The Importance of Movement, Solitons and Coherent Light in the Development of Mental Processes

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Abstract: This paper proposes a new theory of consciousness. The author postulates that consciousness is a congenital act which is associated with not only with Newtonian physics but also with nonlocal quantum processes. Above all, consciousness follows the laws of quantum mechanics. It is a result of emission of coherent light in DNA and of the interaction of such emission with solitons in brain bioplasma, synergistically co-operating with neuron bio-computer simulation. Bose-Einstein condensate is a soliton generator in the human biological system. Once created, solitons are pumped to bioplasma and, together with laser light, form the structure and function of consciousness. What serves as the link between solitons and coherent laser light and bioplasma is electrostasis. Cell membranes and proteins are an "electrostasis screen" and a memory matrix for processes inside the cell, whereas the skin of the body is an electrostasis screen for the biological system.

The transformation of photons into phonons and vice versa, and of photons into solitons in melanin constitutes the main bio-computer language. After it is processed, perceptual information is transmitted to bioplasma and it is in bioplasma that it is evaluated and compared with the bioplasma master pattern. Disturbed synchronization in these processes, impaired transformation or its absence, constitute subconscious or unconscious states or mental dysfunctions. Human consciousness can be considered in terms of quantum-information-cybernetic processes, and the same is true of artificial consciousness.

Keywords: Electrostasis, Movement, Coherent light, Bioplasma, Consciousness.

INTRODUCTION

1. Movement and its Impact on Mental Processes

Movement is a fundamental attribute of life, a factor shaping the development of somatic mental and motor development, and human health. Physical activity is present from the moment human beings are conceived and remains with them throughout their lives. Movement is given to a human being from their birthandis associated with the circulatory, respiratory and neuromuscular systems as well as with motility of the whole living system. The muscular system movement contributes to muscle growth, increases the number of employed fibres, changes the chemical composition of muscle fibres, followed by changes in the excitability of muscular-nervous, circulatory, increases the number of red blood cells and haemoglobin, increases the capacity of oxygen in blood, improves glucose management in blood, increases the count of white blood cell, creates an economical work of the heart and also regulates physiological functions of the body [22].

Movement stimulates and activates mental processes such as learning, thinking, imagining, feeling and consciousness, it determines our reasoning and ourselves. It integrates and anchors in our neural networks new information and practical experience. Movement is the basis for our ability to see, to situate ourselves in space, to study the shape and form of our environment, as well as for interactions with humans [16, 5].

Lack of exercise causes children to suffer from the inhibition in the development of patterns necessary to develop inner speech as well as cause-and-effect thinking [18].

Movement has an innate control mechanism and is slightly susceptible to modification by learning. Its apparent "plasticity" consists of the performance of a multitude of movements in contact with the environment. Movement retains its symmetry and this symmetry determines the movement of the lower and upper limb, upper facial expressions, or the whole body. Disturbance of this symmetry is evident in mental dysfunctions. This is especially noticeable in children with autism or attention deficit hyperactivity disorder. The interplay of learning movements along with the internal representation is essential when learning a variety of shapes of objects and recognizing space [26]. Lorenz studied the behaviour of geese and found that geese hatchlings follow the first moving object that appeared within their sight. Lorenz concluded that the birds he studied were born with a ready (congenital) pattern to follow a moving subject. Lorenz called this

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phenomenon "imprinting". A property is imprinted in the "empty space" that contains a pattern to follow [25].

For Sedlak this pattern is bioplasma, while Jung regards archetypes as such patterns, Jungian archetypes affect human behaviour and personality development. Nature provides a properly developing human body with the following mechanisms: the mechanism of imitation, motor symmetry and the inborn mechanism of speech. If there is no imitation mechanism, if symmetry of movement is disturbed or the speech mechanism is impaired, pathological psychological structures will develop. If children did not have an innate knowledge of speech, it would take many years for speech to develop in children. Piaget believes that the whole biological system must be active in order to take the information from the environment, to choose from this information what is important to integrate it with existing standards and at the same time to express it as movement [30].

