

LIFE AS A FOURTH LEVEL OF QUANTUM ORGANIZATION OF NATURE

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Quantum Physics of the Alive is based on the definition of the Alive (in its distinction from the Dead - inanimate) as a fourth level of quantum organization of Nature (after nuclear, atomic and molecular levels). Self-consistent potential of each living object is formed in accordance with genome as a laser of mm-range wavelength. Such a notion concerning the Alive grounded on theoretical considerations, clinical material and the direct experiments allows us to cast a fresh glance on the fundamental problems of biology and not only on them...

Speaking about the fundamental problems of biology, the problems are meant solution of which turns biology from a descriptive science (as it is now) to the fundamental science with a solid theoretical base.

Actually, biology is not a single science but a totality of sciences concerned with animate nature. Thus, the fundamental problems of biology are reduced, in essence, to the fundamental characteristic features of the Alive in its distinction from the Dead. And here, at the present stage of development of biological sciences we are no longer satisfied with tautological definitions juggling with terms of the type "self-renewal", "self-reproduction", "protein bodies", "matrix synthesis of genetic programs", "metabolism", etc., since all of them are descriptive and, consequently, leave biology a descriptive science.

So, however important by itself there might be understanding of differentiation and morphogenesis mechanisms, as the modern science connects foundation of theoretical biology just with them, still we believe that these are the particular questions and their solution will be possible only when we understand what is the difference between the Alive and the Dead, on the fundamental level.

The previous paragraph ends with the words "fundamental level". Remaining in the framework of the existing biological-medical ideas this notion carries no sense (apart from the emotional one). This fact confirms the well-known thesis that global problems of some well-settled science can't be solved if we stay within the closed circle of its dogma. The notion of fundamentality in biology and medicine has no strict definition; this is rather a question of prestige for the people, who are engaged in

science, and also the dimensions of the investigated objects bound by chemical forces. Chemical paradigm actually dating back to atomistic ideas of the ancient Greece is the solely recognized one up to now when the question concerns the processes occurring in the living objects. This has explanation if not justification.

And really so. All achievements of our West civilization are made due to the development of atomistic insight into the world, and therefore we accept almost as the axiom the opinion that disintegrating a macroscopic object into molecules, atoms, nuclei, quarks, i. e., microscopic components, we get more profound and comprehensive knowledge about nature. In physics, dealing with inanimate nature, such an approach worked well in many cases, that is why biological sciences that lay a claim to obtaining valuable information about animate nature came to be strongly attracted by studying just microscopic structures of the animate objects. And since the latter represent macroscopic formations (with respect to molecule sizes at least) so it is quite natural to believe that in study of the Alive the similar approaches should be adequate that are used in physics of liquids and solid state, i. e. the approaches based on studying the intermolecular interactions. And this is the domain of chemical sciences. Regarding the substance of the problem, this approach is justified even by the fact that in a solid body or liquids, a number of effects, screening in the first turn, result in that in common situations, only a short-range effect component of the universal electromagnetic interaction reveals itself, that is, once again, the chemical forces are involved. So it is no wonder that in biology under the fundamental sciences, i. e. sciences that lay a claim to statement and solution of global and, consequently, prestige problems, are meant the sciences studying microscopic components of the animate objects. In other words, the so-called fundamental biological sciences (genetics, molecular biology, biophysics, biochemistry, etc.) are not engaged in the study of the living objects but in the study of biological objects, thus, the very notion of life drops out from the field of vision of scrupulous scientists.

Though it sounds like a paradox, still the phenomenon of life appears as a hampering factor for physicists specializing in the domain of biology and medicine. The absence of mathematical expression for the phenomenon of life results in the fact that even application of the most up-to-date mathematical means to biology problems can't yield self-consistent solutions different from those obtained in physics of liquids and solid-state.

Herewith it would be expedient to note that in the recent decades the standard physics (it may also be called physics of the Dead) is treating not at all trivial problems. Their solutions have become possible due to the three factors:

- 1) Perception of constructive role of nonlinearity and openness for the origin (far from thermal equilibrium) of the ordered, dynamically stable, self-consistent structures. These considerations have laid the foundation for two new disciplines – physics of dissipative systems (Prigogine) and synergetics (Haken) making a revolution in science and not only because the sphere of interests of physics now includes the world of newly becoming stable systems, but also because the universality of the self-organization laws was proved and a number of traditionally humanitarian, descriptive sciences (ecology, economics, sociology, politics, etc.) have acquired the status of formalized, mathematically exact disciplines.
- 2) Solution of self-organization problems also created a necessity for the new mathematical methods which either had been devised earlier but remained unclaimed (Poincaré's approaches to solution of nonlinear differential equations), or should have been created anew (the theory of fractals, chaos, catastrophes).
- 3) The great possibilities of computer-aided simulation for solution of many types of nonlinear synergetics problems.

