

## TOWARDS A NEW/OLD HUMANISM: TRANSITIONAL STATES OF CONSCIOUSNESS AS A CLUE?

Dejan Raković

Faculty of Electrical Engineering, Belgrade University, P.O.Box 35-54, 11120 Belgrade, Yugoslavia,  
E-mail: rakovic@buef31.etf.bg.ac.yu

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European Centre for Peace and Development (ECPD) of the United Nations University for Peace,  
Terazije 41, 11000 Belgrade, Yugoslavia

**Abstract.** It is pointed out (in the framework of the author's biophysical relativistic model of altered states of consciousness) that *transitional states of consciousness* represent an excellent framework for understanding and mental control of transpersonal *mystical states of consciousness* described in various religious and esoteric traditions of East and West during the history of civilization, implying their real biophysical nature. Transitional character of these states also demonstrates why these phenomena are *short-lasting* and poorly reproducible, and also why they are most easily mentally controlled shortly before a waking/sleeping transitional state. This might be also an explanation for extraordinary efficiency of prayer accomplished shortly before sleeping, which is recommended by all religious traditions, and its significance in *mutual reprogramming of psychic conflicts* (as a germ of the future interpersonal fights, as well as of potential psychosomatic and psychological disorders of the persons in conflict) during transpersonal interactions of the persons in conflict in transitional states of the praying person (with direct mental addressing to the person conflicted with, or *energetically more efficient* indirect mental addressing via ionically abundant disembodied archetype structures from religious traditions). All this suggests that deeper biophysical understanding of the nature of consciousness and transpersonal phenomena might soon give rise to scientific understanding and empirical verification of even fundamental philosophical/religious questions (like practical/spiritual significance of *imperative moral behavior* of every individual, extremely important for accelerated integration and spiritual evolution of personality) - and appearance of a *new humanism*, without meaningless and painful interpersonal, interethnic, and interreligious conflicts.

**Key words:** *theoretical mechanisms, biophysics, relativistic & quantum physics, brainwaves, neural networks, ionic structures, mystical states of consciousness, transitional states of consciousness, altered states of consciousness, acupuncture system, healing, religion/esoteric transpersonal conflict reprogramming, prayer, morals.*

### 1 Introduction

It is currently estimated that the problem of consciousness belongs to ten most significant scientific problems, owing to its potential scientific

implications, including a possibility for deeper understanding of some ultimate philosophical/religious questions, traditionally remaining outside the domain of theoretical and experimental methods of natural sciences, being therefore a subject of deep and painful irrational divisions throughout the whole history of human civilization.

The prevailing scientific paradigm considers information processing inside the central nervous system as occurring through hierarchically organized and interconnected neural networks. Along with development of experimental techniques enabling physiological investigation of interactions of hierarchically interconnected neighboring levels of biological neural networks, significant contribution in establishing the neural network paradigm was given by theoretical breakthroughs in this field during the past decade [1]. Apart from the brain's hierarchy of neural networks, a significant role in global distribution and memorizing (over the whole cortex) of hierarchically processed information is played by brainwaves [2]. Of particular interest in this process is also extended reticular-thalamic activating system (ERTAS) [3], as a hierarchical system of neural networks which compares currently processed information with the one memorized in the cortex, giving priority and amplifying one piece of information to the conscious level; the remaining pieces of information rest nonamplified at unconscious levels. This is basically also the mechanism of "emotional coloring" of some information.

A particularly significant role of brainwaves involves modeling states of consciousness - and especially altered states of consciousness, characterized by extraordinary acceleration in psychological information processing, which cannot be explained by purely electrochemical intersynaptic processes in biological neural networks, because these mechanisms of the ERTAS are not accelerated up to several orders of magnitude, as the subjective time sense is dilated in altered states of consciousness [4-6] - in respect to the normal awake state.

