



OPINION

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ORDER-DISORDER SCIENTIFIC PHILOSOPHY - I

S. K. Srivastava



Scientific philosophy describes that every system possesses the behaviour of order and disorder. Order refers to completeness - a quality of Nature - as it loves symmetry, while disorder refers to incompleteness - a quality of the universe created by Nature and follows randomness. Solids cannot be accepted as an ordered state but a one hundred percent ordered state is never a disordered state, i.e., order within disorder and disorder within order is the nature of all existing systems and bodies of this universe. Truly speaking, a one hundred percent disordered state is an ordered state, which refers to completeness. Order and disorder are just like two faces of a coin; the difference lies in having the dual/complementary nature of disorder like matter and radiation. Time 't' is an invisible parameter as derived by abstraction from the motion of extended material objects in space and is a quantity chosen for understanding natural order. An infinite time concept cannot be considered for a universal event. By its very nature, time flows uniformly without reference to any external influence.

To take another example, it is impossible to attain a superconducting state at zero degrees Kelvin ($T = 0\text{ K}$) as it is a completely ordered state - i.e., an ideal state. However, as the temperature rises resulting in thermal agitation of the particles, the matter moves towards a disordered state. A gaseous state at its maximum possible temperature corresponds to a disordered state. The consideration of a solid based on the concept of the periodicity of a lattice is a completely hypothetical concept since solids cannot be accepted as an ordered state of matter. However, there is some scientific truth in considering fluids (liquids and gases) as disordered states of matter due to their random behaviour.

Professor S.K. Srivastava is a former Professor of Physics at the Devi Ahilya University, Indore, India. He is a Patron and Founder Board Member of INDIAS (International Disordered-Systems Associates Society), Allahabad, India; Contact Address < indias_matri@yahoo.co.in >. He is the author of 75 research papers and several books. His fields of specialization include condensed matter physics, liquid and solid state physics, liquid metals and alloys, and pseudopotential theory.

In this era of uncertainty concepts, it is usual to describe the measuring quantities 'O' as a symmetrical and periodic quantity (for order of Nature) and 'D' as an unsymmetrical quantity (for disorder or randomness or entropy). Both depend on the probability of distribution concept. There appears to be no coordination between the measuring quantities O and D and the measuring process. For example, if someone tries to measure the randomness quantity associated with disorder, then NATURE itself disturbs the system and alters its symmetry. We may express this as:

$$\Delta D \cdot \Delta O \approx \text{constant}$$

This constancy may be considered as H (say); where $H = h/2\pi$. Here h is referred to as Planck's constant. ΔO and ΔD are the uncertainties lying in the precise measurements of corresponding quantities. On introducing the concept of entropy (S) and probability (W) through the Boltzmann relationship:

$$S = k_B \cdot \ln W$$

where k_B is the Boltzmann constant, it follows that ΔD may be considered as

$$\Delta D = \Delta W = f(k_B / \Delta S) = f(k_B T / \Delta Q) \rightarrow \Delta E$$

By considering $\Delta Q = 1$ calorie (unit value), ΔD then comes out as a quantity of the order of energy ΔE ($\Delta E = k_B \Delta T$).

If we consider Δt (time) as a small quantity - an ordered periodic quantity - then according to the concept of Heisenberg, we find that

$$\Delta D \cdot \Delta O \rightarrow \Delta E \cdot \Delta t \rightarrow \geq H$$

Similarly, order and disorder are a pair of quantities which go together hand in hand. It is one of the beauties of NATURE that some pairs of conjugate happenings like completeness and incompleteness, creation and destruction, happiness and sorrow, life and death are similar to order and disorder. Their workings are maintained and balanced by NATURE. The moment one ceases to recognize such paired quantities, one becomes spiritual.



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ORDER-DISORDER SCIENTIFIC PHILOSOPHY - II

S. K. Srivastava



In an earlier paper entitled *Order-Disorder Scientific Philosophy – I* [S.K. Srivastava, Chiang Mai J. Sci., 39(3), v-vi (2012)], it was described that every system possesses the behaviour of order (completeness – a quality of NATURE) and disorder (incompleteness – a quality of the universe created by NATURE which follows randomness). The uncertainties in the behaviour of order and disorder for a system according to the concept of Heisenberg are given by:

$$\Delta D \cdot \Delta O \rightarrow \Delta E \cdot \Delta t \rightarrow \geq h/2\pi \quad (h = \text{Planck's Constant}) \quad (1)$$

where ΔD and ΔO represent the disorder and order quantities respectively. NATURE maintains and balances the functions of order and disorder phenomena. In a certain state, when someone desists to recognize such paired quantities as life and death or order and disorder, there is attainment of a spirituality state. This state is a vacuum state where the sum of all the existing worldly forces is zero, i.e., it is an equilibrium state between completeness-incompleteness and creation-destruction. In scientific terms, such a state in space is a “BLACK HOLE” where no gravity force exists. In the truly spiritual (order) path, there is no opening for random behaviour of the quantity ΔE as it relates to the quantity of order of energy. And life consciousness works in resonance with NATURE with respect to the order parameter Δt . This state does not allow humans to perform negative activities against NATURE. However, a human being is the cause of his/her own sufferings.

Professor S.K. Srivastava is a former Professor of Physics at the Devi Ahilya University, Indore, India. He is a Patron and Founder Board Member of INDIAS (International Disordered Systems Associates Society), Allahabad, India. He is the author of 75 research papers and several books. His fields of specialization include condensed matter physics, liquid and solid state physics, liquid metals and alloys, and pseudopotential theory.

Contact Address: 113/4 Alopi Bagh, Allahabad, India; e-mail: indias_matri@yahoo.co.in

In this age of science and technology, it is easy to understand changing particle size behaviour from sub-atomic particles to the size of the universe which in turn has shaped our understanding of the evolution of the universe, life and matter. The order parameter time t can be sliced into femtoseconds (10^{-15} sec) – the speed of a fast photochemical reaction. At the other extreme, the “Big-Bang”, which describes the evolution of planet Earth, dates back to about 15,000 million years ago while the time that life entered the Earth is only 3,800 million years ago. Today we have around 7 billion people and millions of other life species. Furthermore, we can also expect that life exists on other planets in our solar system as well as in other solar systems. However, such a secret of NATURE requires a deeper insight for its justification.