To help our readers take pleasure in the great opportunities of today's computer simulation for creation of the dynamically stable structures, we attach here the colored poster taken from the book "The Beauty of Fractals" demonstrating the great diversity of solutions even for the simplest quadratic nonlinearity, imitating, as we see it, the multiform variety of submerged life. It is very tempting analogy but alas, no more than that. It is like the well-known childish game where a hidden object should be found with your eyes closed: "warmer" but still not "hot". Nevertheless, we underline once again that these are just the achievements of natural science in the late years of the XX century that formed the base for the field of knowledge which was called Physics of the Alive at the Round table headed by Prof. H. Fröhlich at Kiev International Conference on May 12, 1989.

Now let us turn our attention to the problem of fundamentality in the natural sciences. It has already been shown that in biology and medicine, the fundamentality has no strict definition and characterizes the degree of "importance", considerations of prestige of the carried out researches and

it is always associated with microscopic ideas implying that biochemical interactions and only them bear responsibility for origin, existence, structuring and functioning of the Alive. Having no sound arguments for such a statement but analogies from linear physics of liquids and solid state, the advocates of this point of view consider that life had its origin as a result of certain changes in the organic primary “broth” having been accumulated during millions of years. Such an approach washes away the border-line between animate and inanimate, the wonder of life is substituted by fetishism of much longer spans of time fascinating human imagination. The next step in such an approach would be origination of illusion of superpermission (all is permitted) followed by propositions to breed human organs outside a human body, to clone the twins, geniuses, etc. As the bright illustration of a deadlock character of the standard approaches treating a living organism exceptionally as a retort for biochemical transformations was really a very awkward situation with multi-billion program “Human genome” that has happened with the expected medical dividends from its realization.

It is quite to the point to remind here once more that among the fundamental forces of nature (strong, weak, electromagnetic, gravitational fields) there are no chemical forces. Chemical interactions are in its essence nothing else but a short-range component of electromagnetic interaction which can be singled out in liquids and solid bodies due to a number of effects among which the basic one is screening of the field by neighboring quasi-neutral molecules whose contents, as known, amounts to 10^{19} in each cubic millimeter of substance. So, only the molecules contacting among themselves come into chemical interactions. In the cells of a living organism, the molecules take part in the great number of biochemical reactions, thus ensuring its vital activity.

The only thing that can't be provided by chemical forces by definition – it is to organize and support the correlation of processes in the entire macroscopic organism, i.e., they can't in principle provide differentiation and morphogenesis, the same as the single DNA molecules (however complex they may be) can't be “responsible” for certain organs, diseases, talent, life-time, etc. Intoxicated by the illusion of superpermission, the apologists of chemical-mechanical views in biology and medicine have accepted the new selection possibilities of cloning as a signal for the further speculations on the prospects of human interfering in conception and embryo formation, having no the slightest idea about how and why just in this but not some other way an organism is developing, forming and structuring itself from zygote and the tissues, organs, circulatory system, skeleton, brain, consciousness arise. To say

nothing of a man, even the simplest unicellular organism has not yet been artificially reproduced under laboratory conditions with all the might of the modern civilization and, as we believe, it won't be ever reproduced.

Remarkable is the name of the respective branch of biology, "genetic engineering", i.e., in the same way as radio technology engineer who can adjust a radio-set, precise mechanics engineer who can restore a clock-work, auto mechanics engineer who can repair a car. But radio-sets, clocks, automobiles are made by our human hands and so, in case of necessity, they can be disassembled, the damaged part changed and the mechanism reassembled. But a human body is not made by human hands, this is the God's creation and its "repair" demands the other level of knowledge.