According to the author's biophysical model for altered states of consciousness [7-9], the electromagnetic (EM) component of ultralow-frequency (ULF) "brainwaves", related to "subjective" reference frame of consciousness, enables perfect fitting with narrowed-down limits of conscious capacity in normal awake states and very extended limits in altered states of consciousness - due to the biophysical relativistic mechanism of dilated subjective time base. In this model, *consciousness* is subtle internal display in the form of EM component of ULF brainwave ionic currents, in which a complete information (both conscious and unconscious) is permanently coded from brain's neural networks, as a spatio-temporal pattern resulting from changes of the electrosynaptic interconnections in the neural networks of the brain. Then, according to this model, *altered states of consciousness* (REM sleep, meditation, hypnosis, psychedelic drug influence, some psychopathological states, and near-death experiences) are a consequence of partial displacement of the ionic acupuncture system outside the body (when the embedded EM component of ULF brainwaves is propagating through this weakly ionized structured gaseous medium of low-dielectric relative permittivity,  $\epsilon_r \approx 1$ ), while *normal states of consciousness* (alert state, non-REM sleep, ...) are achieved when there are no such displacements (when brainwaves are propagating only through the structured brain tissue of high-dielectric relative permittivity,  $\epsilon_r \gg 1$ )!

According to the model, *dreams* and dream-like hallucinogenic states are characteristics of altered states of consciousness ( $\epsilon_r \approx 1$ ), when the relativistic Doppler mapping of EM component of the "objective" ULF brainwaves power spectrum on the zero-degenerate frequency "subjective" spectrum - enables dream-like mixing of normally conscious and unconscious contents. This could be the biophysical mechanism of dreams, which particularly implies their psychological significance: in dreams one has continuous access and more efficient "subjective" integration of normally conscious and unconscious contents, giving rise to integration and growth of human personality (otherwise divided into conscious and unconscious associative "ego" states), which results in alleviation of emotional conflicts [7-10]! Then *meditation*, as a prolonged altered state of consciousness, enables more efficient "subjective" integration of human personality, but it is inevitably accompanied by a decay of ultradian rhythm, governing alterations of normal and altered states of consciousness (of periodicity  $\sim 1.5 - 2$  hours, in both waking and sleeping [11]). However, if a person bears strong internal psychic conflicts i.e. "ego states", the result of such a prolonged meditation will be integration of human personality around foregoing several "ego-states", with undesirable result of multiply divided (instead of well integrated) personality; competent teachers of meditation are fully

aware of these perils, and do not recommend its accelerated practice to psychically weak persons (for whom the main priority being a *reprogramming* of psychic conflicts, we shall consider further on in the context of controlled transpersonal interactions in transitional states of consciousness).

The displaced ionic structure in this model must have a form of weakly ionized gaseous "optical" neural network, for continually inflowing information from the brain's neural networks to be "subjectively" recognized. Hence, such ionic neural network behaves also as an optical *sensor*, which can perceive an environment panoramically, as reported by reanimated persons [6].

## 2 Transitional States of Consciousness: Biophysical Basis of Mystical States

Even most peculiar spatio-temporal *transpersonal interactions* are predicted in *transitional* (nonstationary) states of interchange of normal and altered states of consciousness, when brainwaves traverse from high-dielectric ( $\epsilon_r \gg 1$ ) to low-dielectric ( $\epsilon_r \approx 1$ ) state or vice versa - the relative velocity  $v = c_0 / \sqrt{\epsilon_r}$  of "subjective" reference frame being therefore subjected to abrupt change in short transitional period  $\tau \sim 0,1$  s, with "subjective frame" acceleration  $\sim c_0/\tau \sim 10^9$  m/s<sup>2</sup>.

A deeper understanding of physical mechanisms of these processes obviously sinks into the General theory of relativity, as physical processes in highly accelerated reference frame outside gravitational field and in that one inside strong gravitational field with equal (gravitational) acceleration - are identical (so-called *Principle of equivalence*, being one of the fundamentals of both Newton's and Einstein's theories of gravitation). Theoretical analyses show [12] that in enormously strong gravitational fields so-called wormholes (or Einstein-Rosen space-time bridges) are created, whose entrance and exit could be in very distant space-time points. As in transitional states of consciousness the "subjective" reference frame, related to EM field of brainwaves, is subjected to quick change of velocity, with equivalent acceleration comparable with that one in enormously strong gravitational field of wormholes, according to the Principle of equivalence one could expect, in such brief states, the creation of the Einstein-Rosen bridge and tunneling of "subjective observer", i.e. consciousness, in previously "mentally addressed" exit in space-time<sup>a</sup> - reminiscences on passing through some tunnel being really reported by many patients

