



Physical Foundations of Quantum Psychology

Fran de Aquino

► To cite this version:

| Fran de Aquino. Physical Foundations of Quantum Psychology. 2007. hal-01128791

HAL Id: hal-01128791

<https://hal.science/hal-01128791>

Preprint submitted on 10 Mar 2015

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Physical Foundations of Quantum Psychology

Fran De Aquino

Maranhao State University, Physics Department, S.Luis/MA, Brazil.

Copyright © 2007 by Fran De Aquino. All Rights Reserved.

Abstract: The existence of imaginary mass associated to the neutrino is already well-known. Although its imaginary mass is not physically observable, its square is. This amount is found experimentally to be negative. Recently, it was shown that *quanta* of imaginary mass exist associated to the *electron* and the *photon* too. These imaginary masses have unusual properties that violate the Parity Conservation Principle. The non-conservation of the parity is also found in the weak interactions, and possibly can be explained by means of the existence of the imaginary masses. Also protons and neutrons would have imaginary masses associated to them and, in this way, atoms and molecules would also have imaginary masses directly proportional to their atomic and molecular masses. The Parity Conservation Principle holds that the material particles are not able to distinguish their right from their left. The non-conservation of the parity would necessarily imply capability of "choice". Thus, as the particles with imaginary mass don't conserve the parity, they would have the elementary capability of "choosing between their right or left". Where there is "choice" isn't there also psychism, by definition? This fundamental discovery shows that, in some way, the consciousnesses are related to the imaginary masses. This fact, make it possible to redefine Psychology on a Quantum Physics basis.

Key words: Quantum Psychology, Quantized Fields, Unification and Mass Relations, Quantum Mechanics, Bose-Einstein Condensation, Origin of the Universe.

PACs: 03.70.+k; 12.10.Kt; 14.80.Cp; 03.65.-w; 03.75.Nt; 98.80.Bp.

1. INTRODUCTION

In the last decades it has become evident that the theoretical foundations of Natural Sciences are based on Physics. Today's Chemistry is completely based on Quantum Mechanics, Quantum Statistics, Thermodynamics and Kinetic Physics. Also Biology becomes progressively based on Physics, as more and more biological phenomena are being described on the basis of Quantum Physics. Modern Biophysics is now considered a branch of Physics and no longer a secondary part of Biology and Physiology. As regards Psychology, there are recently several authors making use of Quantum Physics in order to explain psychic phenomena [1,2].

The idea of psyche associated with matter dates back to the pre-Socratic period and is usually called *panpsychism*. Remnants of organized panpsychism may be found in the *Uno* of Parmenides or in Heracleitus's *Divine Flux*. Scholars of Miletus's school were called *hylozoists*, that is, "those who believe that matter is alive". More recently, we will find the panpsychistic thought in Spinoza, Whitehead and Teilhard de Chardin, among others. The latter one admitted the existence of proto-conscious properties at level of elementary particles.

Generally, the people believe that there is some type of psyche associated to the animals, and some biologists agree that even very simple animals like the ameba and the sea anemone are endowed with psychism. This led several authors to consider the possibility of the psychic phenomena to be described in a theory based on Physics [3,4,5,6].

This work presents a possible theoretical foundation for Psychology based on Quantum Physics, starting from discoveries published in a recent article [7], where it is shown that there is a *quantum* of *imaginary mass* associated to the electron, which would be equivalent to an elementary particle that does not conserves the *parity*. Thus, besides its *inertial mass* the electron would have an *imaginary mass* that would have elementary capacity of "choice". The theory here presented describes the structures

and the interaction between these imaginary particles and also explain their relations with the matter on all levels, from the atom to man. In addition, it gives us a better understanding of life and a more complete cosmological view, which lead us to understand our relationship with ourselves, with others, with the Universe and with God.

2. THEORY

It was shown [7] that *quanta* of imaginary mass exist associated to the *electron* and the *photon* and that these imaginary masses would have psychic properties (elementary capacity of “choice”). Thus, we can say that, besides its inertial mass, the electron would have a psychic mass, given by

$$m_{\Psi_{electron}} = m_{g(imaginary)electron} = \frac{4}{\sqrt{3}} \left(\frac{hf_{electron}}{c^2} \right) i = \frac{4}{\sqrt{3}} m_{i(real)electron} i \quad (01)$$