It is still unknown where the energy that is present in the universe all around us originated from. Soil (Chiti), water (Jol), fire (Pawak), sky (Gagan) and air (Samira): all of these five resources of NATURE are the ingredients for the survival of life as well as for the human body and their existence on our planet Earth is essential from the point of view of the Earth’s life too. These five ingredients in the Sanskrit language are pronounced together in form of a Mantra: “Namah: Shiwayaa”, which in reverse may be written as “YawaShi: mahNa”. The meanings of each word of this Mantra in reverse order are: Ya (Chiti - Soil), wawa (Jol - water), Shi (Pawak - fire), mah: (Gagan - sky) and Naa (Samira - air). Thus, it may be said that Sanskrit/Hindi Mantra also supports the existence of these five natural ingredients/resources. Although energy exists in all of these resources, they are not the Godfather of Energy. It is not only perception but scientific fact that the Sun is the Godfather of energy and for every matter in this universe.

The Sun is the resource which supplies energy to each object in this universe. The Sun has been orbiting around our galaxy – the Milky Way – for 250 million years and controls the motion of the planets. It is estimated that we have about 10^5 million stars in our Milky Way of which our Sun is just one relatively small star. The centre of the Milky Way is about 3×10^4 light years from the Sun. Temperature and energy are directly proportional to each other. Strictly speaking, within the context of celestial objects, the concept of temperature follows from the Sun’s energy which is associated with random behaviour and the dual nature of radiation, while the concept of time (as discussed previously in Part I) is associated with the Natural Order.

The doctrine of Descartes (mathematical philosopher) and his associates when considering the universe as a system is based on the concept that, where there is the existence of an “infinite and perfect God”, only then can the existence of an atom or matter be understood. Individuality and the interlinking of each individual aspect combine to evolve this philosophy. Descartes’s theory of rationalism enlightened the path of understanding of Mind or Soul (“Om”) as an ordered entity while Matter is a disordered entity. The creation of the universe is based on matter-energy equivalence phenomena which follow random behaviour and occur in multiple activities in the form of quantum energy packets inside the Sun with different radiation wavelengths, λ , which is in turn related to temperature T as:

$$T \rightarrow f(E) \rightarrow f(1/\lambda) \quad (2)$$

It is well known from the Sun’s spectra that almost all of the existing elements on Earth

can be identified in the Sun's atmosphere. Different atomic vibrations of these matter-elements in their simplest possible form for order-disorder transformations may be described by:

$$\psi = \sin [(2\pi/\lambda) vt] \quad (3)$$

where ψ is a quantum mechanical wave function, v is velocity and t is time. The dominance of temperature T exists in the whole of the Sun's space such that the above equation transforms to:

$$\Psi = \sin [(2\pi f(T, t))] \quad (4)$$

which, for satisfying the quantum parity condition $\int \Psi \Psi^* d\tau = 1$, leads to:

$$\iint f(T, t) \Delta T \cdot \Delta t \approx (1/2\pi) \quad (5)$$

This agrees with the Heisenberg result:

$$\Delta v \cdot \Delta t \approx (1/2\pi) \quad (6)$$

where v is the frequency. Similarly, functions $f(E, t)$ and $f(D, O)$ provide

$$\iint f(E, t) \Delta E \cdot \Delta t \approx (1/2\pi) \approx \iint f(D, O) \Delta D \cdot \Delta O \quad (7)$$

However, in classical form, one may consider that for order-disorder philosophy

$$\Delta D \cdot \Delta O \rightarrow \Delta E \cdot \Delta t \rightarrow \Delta T \cdot \Delta t \quad (8)$$

The scientific philosophy behind the above analogy is that the variation in temperature T , a disordered quantity with respect to the natural order quantity t , occurs throughout the existing system of this whole universe. Bio-molecular shaping as well as nano-particle shaping cannot be beyond creation and destruction behaviours. Any interruption in the function of DNA arises from the degradation of temperature of a physical body system and life collapses. DNA function depends on time and energy/temperature variations, which is also true for the creation of life. The resonance between SOUL ("Om") and NATURE in a state of deep concentration is a state of interaction between energy and time which provides peace – a situation where conjugate quantities such as creation and destruction, happiness and sorrow, and life and death have no difference, i.e., true spirituality.



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ORDER-DISORDER SCIENTIFIC PHILOSOPHY - III

Evolution of the Universe

S. K. Srivastava



Truly speaking, the creation of the Universe and then the creation of life on Earth are based on the laws of Nature. This is also true for the learning of human beings. The laws of Nature cannot exist without time. It is also believed that time is incomprehensible which is why it is spherical, i.e. the existence of Nature (an ordered entity) is itself a manifestation in the dimension of time. For ancient Indian Rishi (Kapila), something exists beyond time which has transformed itself periodically leading to the apparent Creation and Destruction. This is very similar to Einstein's scientific philosophy of Nature and the Universe (a disordered entity) as a mass-energy conversion formalism. The philosophical theory of rationalism of the mathematician Descartes in considering the universe as a system is not incompatible with the concept of the existence of atoms and molecules of matter and their individuality and also with the existence of an infinite and perfect God. Recently, experimental observations have been made at the European Organization for Nuclear Research (CERN) in Switzerland of mass-less particles, especially the much sought after Higgs boson or "God particle". The presumption of Peter Higgs in 1964 of the existence of a high energetic field, the so-called Higgs field, which gives mass to the boson particles, is an essential part of our search for an understanding of the evolution of the Universe. Boson/photon particles have no charge, unity spin, or stable lifetime. Only an accelerated charge can generate a force field. Also two bodies (say, a photon and a Higgs boson) having some mass under a cosmic effect can develop some Natural force. The postulation that Higgs boson particles were formed during the "Big Bang" has led to the current Standard Model theory of particle physics that mass-less particles were distributed far and wide and that a force field was generated. As a result, these mass-less particles gained mass and moved away with a certain velocity until their free-fall motion under gravity began.

Professor S.K. Srivastava is a former Professor of Physics at the Devi Ahilya University, Indore, India. He is a Patron and Founder Board Member of INDIAS (International Disordered Systems Associates Society), Allahabad, India. He is the author of more than 80 research papers and several books. His fields of specialization include condensed matter physics, liquid and solid state physics, liquid metals and alloys, materials science and pseudopotential theory.

Contact Address: 113/4 Alopi Bagh, Allahabad, India; e-mail: indias_matri@yahoo.co.in

Galaxies including the Milky Way, which form the building blocks of the universe, are found to be distributed non-linearly in a random manner. The fact that galaxies are continuing to recede shows that the universe is still expanding; hence its entropy is increasing. Around 15 billion years ago, all galaxies were believed to be at one point as determined by the convention of reversal of the galaxies' velocities. At the epoch, the whole universe would have condensed in the form of a primeval atom or cosmic egg having instabilities, as a result of which there occurred a violent explosion causing its various fragments to fly apart with tremendous speed. Subsequently, these fragments condensed into galaxies.