<sup>a</sup> To support this, one can cite the technique adopted by "psychics" when they want to exert some distant influence: they always intensely visualize the person or place, as mental targets! On the other hand, this could be deeply connected with the role of consciousness in quantum theory of measurement, where consciousness with its act of observation affects the final collapse of the initial wave function into one of possible probabilistic eigenstates - which implies that the collapse could be related with generation of local Einstein-Rosen bridge in highly noninertial processes of interactions of microparticles with measuring apparatus [8,9], equivalent to strong gravitational effects of crucial importance for this process [13].

reanimated from clinical death [6]. It should be pointed out that apart from the EM field, the displaced part of ionic acupuncture system (in the form of ionic neural network, having the "optical" sensory function), must also be tunneled in such (acausal) interactions of consciousness with distant events in space-time!

Hence, a space-time destination where a deceased ionic structure is tunneled at the moment of death, depends on the post-mortem mentally loaded addressing of the dying person. Therefore, it is quite reasonable that persons from different traditions, reanimated from clinical death, are reporting on bizarre spiritual contacts with the "light beings" identified as founders of their religious traditions (being mentally addressed as a target of prayer prior the near-death experience), or with a series of pleasant or unpleasant spiritual entities (contacts with them being induced by positively or negatively mentally loaded contents, successively activated in the deceased ionic structures), or with their close relatives (being a target of personal concern of the deceased) [6].

All these near-death experiences might be categorized into so called *astral projections* of consciousness, being described by rare practitioners as not subjected to spatio-temporal limitations [14,15] - quite in agreement with the transitional states of consciousness predicted by the model.

These astral projections are presumably also the basis of most *psychic phenomena* [16], providing also explanation for transitional nature and difficult reproducibility of these phenomena: they last only  $\sim 0,1$  s, and spontaneous conditions for them are achieved only every 1.5 - 2 hours, with periodicity of ultradian rhythms which govern the interchange of normal and altered states of consciousness [11]. However, it should be noted that the non-low-dielectric barriers in interaction with the low-dielectric barriers are helping in overcoming themselves in these astral projections - quite opposite to normal experience in usual mechanical interactions [14]!

The predicted transitional states of consciousness could also be the biophysical basis of *anticipation*<sup>b</sup> in

<sup>b</sup> According to the computer experiments with random number generators [17], only nonactualized possible futures can be anticipated (more accurately for a priori greater probabilities of their realization), in accordance with quantummechanical viewpoint. It should be added that physical interaction of the displaced gaseous ionic "optical" neural network with possible "objective" system (described by possible wave function  $\Psi_i$ ) or corresponding possible state of "collective consciousness" ( $\Phi_i$ ), in "astral projections" during transitional states of consciousness - opens also a question on the nature of wave functions - which should provide a picture of quantum-level physical reality (not only serving as a calculational device, useful merely for calculating probabilities, or as an expression of the experimenter's "state of knowledge" concerning physical system)! Then by changing initial state of "collective consciousness" ( $\Phi$ ) one can influence probabilities ( $|a_i|^2$ ) of realization of corresponding states  $\Phi_i$ , i.e. possible objective states  $\Psi_i$  (as the composite initial state of "objective" system and "collective" observer is a superposition of all possible composite states,  $\Psi\Phi = \sum_i a_i \Psi_i \Phi_i$ ). As the very state of "collective consciousness" ( $\Phi$ ) is a composite state constituted of (noninteracting) states of all "individual consciousness" ( $\phi_k$ ),  $\Phi \sim \prod_i \phi_k$ , it follows that the change of state  $\phi_k$  of "individual consciousness" can affect the state  $\Phi$  of "collective consciousness", and therefore the probabilities for realization of possible objective states  $\Psi_i$ . This is particularly true if the state  $\Phi$  is very sensitive on small changes of initial conditions, which is the case for physical systems described by deterministic chaos [18]. Having in mind that the brain and corresponding state  $\phi_k$  of "individual consciousness" is such kind of system, then the composite state  $\Phi$  of "collective consciousness" is also described by deterministic chaos - and therefore very sensitive on small changes in initial conditions! Such a conclusion

intuition, precognition and deep creative insights - which could be easily put under control by "mental addressing" on the problem chosen, shortly before a waking-sleep transitional state! On awaking, the brain would then amplify the dream concerning the solution of the problem addressed, giving to it the priority in respect to other processed information during the sleep phase. The information obtained in this way is usually mixed through associative coupling with other conscious and unconscious pieces of information during the following REM-sleep periods - having therefore some symbolic form, which has to be decoded through introspective analysis of the dream. Naturally, to solve some scientific, technical or artistic problem in this way, it is necessary for the person to be expert in the field, in order to articulate the solution obtained in corresponding scientific, technical or artistic "language".