Where $m_{i(real)electron} = 9.11 \times 10^{-31} \text{ kg}$ is the *real* inertial mass of the electron. In the case of the photons, it was shown that the *imaginary gravitational* mass of the photon is: $m_{g(imaginary)photon} = \frac{4}{\sqrt{3}} \left(\frac{hf}{c^2} \right) i$. Therefore, the psychic mass associated to a photon with frequency f is expressed by the following equation:

$$m_{\Psi_{photon}} = m_{g(imaginary)photon} = \frac{4}{\sqrt{3}} \left(\frac{hf}{c^2} \right) i \quad (02)$$

The equation of *quantization of mass* [7], in the generalized form is expressed by: $m_{g(imaginary)} = n^2 m_{g(imaginary)(min)}$. Thus, we can also conclude that the psychic mass is also quantized, due to $m_{\Psi} = m_{g(imaginary)}$, i.e.,

$$m_{\Psi} = n^2 m_{\Psi(min)} \quad (03)$$

Where

$$m_{\Psi(min)} = \frac{4}{\sqrt{3}} \left(hf_{min} / c^2 \right) i = \frac{4}{\sqrt{3}} m_{i(real)min} i \quad (04)$$

The *minimum quantum* of real inertial mass in the Universe, $m_{i(real)min}$, is given by [7]:

$$m_{i(real)min} = \pm h\sqrt{3/8} / cd_{max} = \pm 3.9 \times 10^{-73} \text{ kg} \quad (05)$$

By analogy to Eq. (01), the expressions of the psychic masses associated to the *proton* and the *neutron* are respectively given by:

$$m_{\Psi_{proton}} = m_{g(imaginary)proton} = \frac{4}{\sqrt{3}} \left(hf_{proton} / c^2 \right) i = \frac{4}{\sqrt{3}} m_{i(real)proton} i \quad (06)$$

$$m_{\Psi_{neutron}} = m_{g(imaginary)neutron} = \frac{4}{\sqrt{3}} \left(hf_{neutron} / c^2 \right) i = \frac{4}{\sqrt{3}} m_{i(real)neutron} i \quad (07)$$

Where f_{proton} and $f_{neutron}$ are respectively the frequencies of the DeBroglie's waves associated to the proton and the neutron.

Thus, from a quantum viewpoint, the psychic particles are similar to the material particles, so that we can use the Quantum Mechanics to describe the psychic particles. In this case, by analogy to the material particles, a particle with psychic mass m_ψ will be described by the following expressions:

$$\vec{p}_\psi = \hbar \vec{k}_\psi \quad (08)$$

$$E_\psi = \hbar \omega_\psi \quad (09)$$

Where $\vec{p}_\psi = m_\psi \vec{V}$ is the *momentum* carried by the wave and E_ψ its energy; $|\vec{k}_\psi| = 2\pi/\lambda_\psi$ is the *propagation number* and $\lambda_\psi = h/m_\psi V$ the *wavelength* and $\omega_\psi = 2\pi f_\psi$ its *cyclic frequency*.

The variable quantity that characterizes DeBroglie's waves is called *Wave Function*, usually indicated by Ψ . The wave function associated to a material particle describes the dynamic state of the particle: its value at a particular point x, y, z, t is related to the probability of finding the particle in that place and instant. Although Ψ does not have a physical interpretation, its square Ψ^2 or $\Psi \Psi^*$ calculated for a particular point x, y, z, t is *proportional to the probability of experimentally finding the particle in that place and instant*.

Since Ψ^2 is proportional to the probability P of finding the particle described by Ψ , the integral of Ψ^2 on the *whole space* must be finite – inasmuch as the particle is someplace. Therefore, if

$$\int_{-\infty}^{+\infty} \Psi^2 dV = 0 \quad (10)$$

The interpretation is that the particle does not exist. However, if

$$\int_{-\infty}^{+\infty} \Psi^2 dV = \infty \quad (11)$$

the particle will be everywhere simultaneously (Omnipresence).

The wave function Ψ corresponds, as we know, to the displacement y of the undulatory motion of a rope. However, Ψ as opposed to y , is not a measurable quantity and can, hence, be a *complex* quantity. For this reason, it is admitted that Ψ is described in the x -direction by

$$\Psi = B e^{-\left(2\pi i/\hbar\right)(Et - px)} \quad (12)$$

This equation is the mathematical description of the wave associated with a free material particle, with total energy E and *momentum* p , moving in the direction $+x$.