Physics of the Alive is based on the notion that besides anatomic-morphological systems of an organism which can be seen with eyes, there exists (and it is the real existence) something that can't be perceived with an eye. This is the so-called electromagnetic framework of a human being, and, to be more exact in physical respect, the coherent eigenfield of a man within mm-range of electromagnetic waves. This field arises due to electromagnetic activity of every cell of a body, but having been created, it directs, synchronizes and coordinates the functioning of all organs and structures of an organism beginning in a mother's womb, then after the birth and during the whole life. And since a genome of each somatic cell of the given organism is the same, so it is just through creation and functioning of the electromagnetic framework that hereditary chromosome information is realized, providing correlation of all biochemical processes in a body. Availability of self-consistent potential of the whole organism makes it possible to overcome prohibition on application of quantum mechanics and its principles to the entire macroscopic systems (such as human organism, for example). Applicability of quantum mechanics principles – identity and discreteness – introduced into science the universal fundamentality criterion – availability of characteristic eigenfrequencies. In the past, three levels of the matter organization, i. e., nuclear, atomic and molecular, satisfied this criterion. Nowadays, due to the presence of a body's electromagnetic framework, it became evident that the Alive constitutes the fourth level of nature's organisation with characteristic eigenfrequencies for each entire living object ensuring multiform differential stability of the Alive (existence of separate individuals, species and genera of vegetable and animal kingdom) the same as, for example, the Mendeleev Table of elements demonstrates a multiform differential stability of the atomic

world. In this way, Physics of the Alive gives the fundamental definition of the Alive in its distinction from the Dead:

the alive is the fourth level of quantum organization of nature (after the nuclear, atomic and molecular ones);

each of the individually functioning living objects represents an entire quantum-mechanical system whose macroscopic self-consistent potential is formed according to genome as a laser of mm-range of electromagnetic waves at the expense of electromagnetic activity of the cell membranes.

This formulation:

- 1) does not contradict the total amount of information accumulated by biological and medical sciences;
- 2) enables interpretation, from the standpoint of the fundamental science, of the MRT and Sit'ko-MRT phenomena, i. e., rehabilitation of an organism's functioning with the use of low (as compared to the energy of one quantum) levels of electromagnetic influence at "resonance-therapeutic" frequencies [1,2] ;
- 3) explains the paradox noticed by P. Mitchell in connection with proton transport, i.e., spending of the most part of a cell's metabolism energy not for chemical energy accumulation (ADP-ATP) but on support of electric tension within membranes 10^5 V/cm;
- 4) gives explanation to one of the most secret enigma of the chromosome heredity theory – existence of more than 98% (!) of the mute genes, i.e., the genes that do not participate in the standard mechanism of protein material production in the DNA-amino acid-protein chain;
- 5) gives arguments in favor of the opinion that it is senseless to search for the genes "responsible" for organs and structures of a human body as well as for mental ability of people, their diseases, and, in general, for any fragment of the infinitely complicated something which is a Human in his interaction with Nature in conditions when differentiation of the respective conceptual apparatus has been historically formed proceeding from linguistic peculiarities of different branches of a human race*;

* The term "gene responsible for" arised at the very outset of chromosome heredity theory formation when it was necessary to defend the very idea of heredity and the role of the genes in this process as its real material carriers. Unfortunately, with time, terminology of this type has taken roots in its literal

- 6) opens the possibility to approach the solution of such fundamental biology problems as differentiation and morphogenesis from the new positions;
- 7) lays the foundation for theoretical biology on methodological principles common with other fundamental sciences: nuclear, atomic and molecular physics: the Alive is distinguished from the Dead in methodological respect in the same way as hydrogen and oxygen atoms differ from a water molecule formed from them – by the presence of the new self-consistent potential which forms characteristic eigenfrequencies of a living organism and a water molecule, respectively;
- 8) allows to explain the specific biological phenomena, for example, the nature and stability of papillary lines on soft flesh of finger-tips;
- 9) suggests the way of drawing nearer the viewpoints of science and religion.

Though the majority of the above-stated corollaries from the suggested definition of life reflect the main statements of quantum physics of the Alive and have been rather consistently treated in a great deal of scientific papers and, in the first turn, in the columns of *Physics of the Alive*, still it remains expedient to dwell in more detail over certain theses:

To p. 2. Microwave resonance therapy (MRT) as the most well-known technology of quantum medicine is based on super high frequency-resonance sensitivity of a functionally disordered organism towards the action of the external mm-range electromagnetic fields exerting influence over biologically active points of a patient's body, coinciding with acupuncture points used in the technologies of the ancient Chinese medicine. The MRT technology as well as its latest modification "Sit'ko-MRT" [2] did not find scientific explanation in the framework of the medical and physical ideas that existed in the early 80s, and just this gave an impetus to development of the foundation of physics of the Alive and quantum medicine.