By movement it is possible to express the emotions that are too difficult, or too overwhelming to be expressed by words. Unexpressed emotions, not shown feelings do not disappear, but they build up and often find their place in our internal organs, muscles and tissues. Movement activates not only the body, but also experiences located in it. Movement affects the formation of students' emotional sphere, develops their interest in movement and activity as a component of general education, at the same time creates a basis for creating high aptitude for learning and effort, and helps in the realization of human social functions [17].

The behaviour of patients with autism, depression, mental illness, dyslexia, anorexia, bulimia, ADHD etc. indicates the disintegration of the movement, the lack of a mechanism of imitation, or its limitation. These people are dysfunctional, they appear to have messages with double meanings, inappropriate movements, shortness of breath, dividing in the body, lack of visual-motor coordination *etc* [5].

In spontaneous movement a patient who is driven by internal impulses, emotions, associations can explore movement patterns that form a bridge between the conscious and the unconscious. Movement is symbolic and helps to express what is unconscious and difficult to verbalize. The inclusion of the body in the process of therapy allows the realization of repressed emotions and unconscious contents. Gestures, movements, dance improvisations are designed to bring children and people together. Art provides them with an opportunity to establish an emotional bond. In this context, what merits special attention is theatrical performances, which combine such elements of art as literature, acting, theatre set design, music and dance. Children need to engage in theatrical play because it is in the theatre that they children can create their own world of shapes, sounds, words, events, issues, experiences, emotions, individual and collective sensations. Moreover, the theatre plays an important part in children's education. Participation in performances makes children more responsive to people's dramatic experiences, teaches to them social skills and competencies, creative and dynamic thinking, teamwork, discipline and responsibility [29].

2. Managing Information in a Biocomputer-Like Manner in the Human Biological System

The essence of a biological system is piezoelectricity, pyroelectricity and semiconductivity. Piezoelectrics and pyroelectricity can convert mechanical energy into electricity and vice versa. Semiconductors convert electromagnetic energy into electricity. Thus, a semiconductor communicates using electric and magnetic fields, while a piezoelectric uses electric fields, and acoustic waves. The body as a piezoelectric-semiconductor system is sensitive to all kinds of information fields - magnetic, electrical, thermal, mechanical, gravitational soliton fields, spin and bioplasmas that act on the psychosomatic structure of man and at the same time determine the development, integration and destabilize his personality [1].

Movement is associated with piezoelectricity. In biology the piezoelectric effect is considered to play a significant role in the functioning of many biological tissues. Biological structures containing protein and nucleic acids exhibit piezoelectric properties. Every living organism acquires these properties upon coming into being. Piezoelectric material has the ability to run bioelectronics processes that are essential to the functioning of the body. A piezoelectric responds to mechanical, acoustic, electric and gravitational energy. If these types of energy do not influence biological tissues, the organisms concerned undergo pathological changes.

The biochemical model explains the intricate mechanisms of mental life. It still cannot explain what the transition is from inanimate to animate matter. Where is the threshold and what is its essence, the role played by the biochemical processes in the consistency

of the soma of consciousness and its impact on the soma and vice versa? A similar problem is with the other mental processes, their nature is not within the biochemical model of life and it is inexplicable on the basis of biochemical interactions, again, it is much easier to describe it in the light of quantum processes - including the physics of wave [3].

In modern science, existing bio systems have been analysed at the level of corpuscular stru-ctures, with energy and information structures being ignored. The focus will move in the direction of the cognitive structures of energy - information, the body can be recognized as a quantum generator of information: electromagnetic, solitonic, sound, spin and bioplasma. The term infor-mation has many meanings; it is generally understood as something that carries a message. Information is also referred to as the ability to organize system or maintain an organized state. Programs and information data in the computer are stored in flash memory. Semiconductor memories are called digital integrated circuits designed to store large amounts of information in binary form. The memory capacity is given in bits or bytes. Thus, the amount of information that can be stored a single memory integrated circuit is in the range of from kilobytes to tens of megabytes. A biological computer operates using algorithms and the role of the programmer is assumed by bioplasma which does the programming in a heuristic manner. Enzymes, as a result of the relevant conformational changes, can function as molecular switches [41].