As concerns the psychic particle, the variable quantity characterizing psyche waves will also be called wave function, denoted by Ψ_ψ (to differentiate it from the material particle wave function), and, by analogy with equation Eq. (12), expressed by:

$$\Psi_{\psi} = \Psi_0 e^{-(2\pi i/h)(E_{\psi}t - p_{\psi}x)} \quad (13)$$

If an experiment involves a large number of identical particles, all described by the same wave function Ψ , *real* density of mass ρ of these particles in x, y, z , t is proportional to the corresponding value Ψ^2 (Ψ^2 is known as *density of probability*). If Ψ is *complex* then $\Psi^2 = \Psi\Psi^*$. Thus, $\rho \propto \Psi^2 = \Psi\Psi^*$). Similarly, in the case of psychic particles, the *density of psychic mass*, ρ_{ψ} , in x, y, z , will be expressed by $\rho_{\psi} \propto \Psi_{\psi}^2 = \Psi_{\psi}\Psi_{\psi}^*$. It is known that Ψ_{ψ}^2 is always *real* and *positive* while $\rho_{\psi} = m_{\psi}/V$ is an *imaginary* quantity. Thus, as the *modulus* of an imaginary number is always real and positive, we can transform the proportion $\rho_{\psi} \propto \Psi_{\psi}^2$, in equality in the following form:

$$\Psi_{\psi}^2 = k|\rho_{\psi}| \quad (14)$$

Where k is a *proportionality constant* (real and positive) to be determined.

In Quantum Mechanics we have studied the *Superposition Principle*, which affirms that, if a particle (or system of particles) is in a *dynamic state* represented by a wave function Ψ_1 and may also be in another dynamic state described by Ψ_2 then, the general dynamic state of the particle may be described by Ψ , where Ψ is a linear combination (superposition) of Ψ_1 and Ψ_2 , i.e.,

$$\Psi = c_1\Psi_1 + c_2\Psi_2 \quad (15)$$

Complex constants c_1 e c_2 respectively indicate the percentage of dynamic state, represented by Ψ_1 e Ψ_2 in the formation of the general dynamic state described by Ψ .

In the case of psychic particles (psychic bodies, consciousness, etc.), by analogy, if $\Psi_{\psi_1}, \Psi_{\psi_2}, \dots, \Psi_{\psi_n}$ refer to the different dynamic states the psychic particle assume, then its general dynamic state may be described by the wave function Ψ_{ψ} , given by:

$$\Psi_{\psi} = c_1\Psi_{\psi_1} + c_2\Psi_{\psi_2} + \dots + c_n\Psi_{\psi_n} \quad (16)$$

The state of superposition of wave functions is, therefore, common for both psychic and material particles. In the case of material particles, it can be verified, for instance, when an electron changes from one orbit to another. Before effecting the transition to another energy level, the electron carries out “virtual transitions” [8]. A kind of *relationship* with other electrons before performing the real transition. During this relationship period, its wave function remains “*scattered*” by a *wide region of the space* [9] thus superposing the wave functions of the other electrons. In this relationship the electrons *mutually* influence each other, with the possibility of *intertwining* their wave functions¹. When this happens, there occurs the so-called *Phase Relationship* according to quantum-mechanics concept.

¹ Since the electrons are simultaneously waves and particles, their wave aspects will interfere with each other; besides superposition, there is also the possibility of occurrence of *intertwining* of their wave functions.

In the electrons “virtual” transition mentioned before, the “listing” of all the possibilities of the electrons is described, as we know, by *Schrödinger’s wave equation*. Otherwise, it is general for material particles. By analogy, in the case of psychic particles, we may say that the “listing” of all the possibilities of the psyches involved in the relationship will be described by *Schrödinger’s equation* – for psychic case, i.e.,

$$\nabla^2 \Psi_{\psi} + \frac{P_{\psi}^2}{\hbar^2} \Psi_{\psi} = 0$$

Because the wave functions are capable of intertwining themselves, the quantum systems may “penetrate” each other, thus establishing an internal relationship where all of them are affected by the relationship, no longer being isolated systems but becoming an integrated part of a larger system. This type of internal relationship, which exists only in quantum systems, was called *Relational Holism* [10].

It is a proven quantum fact that a wave function may *collapse*, and that, at this moment, all the possibilities that it describes are suddenly expressed in *reality*. This means that, through this process, particles can be suddenly *materialized*. Similarly, the collapse of the psychic wave function must suddenly also express in reality all the possibilities described by it. This is, therefore, a *point of decision* in which there occurs the compelling need of realization of the *psychic form*. Thus, this is moment in which the content of the psychic form realizes itself in the space-time. For an observer in space-time, something is *real* when it is under a matter or radiation form. Therefore, the content of the psychic form may realize itself in space-time exclusively under the form of radiation, that is, it does not materialize. This must occur when the *Materialization Condition* is not satisfied, i.e., when the content of the psychic form is undefined (impossible to be defined by its own psychic) or it does not contain enough psychic mass to *materialize*² the respective psychic contents.