In one of the four Hindu Vedas, Veda-Rig-Veda (10:129), it is mentioned that only the point particles of high density were there before the evolution of the universe. The reason for the construction and destruction of the universe is "Brah", which is derived from the word "Brahm" [Brah (God) + Om (Soul)], which enlightened the whole universe. The existence of Brahm, atoms and Nature is everlasting (Hindu script: Upanishad). Root is the composite form of matter. In the author's earlier papers [Chiang Mai J. Sci., 2012, 39(3): v-vi; Chiang Mai J. Sci., 39(4): iv-vi], the universe – as a creation of Nature – has been considered as a disordered system with existing matter and energy as disordered entities. A resemblance between the differential forms of both the Heisenberg Uncertainty Principle and the Order-Disorder scientific philosophy has been observed [$\Delta E \cdot \Delta t \approx \Delta D \cdot \Delta O \rightarrow \geq h / 2\pi$ where $h =$ Planck's constant]. Here the symbols have their previously defined meanings. Also the integral form $\iint f(E, t) \Delta E \cdot \Delta t \approx (1 / 2\pi) \approx \iint f(D, O) \Delta D \cdot \Delta O$ resembles the Heisenberg result [$\Delta \nu \cdot \Delta t \approx (1 / 2\pi)$, where $\nu =$ frequency and $t =$ time]. The functional brackets correspond to probability distribution functions. Heisenberg's presumption holds good only for atomic systems while the author's present case holds for all of the coordinated systems of Nature and the Universe. Also, during some contact transformation, the functional bracket $f(E, t) \approx f(D, O) \geq \delta_i \cdot \delta_j$ (delta function) such that $\delta_i \cdot \delta_j = 1$ and, correspondingly, we get $\iint \Delta E \cdot \Delta t \approx (1 / 2\pi) \approx \iint \Delta D \cdot \Delta O$. When considering the condensation of boson/photon particles as a contributor to the Big Bang theory, $f(E, t)$ is replaced by $B(E, t)$. It is considered here that the free-fall motion of the particles is in thermal equilibrium under the action of the external force field due to the earth's gravity when they gained a mass m_b and velocity v after time t . The kinetic energy of the particle $= (1/2) m_b v^2 =$ potential energy, where g is gravitational acceleration. This yields a total particle energy (work done) $E_{\text{th}} = m_b g^2 t^2$ as its maximum energy of vibration. From Bose-Einstein statistics, the distribution function is simply given by

$$B(E, t) = [\exp \{ (E - (1/2) m_b g^2 t^2) / (k_B T) \} - 1]^{-1} \quad (1)$$

which for particle condensation in the present Universe formation concept leads to

$$\iint [\exp \{ (E - (1/2) m_b g^2 t^2) / (k_B T) \} - 1]^{-1} \Delta E \cdot \Delta t \approx (1 / 2\pi) \quad (2)$$

Case I: When $[\{E - (1/2) m_b g^2 t^2\} / (k_B T)] \rightarrow$ small, using a first approximation in expansion ($\exp x \approx 1 + x$), eq. (2) gives

$$t(k_B T) F(L) \approx (1 / 2\pi); F(L) = [\log L - (1/6) \{1-L\}] \text{ and } L = E_b / E_0 \quad (3)$$

E_0 (where $E_0 = k_B T$) is the thermal energy. The validity of eq. (3) has been observed by finding the variation of $F(L)$ with respect to the quantity $t(k_B T)$. It has been found that the correspondence between the quantities $(2E_b / E_0)$ and $t(k_B T)$ follows the condensation behaviour in logarithmic form. The condensation curve for values of $L/2 \leq 0.5$ follows infinite behaviour and for the value of $L/2 = 1$ is smooth. Later on it decays logarithmically. So the region between the values 0.5 and 1.0 of E_b / E_0 is a very sensitive region.

Case II: When $[\{E - (1/2) m_B g^2 t^2\} / (k_B T)] \rightarrow \text{large}$, then by disregarding the -1 term in the denominator of eq. (2), we obtain:

$$\begin{aligned} t(k_B T) E(K) &\approx (1/2\pi) \\ E(K) &= [\{\exp(K) - \exp(-K)\} / 2K] \\ \text{and } K &= [(1/2) m_B g^2 t^2] / k_B T \end{aligned} \quad (4)$$

For $K \rightarrow 0$, $E(K) \rightarrow 1$, then $E_B = 0$ for condensation. The validity of eq. (4) has been observed by determining the variation of $E(K)$ with respect to the quantity $t(k_B T)$. It has been found that the relationship between the quantities (E_B/E_0) and $t(k_B T)$ follows condensation behaviour in exponential form. The condensation is a maximum at the value of $E_B/E_0 = 0$. Later on the condensation decays exponentially.

The functional behaviour of $E_B/(k_B T)$ or (E_B/E_0) with respect to $t(k_B T)$ in Case I [for $F(L) = 1$] and in Case II [for $(E_B/E_0) = 0$] is concerned with the maximum condensation. The infinite behaviour of condensation in Case I for values of $E_B/(k_B T) < 0.5$ is concerned with the positions for particles of zero mass, which points out to the limiting region for cosmic egg behaviour. The infinite behaviour points to the state of mass-less particles and a re-normalization procedure may explain it very well as it relates to the case where there is a change of particles and their mass too. In the case that m_B is taken as the combined mass of all of the existing particles, then it is noticeable that, in both Cases I and II, the increasing trend in the values of $(t k_B T)$ with respect to the decreasing trend in the values of E_B below the thermal energy value $(k_B T)$ shows that there is an increase in the population of the ground state. In this study, we have considered the free-fall velocity of particles as $v = gt$. The speed of a body falling in the atmosphere reaches a constant value in the course of time, i.e. the resultant force acting on the body is zero. Hence, for a body falling in the atmosphere, there would be little change in its velocity. The compensating force may be air resistance or drag which would contribute an additional exponential term in the velocity consideration, which would not have much effect here. Consideration of the effect of gravitons – a stable, mass-less and spin-less particle on the particles falling under gravity – may be insignificant in a realm where Heisenberg's Uncertainty Principle holds way until they gather some mass. Any other field (say a screening field) in the dielectric-ether medium may contribute a multiplying factor of $\exp[(-1/2) g t^2 q_s]$, ($q_s = \text{strength of screening field}$).