Currently analogies are drawn with computers, for example, neurons are treated as microprocessors and molecular quantum computers, while enzymes are thought of as nanoprocessors. They deal with the processing of information in the microtubules (cytoskeleton elements) considering them and nanocomputersbiomolecular machines. The interiorof microtubules can function as an electromagnetic waveguide and laser-like, long-range quantum-coherent phenomena occurring there allow for a new look at the issue of the brain and consciousness. The brain can thus be considered as a biological photon computer, which contains neural quantum optical networks. Between the layers of the cerebral cortex transfer of information may be taking place via electromagnetic waves.

According to Hameroff, synapses and neurons have a complex structure and should be considered as bio-computers (nanoprocessors). They are distinguished in that they have a high capacity for parallel computing in microfilamens, microtubules, together with all the cytoskeleton. Performance of cells should be considered in the context of a dynamic, but not static. The cytoskeleton is capable of collective processing of information in a cell area at the molecular level and performs the function of a computer cluster. In order to understand the functioning of the cytoskeleton numerous cluster a number of models have been constructed, but they failed to meet the expectations. Studies show that artificial neural networks are not able to accurately reproduce the functions that occur in the brain. Namely they are not able to accurately determine the hierarchy dynamically changing information, which is something the brain has no problem performing [19].

Hameroff believes that microfilaments, micro-tubules, along the entire cytoskeleton incorporate the modules that have to assess the inherent nature of the hierarchy information. Multi-level neural network in the brain combines modules and has a comprehensive system to recognize a hierarchy of information and the highest global level of information combined with an act of consciousness. Cytoskeletons in a cell have the ability to dynamically change the intracellular organization, by changing their network connections and information, but also to connect with neighbouring cells. They also have the ability to reconfigure. The main attribute of the cytoskeleton is its flexibility in dividing its resources in a collective manner, which is important for information resolution and processing. Cytoskeletal processing of signals involves the cytoskeletal filamentous structure assembling information into data series and strings, in a manner that is similar to the formulation of a phonetic language. Microtubule function as channels that carry information strings and the data strings. At the same time protect the information against interference and crosstalk. According to Hameroff and Penrose microtubules and actin cytoskeleton function as the microprocessor and must be considered as biocomputer phones [21].

A similar point of view is held by Richard Tadeusiewicz, who believes that at the single cell level extraordinarily complex regulatory, cyberneticand information processes take place. The elements involved in this process are single molecules, the information carrier is a structural protein, acids DNA, RNA, melanin. Tadeusiewicz says that in medicine man is usually looked through the prism of the nineteenth-century biochemistry. The body is treated as an object in which chemical processes take place, and information processes occurring there are ignored [39].

Protein Biocomputer

Cell membrane is made of protein-lipid structure. Protein is a piezoelectric. In protein there are unpaired electrons which form free radicals such as superoxide radicals, nitric oxide and hydroxide. Free radicals have the ability to activate spins: electron, photon, other elementary and atomic particles. Activating spins to spin to the right or to the left involves the generation of a spin box which can be used for binary recording information, for example. Movement of spin to the left - 1, and to the right – 0 [22].

In biological membranes protein biocomputers form a biointernet network, they are powered by the electric field created during polarization of a piezo and pyroelectric crystal. In suchbiocomputers the role of an information carrier would be performed by an acoustic wave created during piezoelectric electrostriction and a soliton wave emanating from the spinning motion of spins produced by free radicals [37].

DNA Biocomputer

DNA consists of a double helix and has a sugar, phosphate and rules: purine - adenine (A), guanine (G) and pyrimidine -, cytosine (C) and thymine (T). The information in DNA is stored in a four-letter language.

Albert Popp showed that DNA laser emits light in the range of 200 nm to 800 nm. (Popp A. 1992). DNA is bio-electric power resulting from piezoelectricity and creates a forms a biointernet network, in which the information carrier is laser light waves and sound. DNA computers have many properties that are more attractive than those of electronic computers. They operate on the principle of DNA base sequence, which allows them to pack information very densely. In 1 cm^3 of DNA one can store as much information as can be stored in the 1 trillion CD-ROMs. Biocomputers provide an extremely high degree of parallel processing, they are very energy efficient. With 1 J of energy, such computers can carry out 2 x 10^{19} operations of joining DNA molecules. Today's supercomputers are much slower, as 1 Joule allows them to run at least 10^9 operations [11, 24].