Nevertheless, in both cases, there must always be a production of “virtual” photons to convey the psychic interaction to the other psychic particles, according to the quantum field theory, only through this type of quanta will interaction be conveyed, since it has an infinite reach and may be either attractive or repulsive, just as electromagnetic interaction which, as we know, is conveyed by the exchange of “virtual” photons.

If electrons, protons and neutrons have psychic mass, then we can infer that the psychic mass of the atoms are *Phase Condensates*³. In the case of the molecules the situation is similar. More molecular mass means more atoms and consequently, more psychic mass. In this case the phase condensate also becomes more structured because the great amount of elementary psyches inside the condensate requires, by stability reasons, a better distribution of them. Thus, in the case of molecules with very large molecular masses (*macromolecules*) it is possible that their psychic masses already constitute the most organized shape of a Phase Condensate, called Bose-Einstein Condensate⁴.

² By this we mean not only materialization proper but also the movement of matter to realize its psychic content (including radiation).

³ Ice and NaCl crystals are common examples of imprecisely-structured *phase condensates*. Lasers, super fluids, superconductors and magnets are examples of phase condensates more structured.

⁴ Several authors have suggested the possibility of the Bose-Einstein condensate occurring in the brain, and that it might be the physical base of memory, although they have not been able to find a suitable mechanism to underpin such a hypothesis. Evidences of the existence of Bose-Einstein condensates in living tissues abound (Popp, F.A *Experientia*, Vol. 44, p.576-585; Inaba, H., *New Scientist*, May89, p.41; Rattermeyer, M and Popp, F. A. *Naturwissenschaften*, Vol.68, N°5, p.577.)

The fundamental characteristic of a Bose-Einstein condensate is, as we know, that the various parts making up the condensed system not only behave as a whole but also *become a whole*, i.e., in the psychic case, the various consciousnesses of the system become a *single consciousness* with psychic mass equal to the sum of the psychic masses of all the consciousness of the condensate. This obviously, increases the available knowledge in the system since it is proportional to the psychic mass of the consciousness. This unity confers an *individual* character to this type of consciousness. For this reason, from now on they will be called *Individual Material Consciousness*.

It derives from the above that most bodies do not possess individual material consciousness. In an iron rod, for instance, the cluster of elementary psyches in the iron molecules does not constitute Bose-Einstein condensate; therefore, the iron rod does not have an individual consciousness. Its consciousness is consequently, much more simple and constitutes just a phase condensate imprecisely structured made by the consciousness of the iron atoms.

The existence of consciousnesses in the atoms is revealed in the molecular formation, where atoms with strong mutual affinity (their consciousnesses) combine to form molecules. It is the case, for instance of the water molecules, in which two Hydrogen atoms join an Oxygen atom. Well, how come the combination between these atoms is always the same: the same grouping and the same invariable proportion? In the case of molecular combinations the phenomenon repeats itself. Thus, the chemical substances either mutually attract or repel themselves, carrying out specific motions for this reason. It is the so-called *Chemical Affinity*. This phenomenon certainly results from a specific interaction between the consciousnesses. From now on, it will be called *Psychic Interaction*.

Mutual Affinity is a dimensionless psychic quantity with which we are familiar and of which we have perfect understanding as to its meaning. The degree of *Mutual Affinity*, A , in the case of two consciousnesses, respectively described by Ψ_{Ψ_1} e Ψ_{Ψ_2} , must be correlated to $\Psi_{\Psi_1}^2$ e $\Psi_{\Psi_2}^2$ ⁵. Only a simple algebraic form fills the requirements of interchange of the indices, the product

$$\Psi_{\Psi_1}^2 \cdot \Psi_{\Psi_2}^2 = \Psi_{\Psi_2}^2 \cdot \Psi_{\Psi_1}^2 = |A_{1,2}| = |A_{2,1}| = |A| \quad (17)$$

In the above expression, $|A|$ is due to the product $\Psi_{\Psi_1}^2 \cdot \Psi_{\Psi_2}^2$ will be always positive. From equations (17) and (14) we get

$$|A| = \Psi_{\Psi_1}^2 \cdot \Psi_{\Psi_2}^2 = k^2 |\rho_{\Psi_1}| |\rho_{\Psi_2}| = k^2 \frac{|m_{\Psi_1}|}{V_1} \frac{|m_{\Psi_2}|}{V_2} \quad (18)$$

⁵ Quantum Mechanics tells us that Ψ does not have a physical interpretation nor a simple meaning and also it cannot be experimentally observed. However such restriction does not apply to Ψ^2 , which is known as *density of probability* and represents the probability of finding the body, described by the wave function Ψ , in the point x, y, z at the moment t. A large value of Ψ^2 means a strong possibility to find the body, while a small value of Ψ^2 means a weak possibility to find the body.