This present particle condensation study is a special case study of order-disorder as it applies to the Universe (a system possessing random behavior) and Nature (a system possessing cyclic behavior). The passage of time is perceived in the psychological, cosmological and biophysical domains. The secret of time is that it is conceived as being beyond all and yet it can still be quantified in a relative way. In order to achieve success, humans need to expand their minds to consider cosmic time and space. The rise and fall of societies, cultures and civilizations is cyclic in Nature as knowledge follows. Such cyclic behavior exists in the system of measurement of time. In an unhappy and deeply sorrowful state, the human mind contracts and so time appears to be long, while the opposite is also true. Similarly, when the mind is unconscious, it is unable to experience itself, while the conscious mind feels proud of time. When humans are at ease with time, it means that their consciousness or SOUL is in resonance with time and NATURE. The awareness of such a state gives a human a feeling of self-time with everything happening inside. Such a state is a state of spirituality – an ordered state – which brings humans peace and provides tremendous energy.

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ORDER-DISORDER SCIENTIFIC PHILOSOPHY - IV

Evolution of Life

S. K. Srivastava



The creation and destruction processes of the universe and life are based on some time-dependent Natural Laws, which is a universal truth. These processes are either interdependent or are controlled by some superpower. Human faith pronounces it is God. Is it a universal truth based on some scientific philosophy or simply a matter of perception? However, God is not an entity for discussion here. This remains for the learning of human beings.

It is a scientific fact that matter and radiation/energy possess dual particle-wave nature. According to Einstein, matter and energy are inter-convertible. A similar notion appears to be true for Nature and the universe during their creation and destruction. Planck's constant 'h' ($= 6.55 \times 10^{-27}$ erg.sec) for a photon denotes an elementary quantum which has the dimensions of action ($h = \text{energy} \times \text{time}$). The constant 'h' is also responsible for the discrete individuality and dual characteristics. This is also true in the Order-Disorder scientific philosophy [1,2] in which the quantum of action is responsible for the discrete individuality of that entity and which develops enlightening behavior; i.e., is an action represented by:

$$h = (\Delta D \cdot \Delta O) / (\iint f(D, O) \Delta D \cdot \Delta O) = \{(\Delta E \cdot \Delta t) / (\iint f(E, t) \Delta E \cdot \Delta t)\} = [(h/2\pi) / (1/2\pi)] \quad (1)$$

Many dimensional disordered / energy surfaces may be projected by the subspace area $\Delta D \cdot \Delta O$. The probability 'W' of the distribution 'D' (or 'E' : universe) may be described by:

$$\Delta W = f(D, O) = f(E, t) = \exp (E/k_B T) \cdot \exp (-D / k_B T) = \exp [(E-D) / k_B T] \quad (2)$$

Professor S.K. Srivastava is the former Professor of Physics at the Devi Abilya University, Indore, India. He is a Patron and Founder Board Member of INDIAS (International Disordered Systems Associates Society), Allahabad, India. Contact Address: 113/4 Alopibagh, Allahabad, India (indias_matri@yahoo.co.in). He is the author of more than 80 research papers and several higher standard books. His fields of specialization include condensed matter physics, liquid and solid state physics, liquid metals and alloys, materials science and pseudopotential theory.

$$\text{Integral area} = W = \int \Delta W d\Gamma = \int_0^\infty \exp(E/k_B T) \Delta E \cdot \int_{t_{\min}}^{t_{\max}} \exp(-D/k_B T) \Delta t = (1/2\pi) \quad (3)$$

$$\text{Differential area} = \int \delta_{DO} = \int \delta_{Et} = \Delta D \cdot \Delta O = \Delta E \cdot \Delta t \geq h/2\pi \quad (4)$$

$$\text{Thus, in a certain equilibrium} \quad h = \text{Differential area} / \text{Integral area} \quad (5)$$

where these two different areas correspond to differential and integral spaces respectively.

An effort is made here to understand the contribution of biological activity to the evolution of life. A biomolecule differs from a non-living material molecule in respect of its capacity for growth and activity. The second law of thermodynamics is able to describe the Natural tendency towards decay, disorganization and death. In the act of creating something, a certain amount of energy is required such that the disorder generated is more than the order created; i.e., some excess energy is left over. No place exists in this universe where there is energy created and stored without further disorder occurring. Furthermore, nothing is known about the apparent paradox that “the World started in a state of disorder or order”. Similarly, the belief that the creation of the universe by some superpower “God” (as claimed by Lord Krishna in Gita - a Hindu mythological book - that “I am the source of the entire creation and during destruction the whole of my creation disappears in to me”; i.e., the point of destruction and creation is the same), corresponds to the current scientific understanding of what is known as a “black hole”.

Protein molecules in the human body are the basic building blocks of life [3]. Life evolved from a single protein molecular cell. Human reproduction results from an egg and a sperm uniting during fertilization inside a female ovary. These components possess a set of chromosome cells along with gene cells. Chromosomes are made up of DNA which has many functions of coding for proteins and the genetic blueprints of life. DNA transfers genetic information first to RNA molecules and then to proteins. X-linked gene cells and Y-linked gene cells grow together for a prescribed period inside the ovary during which life develops. Whether this development of life is an inherent property of the contents alone or is influenced by some external agency is still uncertain. In order to understand the complete process, let us move towards the Big Bang theory of universe evolution which explains that long ago there was the formation of water due to the cooling down and condensation of hot gases during which some energy was utilized. But from where did this energy come? The universe was expanding and the corresponding entropy increasing. Let us understand now the protein molecular cell activity from various points of view [4]. Actually a protein is a polymer which is a chain of amino acid components all linked together. All of the amino acids are of the left-handed variety and would have formed an original protein molecule during their movement towards a close contact position sometime long ago. In order to see the condensation behaviour of a single protein molecule during the evolution of life just like the role of a photon during the evolution of the universe [5], the order-disorder scientific philosophy has been applied here. Obviously, a protein molecule along with a DNA molecule and other associated molecules form a living cell and thus its condensation behaviour may throw some light on some basics of the evolution of life. Protein condensation differs from DNA condensation. The variation in the pH of the amino acids present in the active site of an enzyme that participates in the substrate affects the H⁺ ion concentration and indirectly the biochemical reactions involved. Also,

in an earlier study [6], it was shown that the kinetics of the diffusion-controlled and bio-molecular (enzyme) reactions differ. In a bio-molecular reaction, a large part of the entropy of activation (ΔS) arises due to hydration, while for dry substances $\Delta S = 0$. In bio-molecular reactions such as the denaturation of proteins and inactivation of enzymes, the Gibbs energy function G plays an important role. In a bio-molecular reaction, the rate constant K_1 is given by:

$$K_1 = (k_B T/h) \exp [-\Delta G / k_B T] = (k_B T/h) \exp [-\Delta H/k_B T] \exp [\Delta S / k_B T] \quad (6)$$

where H is the Helmholtz free energy. For proteins, the G function used for D in equation (2) for ΔW forms the condensation equation as considered earlier [2,5]:

$$\iint f(D,O)\Delta D. \Delta O = \iint f(E,t) \Delta E. \Delta t = (1/2\pi) = \iint [\exp\{(E-\Delta G)/k_B T\}-1]^{-1} \Delta E. \Delta t \quad (7)$$

$$\text{or } \iint [\exp\{((E - \Delta H)/(k_B T)) + (\Delta S/k_B T)\} - 1]^{-1} \Delta E. \Delta t = (1/2\pi) \quad (8)$$