And what namely defied interpretation from the standard positions? Just several moments.

sense, holding genetics in its methodological development at the level of Newtonian ideas, at the best. And really so, how can we discuss the genes, responsible for stomach, talent, different diseases current, etc., under conditions when the marking-out of linguistic paradigm imposed on the external world by various civilizations is different. It will suffice to compare the conceptual medical terminology of the West civilization and the ancient China civilization.

First of all, it concerns power density of the influencing signals. If in the early years (before 1986) it was slightly lower than the thermal effect threshold (10 mW/cm^2) and this caused adequate discussions in scientific literature, then in the following years, and particularly in Sit'ko-MRT technology, power density has been many orders decreased and reduced to 10^{-13} W/cm^2 , which for the real generators comprises $(10^{-20} - 10^{-21})\text{W/Hz cm}^2$, i.e., it is commensurable with one quantum energy and thus it can be efficiently perceived only by the entire quantum-mechanical system.

Second, the resonance effect at the curative “therapeutic” frequencies with quality >1000 in mm-range is impossible from the point of view of physics of liquids and solid state. So its reliable registration in experiments and in the process of treatment of thousands of patients also speaks in favour of the necessity to introduce the notion of the Alive as a macroscopic entire quantum-mechanical system[3].

Third, the fact that mm-effect is absent in case of healthy people, is very important as from pragmatic point of view (the notion of “healthy organism” is introduced) and also as an additional confirmation of quantum-mechanical model of life, when the ground system’s state corresponds to health, and metastable – to disease.

Finally, MRT has confirmed the existence of connection between acupuncture points and human body’s organs by the way of the so-called meridians (channels) described by the ancient Chinese thinkers and physicians 5000 years ago. It is because of these meridians the West medicine has not recognized the ancient Chinese medicine during many centuries, since these channels can’t be visualized by an eye, and one of the basic principles of the West medicine is visualization dogma – existence of only what can be seen by eyes. Such naive views concerning the alive place it at the lower level than an elementary radio-set or TV-set that “see” electromagnetic signals unnoticed by our eyes. We managed “to notice” the meridians but not in a visible range but within mm-range. They are the elements of electromagnetic framework and just using them in MRT-technologies we restore this framework [3].

To p. 3. Aqueous component in an organism is a very significant one. So, its functioning in mm-range laser generation mode will depend on competition of the two processes: mm-waves generation by the cell’s membranes and absorption by aqueous (for the most part) environment. The possibility to treat plasmatic membranes as the active centers of a body’s coherent systems beyond the threshold of non equilibrium phase transition was for the first time noticed by H. Fröhlich [4], who estimated frequency of their oscillations in the range $(10^{10} - 10^{11})\text{Hz}$. Since the

membranes are charged, so such oscillations turn them, as is well-known, into the sources of mm-range electromagnetic waves whose power is proportional to square acceleration. It is important to stress that in artificial laser systems coherent generation is realized at frequencies whose energy quantum ($h\nu$) considerably surpasses thermal background (kT). As follows from radiation theory, the induced to spontaneous components ratio of the activated medium radiation is proportional to

$$\frac{1}{e^{\frac{h\nu}{kT}} - 1},$$

which is considerably less than 1 and, therefore, for transition

into laser generation mode the special efforts are necessary: besides pumping of the active centers, the mirrors are necessary, etc. In the natural lasers, that is the living systems the relation between ($h\nu$) and

(kT) is reverse: $\frac{h\nu}{kT} \approx 0.01$ and consequently $\frac{1}{e^{\frac{h\nu}{kT}} - 1} \approx 100$ which

sufficiently simplifies the conditions of generation occurrence and sustaining if, of course, there will be permanent energy pumping of the active centers (cell membranes).

To p. 4. Self-consistent coherent field of an organism should carry information about heredity, i.e., about genome. The genome identity for all somatic cells of the given organism is the necessary condition for occurrence of such a multimode coherence. It is just here that all the genes should be put to work, and cell-division and accumulation of protein in them by way of standard mechanisms of mitosis, DNA transcription and translation are of local value and should be launched into action in accordance with the orders from electromagnetic framework. The process is self-consistent: each cell takes part in electromagnetic framework formation and maintenance in accordance with genome, and the framework, in its turn, coordinates and synchronizes the functioning of the entire organism and all its structures, gives orders for synthesis of the necessary proteins in the respective cells or for multiplication in these or that spots of the necessary cells.

