic mind called the Hiraṇyagarbha which is the sum total of all the individual minds. It is the also womb of the material universe. The Pauli-Jung theory theorizes a concept of collective unconscious which issues individual unconscious.

e. Pauli and Jung speculated an underlying principle containing the primordial forms of mind and matter called the *unus mundus*. The Vedānta considers the Īśvara to be the underlying principle containing the seed of the creation.

6.0. Conclusion:

6.1. In its attempt to provide a rational explanation of the phenomenal universe Vedānta philosophy furnishes a fundamental division between matter and consciousness. Pure consciousness is the cause of this phenomenal world. The phenomenal universe is a wonderful combination of matter and Consciousness. Consciousness

manifests and the matter evolves. Matter is the Field, *kṣetra* and consciousness is the knower of the field, Kṣetrajña. The one and only undivided consciousness is the knower of all the fields─ individual and collective. This undivided consciousness is called the Kṣetrajña. Had there been no Kṣetrajña, the act of knowing could not be accomplished. Therefore, in the phenomenal universe matter and consciousness form the Reality as a whole. The Lord in the *Bhagavadgītā* profoundly declares:

kṣetrajñaṃ cāpi māṃ viddhi sarvakṣetreṣu bhārata/

kṣetrakṣetrajñayor jñānaṃ yat tajjñānaṃ mataṃ mama//

'And, O scion of Bharata dynasty, also understand the 'Knower of the field' in all the 'fields' to be Me. That which is the knowledge the field and the Knower of the field is (true) Knowledge. That is My view.' [19]

6.2. Though the combination of matter and consciousness is an utter impossibility in the absolute sense, yet owing to the ignorance, the individual perceives the universe as a combination of matter and consciousness. Consciousness is the Absolute Reality on which the world is superimposed as the combination of matter and consciousness due to nescience. Vedānta terms this superimposition *adhyāsa*.[20] As a matter of fact, Absolute consciousness is the only reality and matter is that Reality under limitation. Matter is not the Absolute Reality. It is relatively real. The Absolute Consciousness being a singular entity is without attributes and parts; yet it manifests as the relative existence

[19] *Bhagavadgītā* 13.2.

[20] *Brahmasūtra-bhāṣya*, Preamble.

with infinite attributes, qualifications, and differentiations. The Lord in the *Bhagavadgītā* beautifully projects:

sarvendriyāguṇabhāsam sarvendriyavivarjitam/

asaktam sarvabhṛccaiva nirguṇaṃ guṇabhoktṛ ca//[21]

'(Though) devoid of all organs, it still shines through the functions of all organs; and (though) verily unattached, (still) it is the support of all.; though without attributes, (still) it is the enjoyer of the attributes.'

6.3. Pauli and Jung started their search for the Reality from the scientific interpretation of nature and intuitively discovered the higher realms of existence where mind and matter interfere and hint at a higher order Reality beyond. This supreme reality exists independently and is the ultimate cause of mind and matter. This unitary existence is the goal of all science- it is the finale. Envisioning this ultimate goal of science Pauli longingly observes:

For the invisible reality of which we have small pieces of evidence in both quantum physics and the psychology of the unconscious, a symbolic psychophysical unitary language must ultimately be adequate, and this is the far goal which I actually aspire. I am quite confident that the final objective is the same, independent of whether one starts from psyche (ideas) of from physis (matter). Therefore I consider the old distinction between materialism and idealism as obsolete. [22]

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[21] *Bhagavadgītā* 13.14.

[22] Letter to Rosenfeld, April 1, 1952, von Meyenn, Wolfgang Pauli. *Wissenschaftlicher Briefwecshel*, Band IV, Teil I, 1950-1952, Berlin: Springer, 1996, p. 593.

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