Case I: When $\{(E - \Delta H)/(k_B T)\} + (\Delta S/k_B T) = \Gamma(E,G) \rightarrow \text{small}$, the use of the first-order approximation ($\exp X = 1 + X$) in the left-hand side of eq. (8) leads to:

$$(t. k_B T) [\ell \log(x/y) - (T.\Delta S)\{(x - y)/xy\}]; \quad x=(E_{\max} - \Delta H_{\max}) \text{ and } y=(E_{\min} - \Delta H_{\min}) \quad (9)$$

The two energy values of x and y in the square bracket [] correspond to the formation of peptide bonds characteristic of proteins, i.e. $\text{OH}^- + \text{H}^+ = \text{H}_2\text{O}$. For $T.\Delta S = \Delta Q = 1$, eq. (8) finally gives:

$$(t k_B T). [\ell \log L - f_1(x,y)] = (t k_B T). f(x,y) = (1/2\pi); \quad L=x/y; \quad f_1(x,y) = \{(x-y)/xy\} \quad (10)$$

The behaviour between $(t k_B T)$ and $f(x,y)$ is as follows:

- (a) (i) For $f(x,y) = 0$, $(t k_B T) \rightarrow \infty$ at $x = y$. Condensation increases sharply to infinity, where evolution began.
- (ii) Sharp increase in condensation up to infinity when $f(x, y) = 1/2$, then $(t k_B T) \rightarrow 0.32$. When $f(x, y) = 1$, then $(t k_B T) \rightarrow 0.16$ at $x = y$, which is the start of the sharp increase in condensation.
- (iii) In the region $f(x,y) \geq 0.16$, the value of $(t k_B T) \leq 1$ and condensation decays logarithmically.
- (b) In the region $f(x,y) < 1$, the value of $(t k_B T) > 0.16$ and condensation is fast.
- (c) For $f(x,y) > 1$, the value of $(t k_B T) < 0.16$ and condensation is slow.

Case II: When $\Gamma(E,G) \rightarrow \text{large}$, then leaving -1 out of the left-hand side of eq. (8) for maximum entropy during condensation $\Delta G = 0$ gives:

$$(t k_B T) [1 - \{\exp(-A) - \exp(-B)\}] = (t k_B T) F(A,B) = (1/2\pi) \quad (11)$$

where $A = E_{\min} / k_B T$, $B = E_{\max} / k_B T$ and $F(A,B) = [1 - \{\exp(-A) - \exp(-B)\}]$

It is remarkable that the behaviour of $(t k_B T)$ with $f(x,y)$ in Case I and with $F(A,B)$ in Case II is the same. However, their forms differ, i.e. ΔG does not have much effect during condensation. Also, like a Boson or a molecule, the behaviour of proteins is similar during the condensation process.

Studies relating to the evolution of the universe and life [5] on the basis of the order-disorder scientific philosophy reveal that evolution took place through a cosmic egg (an energy entity) in the form of a photon/Boson and protein molecule, respectively and that the evolution process took place through some action in the form of quanta of energy. While it is not known if the creation of the universe and life began in an ordered or disordered way, it is true that the present theory has opened up a way for the investigation of different existing systems. This hypothesis confirms creation and destruction as the beginning and end points on the surface of a cyclic path. Just as the Sun controls some Natural laws and the motion of the planets in our solar system, so does the Soul control our human's body activities. These controlling actions – a superpower activity in each case – are neither visible to the planets nor to humans. This is a matter of perception only as the possibility of their localization is only through spirituality.

REFERENCES

- [1] Srivastava S.K., *Chiang Mai J. Sci.*, 2012; 39(3): v-vi.
- [2] Srivastava S.K., *Chiang Mai J. Sci.*, 2012; 39(4): v-vii.
- [3] Fiedli L-G., *Proteins*, Friedli Enterprises, 1996.
- [4] Sharp B.D., Proteins, DNA and the Cell; Chap. VI in *The Revolution Against Evolution*, 1994.
- [5] Srivastava S.K., *Chiang Mai J. Sci.*, 2013; 40(1): v-vii.
- [6] Srivastava Sudha and Srivastava S.K., *Proc. Ind. Nat. Sc. Acad.*, 1978; 44(A), 252-265.



OPINION

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ORDER-DISORDER SCIENTIFIC PHILOSOPHY – V

Action Occurrence [Determinism or Indeterminacy]

S. K. Srivastava



Action and reaction may be easily differentiated through the events of a ball striking a wall from its static to its dynamic positions in the forward direction (positive direction) and in the reverse direction (negative direction) under some natural laws of motion. This forms a cyclic order where continuity exists in the striking and rebounding events as is also true in the case of a ping pong ball striking the ground. In order to obtain the yoga state of equanimity, i.e., spirituality (union of Soul with God) or to understand Brahm [Brah (God) + Oam (Soul)], it is essential to have a stable mind as stated by Lord Krishna in the Hindu mythological book – Bhagwad Geeta. It means that the stability of Natural order or cyclic order of action develops through regularity or continuity of action, i.e., periodicity. Disorder in the form of human negative activities or reactions cause suffering. In other words, humans are themselves the cause of their own suffering, as taught by the Lord Buddha and others.

The occurrence of an Action arises from the union of energy and time. The product of energy and time has the dimensions of Planck's constant ($h = 6.55 \times 10^{-27} \text{erg}\cdot\text{sec}$) which for a photon denotes an elementary quantum, a responsible quantity for discrete individuality and dual characteristics. This has been observed to be true as described in the previous four parts of this Order-Disorder Scientific Philosophy series (Chiang Mai J. Sci. 2012: 39(3), v-vi; 2012: 39(4), iv-vi; 2013: 40(1), v-vii; 2013: 40(2): iv-vii).