It will take a lot of time and efforts of the great number of specialists for the given scheme of the living matter functioning to be filled with the concrete content. But here, physics of the Alive suggests the way out of the dead-end where the modern biology found itself being limited by short-range forces of chemical interactions. The hope for successful advances we see in methodological foundation of physics of the Alive and its experimental basis: the proof of electromagnetic nature of the

Chinese meridians and direct registration of a human's non equilibrium mm-radiation component [3].

To p. 8. As it is known, papillary lines are formed at the 14-th week of an embryo development. Just at this time gristly tissue hardens, turning into osseous tissue. From the standpoint of physics of the Alive this means that there appears the possibility of reflection of the running electromagnetic wave from the bone and formation of the meridian system. Maintaining of stability of an organism's coherent field is ensured by the condition of falling of the running wave from inside upon the skin surface over BAP at an angle equal or bigger than the angle of the complete internal reflection. On reaching the finger-tips, the wave is reflected from the nails, forming interferential picture of a standing wave. These are the structures which we observe as a papillary pattern. The distance between the maxima (or the minima) is determined by half of electromagnetic wave length in a substance and surface curvature of soft flesh of finger-tips. Taking into account that in aqueous solution dielectric permittivity ϵ for the frequency (50-60)GHz equals 30, the refraction index n will comprise ≈ 5.5 ($n = \sqrt{\epsilon}$) and, consequently, at the wavelength in the atmosphere $\lambda_{extern.} = (5 \div 6)$ mm in an

organism $\lambda_{intern} = \frac{\lambda_{extern.}}{n} \approx 1$ mm, and $\frac{\lambda}{2} = 0.5$ mm which

corresponds (with accuracy up to surface curvature of finger-tips) to our observation. Watching the papillary lines we see manifestation of characteristic eigenfrequencies of an organism.

To. p. 9. Multivaried differential stability of the Alive, i.e., existence of the species, genera of vegetable and animal kingdom parallel with peculiarities of each concrete individual permits us to make a suggestion that coherent fields represent genome not only of each stand-alone organism but there exists the hierarchy of coherent structures providing the global species and generic identity of the Alive. Naturally, these coherences are realized in other frequency ranges. Such an approach ensures the universal world coherence with the coherence volume approaching the infinity. As is well-known, within coherence volume, time and energy are connected by uncertainty relation, i.e., they are losing Newtonian determinism. It means that being lighted up with coherent reference beam (holographic term), the picture of the world may reveal itself in the infinite space and time which becomes accessible to the saints, clairvoyants, prophets, Tibet lamas.

The ideas of existence of material (and we add also spiritual) world unity was intuitively felt by scientists-naturalists at various stages of the

west civilization development and was proclaimed as some universal principles. They gave rise to the origin of the modern optics (Fermat's principle of the shortest optical way) and mechanics (Maupertui's the least action principle). In the absence of the ideas about physical reality of the fields, in the science of XVII-XIX centuries the role of the above said long-range action carriers was imposed upon certain material substances (ether, phlogiston), which were not detected by way of experiment. This fact have not perceptibly hampered the development of physical and chemical sciences that overpassed the difficulties of explaining of the experimental results without involving of the long-range action, just by introduction of the principles which cannot be proved. For example, the statement that the light beam in the medium is spreading along the shortest optical way (or in the way of the minimum spreading time) underlies all the laws of geometrical optics. But one can put a question: how does the light beam (or the light front) "know" which of the ways is the shortest one. The similar picture can be observed in mechanics, when it turns out that a body in the field of forces moves by a trajectory along which a certain integral termed "action" is minimal

$$(S = \int_{t_0}^t L(\vec{R}(\tau), \vec{V}(\tau)) dt, \text{ where } L \equiv T - U \text{ is Lagrange function) and}$$

in electrical engineering when we state: "current runs over the least losses path".

But the state of the art with sciences concerned with the alive was much worse. The absence of the registered long-range action carriers has thrown a number of biological sciences' trends back to marginality domain, at best, and even were prohibited, persecuted, ostracized. This is true regarding clairvoyance, telepathy, telekinesis, astrology, alchemy, extrasensorics, searching with a rod, acupuncture (during some hundreds of years), etc.