The psychic interaction can be described starting from the psychic mass because the psychic mass is the source of the psychic field. Basically, *the psychic mass is gravitational mass*, since $m_\psi = m_{g(imaginary)}$. In this way, the equations of the gravitational interaction are also applied to the Psychic Interaction. That is, we can use Einstein's General Relativity equations, given by:

$$R_i^k = \frac{8\pi G}{c^4} \left(T_i^k - \frac{1}{2} \delta_i^k T \right) \quad (19)$$

in order to describe the Psychic Interaction. In this case, the expression of the energy-momentum tensor, T_i^k , must have the following form [11]:

$$T_i^k = |\rho_\psi| c^2 \mu_i \mu^k \quad (20)$$

The psychic mass density, ρ_ψ , is a imaginary quantity. Thus, in order to homogenize the above equation it is necessary to put $|\rho_\psi|$ because, as we know, the module of an imaginary number is always real and positive.

Making on the transition to Classical Mechanics [12] one can verify that Eqs. (19) are reduced to:

$$\Delta\Phi = 4\pi G |\rho_\psi| \quad (21)$$

This is, therefore, the equation of the psychic field in *nonrelativistic* Mechanics. With respect to its form, it is similar to the equation of the gravitational field, with the difference that now, instead of the density of gravitational mass we have the density of *psychic mass*. Then, we can write the general solution of Eq. (21), in the following form:

$$\Phi = -G \int \frac{|\rho_\psi| dV}{r^2} \quad (22)$$

This equation expresses, with nonrelativistic approximation, the potential of the psychic field of any distribution of psychic mass.

Particularly, for the potential of the field of only one particle with psychic mass m_{ψ_1} , we get:

$$\Phi = -\frac{G|m_{\psi_1}|}{r} \quad (23)$$

Then the force produced by this field upon another particle with psychic mass m_{ψ_2} is

$$\left| \vec{F}_{\psi_{12}} \right| = \left| -\vec{F}_{\psi_{21}} \right| = -|m_{\psi_2}| \frac{\partial \Phi}{\partial r} = -G \frac{|m_{\psi_1}| |m_{\psi_2}|}{r^2} \quad (24)$$

By comparing equations (24) and (18) we obtain

$$\left| \vec{F}_{\psi_{12}} \right| = \left| -\vec{F}_{\psi_{21}} \right| = -G|A| \frac{V_1 V_2}{k^2 r^2} \quad (25)$$

In the *vectorial* form the above equation is written as follows

$$\vec{F}_{\psi_{12}} = -\vec{F}_{\psi_{21}} = -GA \frac{V_1 V_2}{k^2 r^2} \hat{\mu} \quad (26)$$

Versor $\hat{\mu}$ has the direction of the line connecting the mass centers (psychic mass) of both particles and oriented from m_{ψ_1} to m_{ψ_2} .

In general, we may distinguish and quantify two types of mutual affinity: *positive* and *negative (aversion)*. The occurrence of the first type is synonym of

psychic *attraction*, (as in the case of the atoms in the water molecule) while the aversion is synonym of *repulsion*. In fact, Eq. (26) shows that the forces $\vec{F}_{\Psi_{12}}$ and $\vec{F}_{\Psi_{21}}$ are attractive, if A is *positive* (expressing *positive* mutual affinity between the two *psychic bodies*), and repulsive if A is *negative* (expressing *negative* mutual affinity between the two *psychic bodies*). Contrary to the interaction of the matter, where the opposites attract themselves here, the *opposites repel themselves*.

A method and device to obtain images of *psychic bodies* have been previously proposed [13]. By means of this device, whose operation is based on the gravitational interaction and the piezoelectric effect, it will be possible to observe psychic bodies.