An opinion may be considered in terms of an Action occurrence for its determinism or indeterminacy. The realities of existence and non-existence are perceived by the seers of

Professor S.K. Srivastava is the former Professor of Physics at the Devi Ahilya University, Indore, India. He is a Patron and Founder Member Board of INDIAS (International Disordered Systems Associates Society), Allahabad, India. Contact Address: 113/4 Alopi Bagh, Allahabad, India (indias_matri@yahoo.co.in). He is the author of more than 80 research papers and several higher standard books. His fields of specialization include condensed matter physics, liquid and solid state physics, liquid metals and alloys, materials science and pseudopotential theory.

truth (Bhagwad Geeta: Chapter II/16). As Lord Krishna said (Bhagwad Geeta: Chapter IX/19): “I am both being and non-being.” In general, no phenomenon, whether short-term or long-term, is wholly deterministic or wholly indeterminate. Just as determinism is apparent in certain macroscopic phenomena, indeterminacy is similarly apparent in microscopic phenomena. The possibility of the artificial transmutation of elements lies in the existence of a certain amount of determinism coupled with indeterminacy in material bodies, even in the atomic state. The dual Nature-Action characteristics of matter and radiation in corpuscle form and in wave form is another example. Such an opinion about determinism and indeterminacy is discussed here in the observation of Actions involved in interpreting the various analytical considerations of scientists such as Planck, Heisenberg, de Broglie, Bohr and Einstein.

In Part II of this series (Chiang Mai J. Sci. 2012; 39(4): iv-vi), the author introduced the concept of a probability distribution function $f(E, t)$ in the Heisenberg Uncertainty Principle ($\Delta E \cdot \Delta t \rightarrow \geq h/2\pi$; where h is Planck’s constant) of atomic systems. This was in order to bring the integral space for all the existing systems of Nature and the Universe in line with the Order-Disorder Scientific Philosophy as in:

$$\iint f(E,t) \Delta E \cdot \Delta t \approx 1/2\pi \approx \iint f(D,O) \Delta D \cdot \Delta O \quad (1)$$

which agrees with the Heisenberg result:

$$\Delta \nu \cdot \Delta t \approx 1/2\pi \quad (2)$$

where ν is frequency and t is time. This new concept of the author reflects the dual nature of determinism and indeterminacy in every physical phenomenon. Moreover, such a statistical discipline may be true for the movement of a single electron/photon and its associated wave or movement in group form. This representation is subject to the law of averages and there is no finality or exactness.

Planck’s theories of quantum radiation and the photoelectric effect gave birth to Planck’s constant h ($= E/\nu$) through the corpuscular aspect for quanta and through the wave aspect in the case of matter as observed in de Broglie matter waves ($h = \lambda \cdot p$, where λ is wavelength and p is momentum). Similarly, as the author proposed earlier (in S.K. Srivastava, Chap. 4 in *Condensed Matter – Disordered Solids*, eds. S.K. Srivastava and N.H. March, World Sc. Pub. Co., Singapore, 1995), pseudo-waves in disordered solids depend on s , p , d and f electronic states, which were described on the basis of the author’s pseudo-spherical functions: $s_\ell(x)$, (Phys. Stat. Sol., 1974, (b) 64, 679-684).

It may be said that every small or large physical reality is complex by nature and self-contained, i.e., is independent from and prior to all experimental aspects – a complementary aspect of determinism and indeterminacy. In this line of action, the wave mechanical concept of physical reality leading to the principle of indeterminacy also supports this opinion. Similar to Einstein’s principle of the inter-conversion of matter and energy in the Universe, the Order-Disorder Scientific Philosophy as well as the Heisenberg Uncertainty Principle also supports the opinion of determinism and indeterminacy.

The dual nature of matter and radiation demonstrates a close parallelism between mechanics and optics as described by Fermat's principle of least time for a ray of light in optics and Hamilton's principle of least Action of a particle in mechanics, as expressed by the equations:

$$\delta \int p. ds = 0; \quad (p = m.v = \text{momentum}) \quad (3)$$

$$\delta \int \mu. ds = 0; \quad \mu = C_{\text{vacuum}} / C_{\text{medium}} \quad (C : \text{velocity of light}) \quad (4)$$

Both of these principles argue in favour of the probable behaviour of matter as a wave-like entity under suitable conditions, i.e., it is the nature of a body to do the least Action in the minimum time. Similarly, it is the nature of a ray of light to travel the minimum distance in the least time. A combination of equations (3) and (4) may therefore be represented by:

$$\delta \int f(p, \mu). ds = 0 \quad (5)$$

which leads to the representation of the Heisenberg Uncertainty Principle and the author's Order-Disorder Scientific Theory as:

$$\delta \iint f(E, t) \Delta E. \Delta t = 0 = \delta \iint f(D, O) \Delta D. \Delta O \quad (6)$$

where the symbols have their usual meanings. Similarly, according to Einstein's matter-energy equivalence principle, during the conversion of matter into energy, matter does the least Action in the minimum time. Likewise, during the conversion of energy into matter, energy travel the minimum distance in the least time.

The quantum theory of matter and radiation enabled Bohr to describe the structure of the electronic orbits in the atom and the origin of spectral lines. According to this description, an electron is able to remain in a particular orbit of definite size for a considerable time without radiating energy. However, when this state ceases to exist and the electron jumps orbits, this jumping Action radiates energy in accordance with some strict quantum rules.

For atomic systems, the distribution function $f(E, t)$ is given by

$$f(E, t) = \exp(E / E_m). \exp(-\varepsilon / E_m) \quad (7)$$

where $E_m (= \pi E')$ is the minimum energy for the Bohr circular quantized orbital system of unit radii and E' is the quantized energy per unit area. Planck's quantum theory of radiation provides the quantized energy for an oscillator, $\varepsilon = h.v = h/t$ (since $v = 1/t$, where v is the radiating frequency). The use of the above distribution function in eq. (1) of the Order-Disorder Scientific theory under approximations for the Atomic Uncertainty concept gives

$$\Delta E'. \Delta t \geq h / 2\pi \quad (8)$$

which is the Heisenberg Uncertainty equation for atomic system action occurrence. The restrictions of the quantum theory may be overruled by the proposition that the electrons in the privileged orbits could not be regarded simply as material particles but that a certain intrinsic periodicity should also be assigned to them.

In addition to the above, for the case of quantum field theory during the destruction and creation processes, the occurrence of a photon of energy $\varepsilon = h/t$ and a relativistic particle of energy $\varepsilon_o = m_o c^2$, the corresponding distribution function is given by

$$f(E, t) = \exp(E / \varepsilon_o) \cdot \exp(-\varepsilon / \varepsilon_o) \quad (9)$$

which, along with eq. (1) of the Order-Disorder Scientific theory under electromagnetic approximations, provides the following quantized energy conservation equation in an electromagnetic field

$$a_{k\lambda}^\dagger \cdot a_{k\lambda} = \hbar \quad (10)$$

where $a_{k\lambda}^\dagger$ (creation operator) and $a_{k\lambda}$ (destruction operator) correspond to the emission of a photon of energy $E - m_o c^2 = E - \hbar\omega$ and the destruction of a photon of energy $E + m_o c^2 = E + \hbar\omega$, respectively.