Hypothetical possibility of origination of a living organism in the absolute emptiness of the universe exceptionally as a result of chemical reagents interactions of two genital cells, gave birth to atheistic orgy, illusion of superpermission, the consequences of which we encounter not only in the former USSR ("men-screws"; heredity negation), but even now, regarding unworthy boom connected with cloning. How can one seriously discuss artificial (in essence) cultivation of human beings in vitro with the desired faculties and traits of character, create artificial intelligence, etc. in a situation when it is known that not a single person has ever managed (and will not be able) to reproduce a human individual

outside the mother's womb (in the language of quantum physics - outside her electromagnetic framework).

It should be recognized that nowadays we have no direct experimental confirmations of existence of the universal nature coherence which can be associated, as we believe, with God. The following indirect evidence testifies in favour of such point of view:

- 1) Availability of non equilibrium mm-range radiation component was registered not only in a human but also in certain specific objects of inanimate nature, specific in the sense that they are included in a megastructure of human vital activity. Among them are precious stones, precious metals, marble at the temperature and humidity of Rome thermae, certain sorts of wooden building materials at the definite humidity and temperature, the mammals' bones, etc. Our radiometric system cannot as yet register the differential spectra of a human's characteristic eigenfrequencies. However, forms and amplitudes of the integral spectra remaining within measurement range of (50 ± 70) GHz prove to be different for above said different objects, the same as they are different for various people and undergo changes depending on their physiological state [5].
- 2) Experiments on study of division of single unicellular organisms placed in electromagnetic screen testify to the existence of long-range communication, electromagnetic in its nature, among the individuals of one species kind, determining its most important peculiarities and species differentiation [6]. One of the main outwardly observable species characteristics of unicellular organisms is, as a rule, their division period. Thus, it turned out that an insulated cell loses this information: it either does not get divided at all, or its division periods vary so much that the statistical mean value, so well-known for the concrete cell-type, cannot be registered.

These observations submit indirect confirmation of a hypothesis about existence of the coherent fields hierarchy ensuring the field-based unity of the world.

- 3) In 1985, I visited Khabarovsk (east end of the former USSR) and got acquainted there with impressive results obtained in Khabarovsk by Chinese researcher Tsian-Kan-Chzhen in the study of the plants and animals morphosis induced by other plants and animals species in the situation of selective electromagnetic screening*.

* The given investigations of the Chinese scientist arouse from time to time the interest in mass media, but we have not come across his publications in scientific

Hypothesis that the global world unity is realized through the hierarchy of coherent electromagnetic fields in different frequency ranges opens the possibility of including such phenomena as clairvoyance,

editions, except for a brief annotation of the application for discovery (1974) "Biosuperhighfrequency communication between organisms and tissues" and several letters-solicitations sent by him to the scientific centers of the former USSR (and, firstly, to the Far East scientific centre of Academy of Sciences of the USSR). That is why, stating the results of the scientific work of the Chinese colleague we cannot point out the respective reference and have to describe them from the standpoint of our own view. To some extent, this is justified, since after the first acquaintance in September, 1985, I (S.P.S.) often discussed with Mr. Tsian-Kan-Chzhen his results and solicited in the scientific and administrative structures of the Far East region for allowing him the necessary conditions for work. And even more than that, specially for this theme, there was organized the Khabarovsk branch of our Kiev temporary scientific collective, within the scientific program "Otklik", with which Mr. Tsian-Kan-Chzhen has collaborated (in the late 80s) but not for a long time. Superficially, the Tsian-Kan-Chzhen's scheme of experiments was as follows. Two voluminous resonators, whose dimensions are sufficiently large for the purpose of the prolonged accommodating there of the animals (goats, rabbits, ducks, hens) in rather normal conditions, or germinating of the plants (wheat, maize), are scattered at the distance 10-15 m and connected by hollow box waveguide with the boundary wavelength about 20 cm. In this way, inside the system, there is provided not only screening from the external electromagnetic fields (EMF), but also a certain frequency selection is realized for the EMF sources, placed in resonators. Tsian-Kan-Chzhen had at his disposal a lot of interesting results for various pairs of plants and animals, placed in resonators. I'll give an example of only two experiments: their photos and even some samples were kindly presented to me by the Chinese colleague.

Experiment №1. An adult she-goat, being in the period of genital maturity, was placed into one of the resonators. The second resonator gave shelter to a pregnant rabbit in the first hours after impregnation. In such "co-habitation" this pair have stayed during the whole time of the rabbits bearing. As a result, little rabbits were born with morphogenetical features of a goat, the morphoses with the horns growing from the mouth.