Expression (18) can be rewritten in the following form:

$$A = k^2 \frac{m_{\Psi_1}}{V_1} \frac{m_{\Psi_2}}{V_2} \quad (27)$$

The psychic masses m_{Ψ_1} and m_{Ψ_2} are *imaginary* quantities. However, the product $m_{\Psi_1} \cdot m_{\Psi_2}$ is a *real* quantity. One can then conclude from the previous expression that the degree of mutual affinity between two consciousnesses depends basically on the densities of their psychic masses, and that:

- 1) If $m_{\Psi_1} > 0$ and $m_{\Psi_2} > 0$ then $A > 0$ (positive mutual affinity between them)
- 2) If $m_{\Psi_1} < 0$ and $m_{\Psi_2} < 0$ then $A > 0$ (positive mutual affinity between them)
- 3) If $m_{\Psi_1} > 0$ and $m_{\Psi_2} < 0$ then $A < 0$ (negative mutual affinity between them)
- 4) If $m_{\Psi_1} < 0$ and $m_{\Psi_2} > 0$ then $A < 0$ (negative mutual affinity between them)

In this relationship, such as occurs in the case of material particles (“virtual” transition of the electrons previously mentioned), the consciousnesses interact mutually, *intertwining* or not their wave functions. When this happens, there occurs the so-called *Phase Relationship* according to quantum-mechanics concept. Otherwise a *Trivial Relationship* takes place.

The psychic forces such as the gravitational forces, must be very weak when we consider the interaction between two particles. However, in spite of the subtleties, those forces stimulate the relationship of the consciousnesses with themselves and with the Universe (Eq.26).

From all the preceding, we perceive that Psychic Interaction – unified with matter interactions, constitutes a single *Law* which links things and beings together and, in a network of continuous relations and exchanges, governs the Universe both in its material and psychic aspects. We can also observe that in the interactions the same principle reappears always identical. This *unity of principle* is the most evident expression of *monism* in the Universe.

3. UNIFIED COSMOLOGY

In traditional Cosmology, the Universe arises from a great explosion where everything that exists would be initially concentrated in a minuscule particle with the size of a proton and with a gigantic mass equal to the mass of the Universe. However, the origin this tiny particle is not explained, nor is the reason for its critical volume.

This critical volume denotes *knowledge* of what would happen with the Universe starting from that *initial condition*, a fact that points towards the *existence* of a Creator.

It was shown that a wave function may *collapse* and, at this moment, all the possibilities that it describes are suddenly expressed in *reality*. This means that, through this process, particles can be suddenly *materialized*. This is a materialization process which can explain the materialization of the Universe. That is, the Primordial Universe would have arisen at the exact moment in which the *Primordial Wave Function* collapsed (Initial Instant) realizing the content of the psychic form generated at the consciousness of the Creator when He *thought* to create the Universe.

The psychic form described by this primordial wave function must have been generated in a consciousness with a psychic mass much greater than that needed to materialize the Universe (material and psychic).

This giant consciousness, in its turn, would not only be the greatest of all consciousnesses in the Universe but also the *substratum* of everything that exists and, obviously, everything that exists would be entirely contained within it, including *all the spacetime*.

Based on General Theory of Relativity and recent cosmological observations, it is known today that the Universe occupies a space of positive curvature. This space, as we know, is "closed in itself", its volume is finite but, clearly understood, the space has no frontiers, it is *unlimited*. Thus, if the consciousness we refer to contains *all* the space, its volume is necessarily infinite, consequently having an *infinite* psychic mass.

This means that It contains *all* the existing psychic mass and, therefore, any other consciousness that may exist will be contained in It. Hence, we may conclude that It is the *Supreme Consciousness* and that there no other equal to It: It is *unique*.

The manifestation of the knowledge or *auto-accessible knowledge* in a consciousness should be related to its quantity of psychic mass. In the Supreme Consciousness, whose psychic mass is infinite, the manifestation of the knowledge is *total*, and as such, necessarily, It should be *omniscient*. In the *elementary psyche* ($m_{\psi(min)}$) most of the knowledge should be in latent state. Being omniscient, the Supreme Conscience knows evidently, how to formulate well-defined mental images and with sufficiently psychic masses in order to materialize their contents (Materialization Condition). Consequently, It can materialize everything which It wants (Omnipotence).

Since the Supreme Consciousness occupies *all the space*, we can conclude that It cannot be displaced by another consciousness, not even by Itself. Therefore, the Supreme Consciousness is *immovable*.

As Augustine says (Gen. Ad lit viii, 20), "The Creator Spirit moves Himself neither by time, nor by place."

Thomas Aquinas also had already considered Creator's *immobility* as necessary:

"From this we infer that it is necessary that the God that moves everything is *immovable*." (Summa Theologica).

On the other hand, since the Supreme Consciousness contains all the space-time, It should contain obviously, *all* the time. More explicit, for the Supreme Consciousness, past, present and future are an eternal present, and the time does not flow as it flows for us.