There is an intimate connection between waves and corpuscles in both matter and radiation. A moving particle of matter has always got a wave associated with it and the particle is controlled by the wave in a manner similar to that in which a photon is controlled by waves. Such a consideration might enable us to describe de Broglie's matter waves of wavelength λ ($\lambda = h/p = h/(2\varepsilon m)^{1/2}$) in terms of the momentum p ($p = h\nu/c = mv$) of a photon and energy ε ($\varepsilon = h\nu = p^2/2m$). With a material particle in motion, two different velocities: v (related to mechanical motion) and u (related to the propagation of the associated wave) follow the relationship $u = c^2/v$.

It can be concluded that physical phenomena take place by the occurrence of Actions under some natural laws. In general, all macroscopic and microscopic phenomena, whether short or long-term, are either wholly deterministic or wholly indeterminate. The product of the energy quantity E and the time quantity t , $E.t$, and that of the disorder quantity D and the order quantity O , $D.O$, describe Action occurrence and have the dimensions of Planck's constant h . The notion of Planck's constant in differential and integral spaces has been discussed already in an earlier paper (Chiang Mai J. Sci. 2013; 40(2): iv-vii). The Action occurrence through Planck's constant develops the quantum nature of a particle and the wave nature of matter and radiation. The occurrence of stability or the Natural Order in Action develops through regularity, which is a truth for spirituality too.



OPINION

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ORDER - DISORDER SCIENTIFIC PHILOSOPHY-VI: A Scientific Investigation of Consciousness and Soul



S.K. Srivastava

Yashodhara Verma

Avinash Verma

S.K. Srivastava* [a], Yashodhara Verma [b], Avinash Verma [c]

1. INTRODUCTION

Earlier, a series of five fundamental OPINION papers (2012-2013) were published [1-5] which were concerned with a scientific philosophy based on order-disorder to study the systems of the Universe and Nature. The first two papers [1, 2] discussed the Order-Disorder Scientific Philosophy and its mathematical representation. The applications of the theory were given in the three papers [3-5] that followed. In continuation of the application of that theory, we have made an effort here to conduct a scientific investigation into Consciousness and Soul.

Human knowledge is based on the collection of experiences since life evolved on Earth. Both religion and science have enriched cultural diversity and human understanding. Science believes in the different evolution processes of both (i) the Universe and (ii) Life; while religion believes in the creation of the universe and then the creation of life on earth. But one thing for sure is that the presence of the universe and the presence of life is based on natural laws. Similarly, the human perception of Superpower or God is based on the beliefs and faith in religion about the orientation that almighty God is the creator, controller and destroyer of whole existence. Renowned Vedas and Upanishads, Indian heritage scripts, called that driver of whole creation entities and Soul as Brahm [Brah + Om (Soul)] or God (Superpower). Human life (created entity) and existing Soul develops a complex form (Jeevatma) of energy in the human physical body.

[a] Prof. S.K. Srivastava: Former Professor of Physics, Devi Abilya University, Indore, India; Patron and Founder Member Board of INDIAS (International Disordered Systems Associates Society), Allahabad, India.

* Corresponding Author: indias_matri@yahoo.co.in

[b] Dr. Yashodhara Verma, Department of Biochemistry and Biochemical Engineering, SHUATS, Allahabad, India.

[c] Dr. Avinash Verma, Department of Biochemistry, Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot, India.

Scientific facts are based on natural laws. Scientific theories are justified by experiments, while religion cannot be. Collections of true knowledge only provide a good vision for understanding our universe and nature. Neither religion nor science can provide concrete evidence of God's existence which is why many people say that there is some superpower beyond science and that humanity needs to go on searching further.

Therefore, an opinion may be considered about - A Scientific Investigation of Consciousness and Soul - as discussed in this present paper. The existence of nature (an ordered entity) is the manifestation itself in the dimension of time. Evolution studies based on the Unified Scientific Theory [6] of the Universe (random behaviour) and Nature (symmetry behaviour) through condensation of Boson particles evolution of life began through protein molecules following a similar analogy. Proteins are polymers of amino acid components which play a basic role in human life and death. Recent investigations [7] under Order Disorder Transformations (ODTs) have revealed that the universe was created a long time ago through free particles - photons. They existed at a certain place, while the formation of amino acid energies (basic constituents of skeletons) has enlightened the opening of the path of human life and death and shown that the inside of the designed human cell is fully directed by a superpower.

Similarly, following the success of the Unified Scientific Theory, a new quantum mechanical development in integral space has been experienced for the molecular systems (kinetic theory of gases and specific heats of solids), bio-molecular systems (bio-radiation, Lifton, human life and death systems) and atomic systems by employing the Heisenberg Uncertainty Principle of differential space through following ODTs - transformations of integral space:

$$\iint f(T, t) \Delta T. \Delta t \approx \iint f(E, t) \Delta E. \Delta t \approx (1/2\pi) \approx \iint f(D, O) \Delta D. \Delta O, \quad (1)$$

where the various symbols have their usual meanings. It has also been visualized that the Heisenberg Uncertainty Principle: $\Delta E. \Delta t \geq \hbar$ (\hbar = Planck's constant), of differential space is the particular case of the above generalized ODTs of integral space.

Thus, the objectives of this present investigation are: (i) to observe the validity of the authors' Unified Scientific Theory in the investigation of human consciousness and soul, (ii) conjecture of consciousness and soul, (iii) estimate the energy of consciousness and soul, and (iv) consider the importance of consciousness and soul in the human life and death system.

The methodology used in this investigation is given in Section 2, while the dynamics of the energy of consciousness and soul is presented in Section 3. The results obtained and relevant discussion are presented in Section 4 and the conclusions summarized in the final Section 5.

2. METHODOLOGY

Human life possesses some physical principles of conservation and transformation of matter and radiation. In the order-disorder concept, we consider disorder as a conceptual form of photon energy, $e_{ph} = h\nu = h / (Q_F t)$; while order is a conceptual form of energy for maximum quantization, Q_F , [$Q_F = \lambda / c t : Q_F \rightarrow 1$], $e_{ph} = h/t$. Q_F is a quantization factor, while the other symbols have their usual meanings. Time t is an invisible variable parameter which describes natural order. The quantized energy particle - a photon of the sun's

radiation - plays a prominent role in the transformation of energy and matter to human life systems. In addition, some cosmic radiation develops the ability to think in the human mind for the performance of actions. At the same time, bio-electromagnetic radiations play a prominent role in the process of creation and destruction of the human life system. The formation of a living cell and its further biochemical development depends on existing external radiations (energy particle - photon) as well as internal bio-radiations (energy particle - Lifton).