Melanin Biocomputer

Melanocytic cells located: in the skin, hair follicles, in the sense of sight, ear, nerves, substance Nigra and meninges, are responsible for the synthesis of melanin and melanin biocomputers maintain the structure. The process of synthesis of melanin is dependent on the light, temperature and electric field, again neuromelanin serotonin and dopamine [1]. Melanin has the ability to convert light into a wave acoustic phonon or photon and vice versa, phonon in the photon. Melanin directs light can accelerate its movement, or delay. Melanin can also convert light into solitons and information field or infons), which are conditioned by the movement of the spin. Spin densities produce energy and information fields - as an energon - infon, together with solitons, because melanin, as a free radical, is capable of activating spins: electron and photon ones, other elementary particles and atomic particles [6].

This on-going transformation of elementary particles-photons into phonons and vice versa, but also photons into infons has become the basis for binary and qubit information recording. Following the reasoning of T. Stonier [38] and [41] who believe that the world is filled with quantum information carriers called infons, we find that:

- an infon is a photon with infinite wavelength;
- an infon photon is moves at the speed of light; and so do not have a momentum and mass rest; infon is therefore energy, and therefore - if any speed other than the speed of light, the quantum of energy is converted into quanta of information, or in infon.

Stonier's hypothesis states that photons are not fundamental particles, but consist of two components: energy and information. The electromagnetic wave is composed of not one, but two sets of oscillation: (1) an oscillating electric field occurring alternately with the oscillating magnetic field, and (2) a regular variation of information and energy [41].

Scientists are also considering the question of the of the existence of infons moving at a speed exceeding the speed of light, guided by analogy in relation to the hypothesis of tachyons. Biocomputers are designed to process and organise perceptual images and transfer them on to bioplasma. In bioplasma a perceptual image is imprinted on bioplasma content, and is evaluated and compared by it with its own master pattern. In Jung's theory this role is performed by archetypes. Jung corrects archetypes, assigning to them a pattern of behaviour or a way of thinking and emotional responses, and creates a unique specificity of the organism, with his energy and information characteristics, creating its personality structure. Bioplasma responds by recording information in solitons which fill the human psyche. Stimulation of this

master pattern results in a particular skills being brought out, *e.g*. walking, talking, jumping, thinking, representing the world, in adolescence, there are new mental functions, such as reflective consciousness, abstract reasoning, higher feelings. In old age bioplasma gradually disappears and behavioural patterns are lost. A perceptual and soliton image obtained by the brain from the universe - allows bioplasma to evaluate it and compare with its own pattern, assigning to it a way of behaviour, thinking and emotional response. Information entered by bioplasma in solitons determines an individual's mental state and personality. The human biological system has the ability to not only adopt the solitons of the cosmos, but it can itself produce them with free radical, spin fields in Bose-Einstein condensate, and bioplasma. Solitons generated from the human body are transferred to the cosmos, but also to the brains of different people in the form of messages, or directives. In psychology, this phenomenon is known and referred to astelepathy. It is mentioned in myths, and also occurs in clairvoyance and precognition. Infon and solitoninformation images are used in conscious, unconscious and subconscious states, in dreams and altered states of consciousness. In terms of cybernetics, altered states of consciousness are considered to be states of densified information [8].

Bioplasma creates a unique personality, with complete energy and information characteristics. It determines the age, state of health, disease, the way world is perceived, and the way an individual behaves. Bioplasma's role is also to integrate, store and manage energy-information processes in the human biological system. According to Sedlak, bioplasma "knows" what is in it and is being done around it. It tells the whole and its parts about the energy situation. Bioplasma creates a state of matter, which is unity in diversity. It is the center of life and the material substrate of consciousness [34].