The above mentioned astral projections of consciousness are presumably also the basis of *religious* experiences, with mental addressing on spatio-temporally displaced energetically abundant ionic disembodied archetype structures from religious traditions, being mentally addressed as a target of prayer in transitional states of consciousness. So, it seems that efficiency of *prayer* in self-healing of inner psychological conflicts (caused by some previous interpersonal fights) might be the consequence of similar biophysical transpersonal interactions of the persons in conflict in transitional states of the praying person, accompanied by *mutual*<sup>c</sup> reprogramming of interior conflicts (as a germ of the future interpersonal fights, as well as of potential psychosomatic and psychological disorders). That might provide an explanation for extraordinary efficiency of prayer accomplished shortly before sleeping which is recommended by all religious traditions (with direct mental addressing to the person in conflict, or energetically more efficient<sup>d</sup> indirect mental

implies extraordinary practical significance of contents of our "individual consciousness", as they directly determine the probability of realization of possible objective states  $\Psi_i$ , i.e. the future events, no matter how bizarre this conclusion looks like [8,9]! In that context, what is actually anticipated in transitional states of "individual consciousness" might be [8,9] the evolved state of "collective consciousness"  $\Phi(t)$  in some future moment  $t$  (to which "individual consciousness" has access, being the constitutional part of "collective consciousness"), which is quantummechanically described by deterministic unitary evolution governed by Schrodinger equation (or Dirac equation in relativistic case). However, the anticipated state  $\Phi(t)$  could be redefined by changing initial state  $\phi_i$  of "individual consciousness", leaving room for free will and the possibility for influence on the future. In this respect, it is quite possible that strong preferences in individual or collective futures exist, governed by karmical interpersonal loads, as it is claimed in Eastern tradition. Along the same line, it might also be possible that spiritual cleansing (by prayer or some other esoteric technic) is the efficient mechanism for changing initial state of several interrelated "individual consciousnesses", and hence "collective consciousness", thus changing anticipated preferences for both individual and collective futures [15,19].

<sup>c</sup> That could be possibly the reason for Christianity to insist on repenting and forgiving ("And forgive us our debts, as we forgive our debtors", Mt.6,12), which represents a level of spiritual maturity of a person: this implies an obligation of spiritually mature persons to help in reprogramming conflicts by praying, even when themselves being victims of the conflicts ("But I say unto you, love your enemies, bless them that curse you, do good to them that hate you, and pray for them which despitefully use you, and persecute you", Mt.5,44). It is not even allowed to see evil in fellow-men and condemn them (an old biblical commandment given to the man in paradise, forbidding to take food "of the tree of the knowledge of good and evil" - in fellow-men - "for in the day that you eat there-of you shall die" (Gen.2,17), whose violation has caused the Adam's fall), insisting only on personal repenting and forgiving, as the only way in reprogramming psychic conflicts; anything else enhances the existing mental/emotional personal loads and enlarges evil in the world, dismissing an individual and humankind from the final spiritual ideal of sinless state of consciousness.

<sup>d</sup> The displaced (outside the body) part of the ionic acupuncture system of the estimated initial ionic concentration  $n_j \sim 10^{15} \text{ cm}^{-3}$  (supporting the ULF brainwave ionic currents  $\sim 10^{-7} \text{ A}$ ) has a significant tendency of deterioration during a period of  $\sim 1$  hour

addressing via ionically abundant disembodied archetype structures), when it is easiest to control the addressed mental contents prior the waking/sleeping transitional state!

### 3 Conclusion: At the Threshold of New/Old Humanism?

It is hereby demonstrated that the author's model of altered and (particularly!) transitional states of consciousness is an excellent biophysical framework for various states of consciousness described in religious and esoteric traditions of East and West, implying their real biophysical nature - and significance for understanding mechanisms of transpersonal mystical and other transitional states of consciousness.