Within this framework, when we talk about the Creation of the Universe, the use of the verb "to create" means that something that was not came into being, thus presupposing the concept of *time flow*. For the Supreme Consciousness, however, the instant of Creation is mixed up with all other times, consequently there being no "*before*" or "*after*" the Creation and, thus, the following questions like "What did the Supreme Consciousness do *before* Creation?"

We can also infer from the above that the existence of the Supreme Consciousness has no defined limit (beginning and end), which confers upon It the unique characteristic of *uncreated* and *eternal*.

Being eternal, Its wave function Ψ_{sc} shall never collapse. On the other hand, for having an infinite psychic mass, the value of Ψ_{sc} will always be infinite and, hence, in agreement with Eq. (11), the Supreme Consciousness is *simultaneously everywhere*, that is, It is *omnipresent*.

All these characteristics of the Supreme Consciousness (*infinite, unique, uncreated, eternal, omnipresent, omniscient and omnipotent*) coincide with those traditionally ascribed to God by most religions.

The option of the Supreme Consciousness to materialize the primordial Universe into a critical volume denotes the knowledge of what was would happen in the Universe starting from that initial condition. Therefore, It knew how the Universe would behave under already *existing laws*. Consequently, the laws were not created *for the Universe* and, hence, are not "Nature's laws" or "laws placed on Nature by God", as written by Descartes. They already existed as an intrinsic part of the Supreme Consciousness; Thomas Aquinas had a very clear understanding about this. He talks about the Eternal Law "...which exists in God's mind and governs the whole Universe".

The Supreme Consciousness had all freedom to choose the initial conditions of the Universe, but opted for the concentration in a critical volume so that the evolution of the Universe would proceed in the most convenient form for the purpose It had in mind and in accordance with the laws inherent in Its own nature. This reasoning then answers Einstein's famous question: "What level of choice would God have had when building the Universe?"

Apparently, Newton was the first one to notice the Divine option. In his book *Optiks*, he gives us a perfect view of how he imagined the creation of the Universe:

" *It seems possible to me that God, in the beginning, gave form to matter in solid, compacted particles[...] in the best manner possible to contribute to the purpose He had in mind...*"

With what purpose did the Supreme Consciousness create the Universe? This question seems to be difficult to answer. Nevertheless, if we admit the Supreme Consciousness's primordial desire *to procreate*, i.e., to generate

individual consciousnesses from Itself so that the latter could evolve and manifest Its same creating attributes, then we can infer that, in order for them to evolve, such consciousness would need a Universe, and this might have been the main reason for its creation. Therefore, the origin of the Universe would be related to the generation of said consciousness and, consequently, the materialization of the primordial Universe must have taken place at the same epoch when the Supreme Consciousness decided to *individualize* the postulated consciousness, hereinafter called *Primordial Consciousness*.

For having been directly individualized from the Supreme Consciousness, the primordial consciousness certainly contained in themselves, although in a latent state, all the possibilities of the Supreme Consciousness, including the germ of independent will, which enables original starting points to be established. However, in spite of the similarity to Supreme Consciousness, the primordial consciousness could not have the understanding of themselves. This self-understanding only arises with the *creative mental state* that such consciousnesses can only reach by evolution.

Thus, in the first evolutionary period, the primordial consciousness must have remained in total unconscious state, this being then the beginning of an evolutionary pilgrimage from *unconsciousness* to *superconsciousness*.

The evolution of the primordial consciousness in this *unconsciousness* period takes place basically through psychic *relationship* among them (superposition of psychic wave functions, having or not *intertwining*). Thus, the speed at which they evolved was determined by what they obtained in these relationships.

After the origin of the first planets, some of them came to develop favorable conditions for the appearance of macromolecules. These macromolecules, as we have shown, may have a special type of consciousness formed by a Bose-Einstein condensate (Individual Material Consciousness). In this case, since the molecular masses of the macromolecules are very large, they will have individual material consciousness of large psychic mass and, therefore, access to a considerable amount of information in its own consciousness. Consequently, macromolecules with individual material consciousness are potentially very capable and some certainly already can carry out autonomous motions, thus being considered as “living” entities.

However, if we decompose one of these molecules so as to destroy its individual consciousness, its parts will no longer have access to the information which “instructed” said molecule and, hence, will not be able to carry out the autonomous motions it previously did. Thus, the “life” of the molecule disappears – as we can see, *Delbrück’s Paradox* is then solved⁶.

The appearance of “living” molecules in a planet marks the beginning of the most important evolutionary stage for the psyche of matter, for it is from the combination of these molecules that there appear living beings with individual material consciousness with even larger psychic masses.