3. The Role of Solitons and Coherent Light in the Creation of Human Psychological Structures

The human biological system is filled with bioplasma and is complete with electron electrostasis. The human skin is exposed to mechanical stimuli which trigger piezoelectric polarization in biological structures (proteins, melanin). Polarization brings with it electric fields from which electrostasis originates. Electrostasis creates an electric protective coat for the body and is responsible for the internal homeostasis of the biological system. It is sensitive to changes in the biological field that causes electrostasis to vibrate. Vibrating electrostasis triggers phonons which condition the cyclicality of quantum interactions, control the process of life - because they link optical, electrical, magnetic, mechanical phenomena with biological mass. Phonons combine all quantum processes with movement of mass, while photons constitute an information centre in cell transmission activity. Electrostasis creates an electric protective coat for the body and is responsible for the internal homeostasis of the internal biological system. It is sensitive to changes in the biological field that causes electrostatics to vibrate. Vibrating electrostasis triggers phonons which are thought to condition the cyclicality of quantum interactions, control the process of life because they link optical, electrical, magnetic, mechanical phenomena with biological mass. Phonons combine all quantum processes with mass movement, while photons constitute an information centre in cell transmission activity.

Figure 1: shows elektrostasis around the human body.

Electrostatics and bioplasma integrate with the body and provide for it a selective flow of information from the environment in which it lives [34, 36].

Melanin has a very large impact on the development and density of electrostasis. During the synthesis of melanin there is an increase in the emission of electrons and solitons, and at the same time melanin responds selectively to phonons. Melanin synthesis is carried out under the influence of light and thermal energy. In autumn and winter, when the night is longer than day, when the day is gloomy and there is lack of sunshine, melanin flows from the human body, and melatonin replaces melanin, changing duration of life. Melanin deficiency contributes to the formation of depression [7].

Melatonin biosynthesis is inhibited by light, electric and magnetic field. An increase in melatonin in a

biological system reduces electrostasis density, and emission of solitons and phonons. This condition reduces vibration electrostasis, which affects the emotional states of man. The volume and density of electrostasis affects human mental states [1].

Light, water and sound solitons retain time-spatial or geometric and dynamic properties, are included in local processes, whereas spin solitons are included in non-linear quantum processes and function as carriers of information fields that are responsible for human psychological states. Human's mental life depends on coherence and decoherence between solitons and laser light reduced by the human biological system. In order for the human's psyche to be constantly and mutually consistent, this psyche needs to take care of coherence, since after the collapse of the structure of this connection identity and personality disappear, which is a symptom of schizophrenia. Solitons can permeate in the entire universe, without fading, they have been there from the beginning of the emergence of life until the present moment. Space is densely filled with a network of solitons, carrying content and meaning. Information fields (solitons) may impact on energy systems with almost no loss of energy, induce large changes in a biological system. The information fields have influence on the structures of thought. Their variety of densities is infinite. The brain has the ability to generate and receive the information fields [2].

In the first years of the twenty-first century, biologists have discovered very interesting nonlinear optical phenomena occurring in collagen, acting on the basis of the processes of solitons [12, 13]. It was concluded from these studies that the soliton induction of collagen can act as an optical fibre, causing other non-linear effects [14, 15].

Salguerio *et al*. (2004) reported the mechanism of soliton wave generation and its impact on the waveguide. According to these researchers the waveguide mechanism acting in the fibres of collagen may be responsible for ultrafast communication transfer in the body. Sir Jagdish Chandra Bose in 1924 was the first to predict that in certain special circumstances a lot of particles can arrange themselves "uniformly", positioning spin axes "upwards". This synchronization of spins of many particles (called bosons – Bose particles at the time), allows a number of unusual phenomena to occur, such as "excess liquidity, superconductivity and emission of polarized light." Bose-Einstein condensation is just an example of quantum coherence. As it is "synchronization" of many particles that is being referred to here, we call this phenomenon "macroscopic quantum coherence." Danah Zohar in his book "The Quantum Self" claims that particles in Bose-Einstein condensation not only act uniformly but also produce a certain whole, and compares them to the voices of the members of a choir, which form the whole composition of singing. Zohar considers the idea that if you stimulate Bose-Einstein condensation of light, then bosons emit polarized light. There are natural cosmic lasers called masers which generate coherent light. Reflected light is coherent laser light. In the production of light in the cell, melanin and neuromelanin, which are elements of each nerve cell, play an important role. Melanin can act as a transmitter of phonons and photons in the reverse process [28].