Transitional character of mystical states also demonstrates why these phenomena are short-lasting and poorly reproducible, and also why they are most easily mentally controlled shortly before a waking/sleeping transitional state. This might be also explanation for extraordinary efficiency of prayer accomplished shortly before sleeping, which is recommended by all religious traditions, and its significance in *mutual reprogramming of psychic conflicts* (as a germ of the future interpersonal fights, as well as of potential psychosomatic and psychological disorders of the persons in conflict) during transpersonal interactions of the persons in conflict in transitional states of the praying person (with direct mental addressing on the person

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[7,8], as the partial ionic pressure at room temperature is much more greater than magnetic pressure which pinches the ionic channel; however, the stability condition of disembodied ionic structures could be met under equilibrium of the two pressures, when  $n_j \sim 10^{24} \text{ cm}^{-3}$  [8]. It is obvious that this concentration exceeds by  $\sim 10^9$  times that one in the displaced deteriorating ionic structure, and that greater would be the current flowing through the ionic channels ( $I_0 \sim 100 \text{ A}$ ). That concentration is also  $\sim 10^4$  times greater than bodily ionic concentration, which is obviously nonadapted and risky for direct contact with biological species, but not with those biological ionic structures displaced in transitional states of consciousness far beyond the body - which might be subjected to appropriate corrections of their (disordered) ionic distributions and concentration, causing after transitional state of consciousness (and returning of these structures inside the body) the positive backward effect on acupuncture ionic system of the individuals, and hence on their psychosomatic healing [8]. So, it seems that the healing process can be related with the transfer of ions (qi, prana, pneuma, ether ...) and/or transfer of the EM information patterns, responsible for normal functioning of acupuncture system and overall health. In that context, it seems that other esoteric notions [15,20] such as subtle body (manomaya, lingasarira, manovijnana, ka, psyche, astral body, psychic body ...) and mental body (vijnanamaya, suksmasarira, manas, ba, thymos, mind, noetic body ...) are biophysically inevitably associated with a partly displaced (from the body) ionic acupuncture system, and an EM component of ULF ionic currents embedded within it, respectively; on that line, the ionic condensations in the structured acupuncture system, with an EM component of ULF ionic currents embedded within it, behave like "distributed centers of consciousness" - this presumably being biophysical basis of yogic chakras [7,8]. It should be also added that ionic acupuncture currents, and accompanied EM fields, have both ultralowfrequency (ULF) and microwave (MW) components, i.e. the MW component is modulated by the ULF component: in support to the ULF nature of ionic currents in acupuncture channels, one can cite the resonance ULF ( $\sim 4 \text{ Hz}$ ) stimulation of the acupuncture analgesia endorfin mechanism [21]; on the other hand, the evidence for the MW component of ionic acupuncture currents is provided by resonance MW ( $\sim 50\text{-}80 \text{ GHz}$ ) therapy, efficient even in very serious diseases [22]. According to former Soviet inventors of the resonance MW therapy, Sit'ko and his collaborators, acupuncture system is a dynamic structure, differentiated at the locations of maximums of three-dimensional standing waves, formed as a result of the reflection of coherent microwave ( $\sim 100 \text{ GHz}$  [23]) Fröhlich excitations of molecular subunits in the cell membranes and proteins - supported also by other investigations which have demonstrated that differentiation of the intercell "gap junctions" (of higher density at acupuncture points and meridians) is slightly sensitive to voltage [24]. In that context the explanation for efficiency of this method should be sought: some disorders in the organism give rise to deformation in the structure of electrical field of the organism in MW region, which influences some changes in spatial structure of the acupuncture system, and consequently its resonance frequency, resulting in some disease; during the therapy, applying the MW sound at corresponding acupuncture point the excited acupuncture system of the patient is relaxing to the previous healthy condition, while reaching its normal frequency response upon the wide spectrum MW source - and following to physiological mechanisms of the acupuncture regulation [25] organism biochemically overcomes the disease.

conflicted with, or *energetically more efficient* indirect mental addressing via ionically abundant disembodied archetype structures from religious traditions).

All this suggests that a deeper biophysical understanding of the nature of consciousness and transpersonal phenomena might soon gives rise to scientific understanding and empirical verification of even fundamental philosophico/religious questions (like practical/spiritual significance of *imperative moral behavior* of every individual, extremely important for accelerated integration and spiritual evolution of personality) - and appearance of a *new/old humanism*, without meaningless and painful interpersonal, interethnic, and interreligious conflicts.

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