3. THE DYNAMICS OF ENERGY OF CONSCIOUSNESS AND SOUL

A mother's womb is the natural site where a fetus develops. The fetus is the developing embryo which is formed when an ovum is fertilized by a sperm. The Theory of Bio-radiation [8] reveals the fact that the quantized energy particle, Lifton, is the content of bio-radiation just as the quantized energy particle, photon, is the content of light radiation. The quantized energy of light radiation, ϵ_{ph} , according to Planck's quantum theory is given by

$$\epsilon_{ph} = h/t \quad ; \quad h = \text{Planck's constant} \quad (2)$$

The Lifton quantized energy, E_L , depends on the two parameters of time t and temperature T [8,9] and is given by

$$E_L = E_L(t, T) = \epsilon_T / t = (\lambda / c t) k_B T \quad (3)$$

where ϵ_T is the SYA constant [9]. The dynamics of interaction between the external resource energy photon (light) particle and the internal energy resource Lifton (life) particle has been described by incorporating the Unified Scientific Theory: ODTs, eq. (1) with the distribution function

$$f(E, t) = \exp(E/E_L) \cdot \exp(-\epsilon_{ph}/E_L), \quad (4)$$

which provide ODTs as

$$\iint \exp(E/E_L) \cdot \exp(-\epsilon_{ph}/E_L) \Delta E \cdot \Delta t \approx (1/2\pi) \quad (5)$$

Finally, the above equation provides the estimated value of the blended energy of Consciousness and Soul (Jeevatma: Life and Soul) as given by

$$E = (\epsilon_T / 2 p t) \exp(\epsilon_{ph} / E_L); \quad \epsilon_{ph} / E_L = [h c / \lambda k_B T], \quad (6)$$

The above energy E exhibits exponential behavior (growing behavior) during the life generation process. Here, both the photon and the Lifton play prominent roles in the development of blended energy. It is also remarkable to mention that there lies a fact of the decaying (death) process [10] of energy as life span increases and there is a logarithmic decay of life energy $[= \epsilon_T \times (\log t/t)]$ as well as Soul energy $[= h \times (\log t/t)]$ during human death.

It is also noticeable that, during the fetus growth process, the embryo that develops within an assigned time period emits some cosmic radiation; i.e., bio-electromagnetic radiations are generated within the developing fetus which in turn evolves senses in the form of consciousness in every human cell and organ.

4. RESULTS AND DISCUSSION

Eq. (6) implies that there is exponential behavior of the blended energy of Consciousness and Soul with time in the human life system.

$$\text{Case 1 : For } t = 0, \text{ we obtain } E \rightarrow \infty \quad (7)$$

$$\text{Also for } \lambda T \rightarrow \infty, \text{ we obtain } E \rightarrow \infty \quad (8)$$

That is, as soon as the estimated value of the blended energy E becomes infinite, this conveys the presence of Superpower or, in other words, the existence of life and Soul is by the wishes of Superpower (having infinite energy), i.e., the essence of Superpower may be realized. This is the stage when both Consciousness and Soul are present in the body.

Case 2 : During photon and Lifton interaction when $\epsilon_{ph} = E_L$,

$$E \approx 0.43 \epsilon_T / t \approx 0.43 E_L, \quad (9)$$

which describes the limit of the photon-Lifton interaction process. That is, when the external energy is equal to the internal energy, then the blended energy, E , increases up to its maximum limit and becomes $0.43 E_L$. At this moment, there is no soul within body, but there is life. This is the stage when the soul leaves the body but life is still present there.

Case 3 : For $\epsilon_{ph}/E_L = 0$, we obtain

$$E = \epsilon_T / 2 \pi t = 0.16 E_L \quad (10)$$

In this condition, there is no soul within the human body but the human body is in a conscious state and the body has the potential for survival for a short while; i.e. after a short while, there will be complete death.

$$\text{Case 4 : For } t \rightarrow \infty, \text{ we obtain } E = 0 \quad (11)$$

In this case, there is a fixed time for the human body to reach its death position, while there exists neither consciousness nor soul within the body, i.e. there is complete death.

5. CONCLUSIONS

According to religious philosophy, as described in the Hindu Mythological Book - Bhagwad Gita [11], all of the actions of cosmic radiations discussed in section 4 are being performed by the modes of primordial matter "Brahma" - Superpower.

Within a certain assigned time period, the embryo within the womb emits some cosmic radiations, i.e., during fetus development, bio-electromagnetic radiations are generated which evolves the senses in the form of consciousness in every human cell and organ. This present investigation reveals the fact that, in every cell and organ, there exists Consciousness which enables the human brain to send signals through which actions can take place. The blended energy determined by the photon-Lifton interaction is the complex form of energy of consciousness (life) and soul which, under different conditions, represents the importance of the essence of Consciousness, Soul and Superpower.

REFERENCES

- [1] Srivastava S.K., *Chiang Mai J. Sci.*, 2012; **39(3)**: v-vi.
- [2] Srivastava S.K., *Chiang Mai J. Sci.*, 2012; **39(4)**: iv-vi.
- [3] Srivastava S.K., *Chiang Mai J. Sci.*, 2013; **40(1)**: v-vii.
- [4] Srivastava S.K., *Chiang Mai J. Sci.*, 2013; **40(2)**: iv-vii.
- [5] Srivastava S.K., *Chiang Mai J. Sci.*, 2013; **40(3)**: v-viii.
- [6] Srivastava S.K., Verma Y., Verma A., *Unified Scientific Theory for the Systems of Universe and Nature: ODTs*, Lap Lambert Academic Publishing (Omini Scription GmbH & Co. KG), Saarbrucken, Germany, 2014.
- [7] Srivastava S.K., Verma Y., Verma A., *Amer. J. Adv. Sci. Res.*, 2016; **1(1)**: 88-91.
- [8] Srivastava S.K., Verma Y., Verma A., *Int. J. Sci. Eng. Res.*, 2014; **5(2)**: 1590-1593.
- [9] Srivastava S.K., Verma Y., Verma A., *Int. J. Sci. Eng. Res.*, 2014; **5(2)**: 994-997.
- [10] Srivastava S.K., Verma Y., Verma A., *Int. J. Sci. Eng. Res.*, 2014; **5(1)**: 1922-1926.
- [11] *The Bhagwadgita*, Gita Press, Gorakhpur, India.