Solitons are generated in nonlinear optical centres and Bose – Einstein condensates. Strong waves laser, the degree of non-linearity and high concentration of atoms in a Bose-Einstein condensate influence the formation of multi-dimensional solitons. Currently, the greatest degree of non-linearity is achieved by organic substances in which electrons appear likely to travel long distances. Dimensional solitons owe their existence and permanence to a balance of two forces. Dispersion seeks to cause expansion, while non-linearity seeks to compress solitons. Such a soliton can be obtained, directing the laser beam at appropriately selected half of condensate [40].

In accordance with the concept of Fritz-Albert Popp, the function of DNA is based on the "Laser System exciplex / excimer". DNA collects and emits photons consistent as laser light. Technically speaking, coherent states of light come from DNA, as a product of the interaction between photons and phonons in DNA. DNA uses different frequencies of electromagnetic waves and is source of information for the cell. In a healthy body state photon emission is more consistent than the patient. As for cancer cells, the intensity of the bio-photon emission is increased and during this period of time emission is uncontrolled and chaotic [31].

Consciousness operates according to bioplasma master patterns and exhibits properties of coherent action. That is due to laser activity in DNA, generating coherent light and solitons. If coherent light emission in the consciousness structure is disturbed or interaction between solitons is not of proper nature, bioplasma master patterns are misread and mental disorders arise, in the form of mental illness, depression, neurosis and emotional disturbances [8].

The author of this paper thinks that spin and soliton waves provide a picture that is different than what electromagnetic waves do, when received by the eye. Existing science only accepts the operation of electromagnetic waves. It can be concluded that what we have here is a second medium that creates a structure of the image of the world and is responsible for the development of human personality.

SUMMARY AND CONCLUSIONS

When focusing on body and expressive language of movement, we are ready to start and deepen awareness of feelings, posture, gestures, emotions and associated with them thoughts and meaning. The body contains the history of our life because the movement is our primary language. Body movement runs deep feelings and memories. The way we move, reveals our blockade and recurring patterns that gives information not only about traffic but also about the mental – emotional processes. Movement reflects one's personality. Electrostasis not only protects the human biological system with an electron jacket that is it necessary for the functioning and adaptation of biological and psychological, but also it is a link between the bios and the psyche, both in the conscious and unconscious. Bioplasma with electrostatics connects consciousness with the mind, intellect with intuition, including on the one hand instinct organization and on the other, realm of archetypes. They are the source of the creation of the self, which runs between the inner and outer world. Biocomputer-like management of the organism and bioplasma concept of consciousness shed new light on the field of consciousness studies as well as reveal new ways of clarifying the interaction of the intracellular and intercellular; builds the basis for the creation of new models and the description of perception and consciousness. Moreover it extends the boundary and defines a new field, where nonlinear relationships must be taken into account, which are currently restricted by the local quantum processes. This will also facilitate the connection of virtual systems in robots with the human biological system, along with mutual interaction. Quantum psychology explains the nature of mental processes in the light of quantum processes, describes the organization of a system cybernetics-informative way, explains human behaviour in relationships on a quantum field, assigns a significant role to non-linear processes of consciousness and unconsciousness, recognizes that the human psyche is managed by biocomputers and an internet spaceship. It defines consciousness as the emission of coherent light interacting with solitons in bioplasma. It is postulated that the human biological system is made in the transformation of the photon and phonon and vice versa and photon to the soliton, which processes constitute an act of consciousness. DNA is based on the exciplex / excimer "laser system". The human biological system is made of bio-photons and autologous biosolitons, which together with laser light are responsible for human mental states [7, 8].

Our life is largely unconscious and we execute pre-programmed roles. Normally we are not aware of such a mechanism. We often wonder why we behave in such a way and not otherwise, why a particular situation happens to us and not other situations. We assume that that is just the way it is, the way the world is. Nevertheless behind such an event there is a hidden set, located in the subconscious programs, based on directives given from space. Braided quantum states in the brain constitute an act of the mind. The unity of mind is achieved by synchronizing solitons in the area of bioplasma. Synchronization of solitons with macroscopic quantum coherence determines the act of consciousness.

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