Experiment №2. In one resonator there is wheat in the period of forming ears, in another one – sprouting maize seeds planted into the earth. In the result, the maize has arisen, whose corn-cobs had the wheat awns.

Morphosis of the rabbit was preserved in alcohol, and several corn-cobs of maize-wheat were just given to me (S. P. S.) as a present.

The fantastic, at the first sight, results find qualitative explication in the notions of physics of the Alive taking into account the hypothesis about the coherent fields hierarchy, providing the unity and entirety of the world. Really so, the waveguide-resonator complex distorts the coherent species fields ensuring, in a common situation, the stability of the rabbit and the maize species, and the information from the other species, transferred by a waveguide, being superimposed, may form a false quasicohherent species field. As a result, the characteristic eigenfrequencies of the rabbits being born, and the sprouting maize, will be distorted. But, as it was already elucidated, it is just characteristic eigenfrequencies that determine the morphological peculiarities of an organism.

extrasensorics, prediction of the future, etc. in the orbit of scientific interests, because within coherence volume, as it is known, the uncertainty relation is fulfilled when for an observer who uses for reading the reference coherent beam with the definite characteristics, the notions of time, energy, space lose their meanings habitual for classical views.

We believe that the development of the animate and inanimate nature changes these coherent fields, enriching them with new polarization and phase-frequency information. In this way, the Lord does not give people the test tasks but develops together with Nature, and, in the first turn, with development of mankind. Each man, having been born, receives the information about this world from a multimode coherent world field by way of resonance in accordance with his characteristic eigenfrequencies. The life (acquiring of knowledge, skills, experience, passions, emotions) enriches the spectrum of characteristic eigenfrequencies of a concrete human and herewith the spectrum of the general world field, i.e. the Lord. It is just in this sense that the Biblical expression "A man is created in the image and likeness of God" should be interpreted, as we see it. The development of God together with the development of the world and the mankind, in the first turn, is obviously demonstrated by the history of Christian teaching: God of the New Testament differs radically from God of the Old Testament, and the nations whose religion does not recognize this dynamics seem nowadays as barbarians though the civilized...

It is considered that in the process of living a man conceives three Wonders: Wonder of Conception, Wonder of Birth and Wonder of Death. It is not in vain that the three mentioned mysteries are subconsciously guarded against curious glances capable of disturbing them, the same as it is enough to "throw a glance" at one of the coherent beams and the interferential picture is destroyed.

From the standpoint of physics of the Alive each of the Wonders is treated as the respective non equilibrium phase transition.

At the moment of conception due to emotional outburst the temporary joining of electromagnetic frameworks of a man and a woman takes place followed by formation of the special point in zygote around which the various trajectories of electromagnetic framework can be twined in a phase space of an organism's parameters. In accordance with Poincaré's classification of nonlinear differential equations solutions, these trajectories are called the limit cycle, knot, focus, saddle. Only one of these solutions – the closed limit cycle – corresponds to the life. The limit cycles are mathematical formalization of the meridians (channels) – the closed trajectories of the running coherent electromagnetic waves in the structure of a human's electromagnetic framework. The full-value

sexual act accompanying conception is envisaged by Nature for joining of the electromagnetic frameworks of the partners and its substitutional replacement by a test-tube in an attempt to observe Wonder may cost a very high price for the subsequent generations.

At the moment of birth non equilibrium phase transition is stipulated by the start of independent functioning of a child's electromagnetic framework, its separation from electromagnetic framework of the mother. Transition from brachial to pulmonary respiration is connected with it.

At the moment of death there cease to exist the electromagnetic framework, the meridian system and, consequently, the limit cycles system. At the phase surface, these solutions are substituted by divergent focus (the spiral of the Archimedean screw type). It is interesting to note that with the real electrodynamic parameters of organic structures it is possible to estimate the relative time of untwining of successive revolutions of this spiral: $9:40:(365 \pm 10)$. It is evident that this corresponds to Christian tradition of bidding farewell to the deceased.

It would be naive to think that adoption of coherent-quantum paradigm in biology in itself solves all the problems connected with the life phenomenon. However, we believe that the fundamental biology problems acquire the new colouring in the light of the ideas of modern natural sciences, Physics of the Alive, in the first place.

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