Biologists have shown that all living organisms existing on Earth come from two types of molecules – aminoacids and nucleotides – which make up the fundamental building blocks of living beings. That is, the nucleotides and

⁶ This paradox ascribed to Max Delbrück (Delbrück, Max., (1978) *Mind from Matter?* American Scholar, 47. pp.339-53.) remained unsolved and was posed as follows: How come the same matter studied by Physics, when incorporated into a living organism, assumes an unexpected behavior, although not contradicting physical laws?

aminoacids are identical in all living beings, whether they are bacteria, mollusks or men. There are twenty different species of aminoacids and five of nucleotides.

In 1952, Stanley Miller and Harold Urey proved that aminoacids could be produced from inert chemical products present in the atmosphere and oceans in the first years of existence of the Earth. Later, in 1962, nucleotides were created in laboratory under similar conditions. Thus, it was proved that the molecular units making up the living beings could have formed during the Earth's primitive history.

Therefore, we can imagine what happened from the moment said molecules appeared. The concentration of aminoacids and nucleotides in the oceans gradually increased. After a long period of time, when the amount of nucleotides was already large enough, they began to group themselves by mutual psychic attraction, forming the molecules that in the future will become DNA molecules.

When the molecular masses of these molecules became large enough, the distribution of elementary psyches in their consciousnesses took the most orderly possible form of phase condensate (Bose-Einstein condensate) and such consciousnesses became the *individual material consciousness*.

Since the psychic mass of the consciousnesses of these molecules is very large (as compared with the psychic mass of the atoms), the amount of self-accessible knowledge became considerable in such consciousnesses and thus, they became apt to *instruct* the joining of aminoacids in the formation of the first proteins (origin of the *Genetic Code*). Consequently, the DNA's capability to serve as guide for the joining of aminoacids in the formation of proteins is fundamentally a result of their psychism.

In the psychic of DNA molecules, the formation of proteins certainly had a definite objective: *the construction of cells*.

During the cellular construction, the most important function played by the consciousnesses of the DNA molecules may have been that of organizing the distribution of the new molecules incorporated to the system so that the consciousnesses of these molecules jointly formed with the consciousness of the system a Bose-Einstein condensate. In this manner, more knowledge would be available to the system and, after the cell is completed, the latter would also have an individual material consciousness.

Afterwards, under the action of psychic interaction, the cells began to group themselves according to different degrees of positive mutual affinity, in an organized manner so that the distribution of their consciousnesses would also form Bose-Einstein condensates. Hence, collective cell units began to appear with individual consciousnesses of larger psychic masses and, therefore, with access to more knowledge. With greater knowledge available, these groups of cells began to perform specialized functions to obtain food, assimilation, etc. That is when the first multi-celled beings appeared.

Upon forming the tissues, the cells gather structurally together in an organized manner. Thus, the tissues and, hence, the organs and the organisms themselves also possess individual material consciousnesses.

The existence of the material consciousness of the organisms is proved in a well-known experiment by Karl Lashley, a pioneer in neurophysiology.

Lashley initially taught guinea pigs to run through a maze, an ability they remember and keep in their memories in the same way as we acquire new

skills. He then systematically removed small portions of the brain tissue of said guinea pigs. He thought that, if the guinea pigs still remembered how to run through the maze, the memory centers would still be intact.

Little by little he removed the brain mass; the guinea pigs, curiously enough, kept remembering how to run through the maze. Finally, with more than 90% of their cortex removed, the guinea pigs still kept remembering how to run through the maze. Well, as we have seen, the consciousness of an organism is formed by the concretion of all its cellular consciousnesses. Therefore, the removal of a portion of the organism cells does not make it disappear. Their cells, or better saying, the consciousnesses of their cells contribute to the formation of the consciousness of the organism just as the others, and it is exactly due to this that, even when we remove almost all of the guinea pigs' cortex, they were still able to remember from the memories of their individual material consciousnesses. In this manner, what Lashley's experiment proved was precisely the existence of individual material consciousnesses in the guinea pigs.

Another proof of the existence of the individual material consciousnesses in organisms is given by the *regeneration* phenomenon, so frequent in animals of simple structure: sponges, isolated coelenterates, worms of various groups, mollusks, echinoderms and tunicates. The arthropods regenerate their pods. Lizards may regenerate only their tail after autoctomy. Some starfish may regenerate so easily that a simple detached arm may, for example, give origin to a wholly new animal.

The organization of the psychic parts in the composition of an organism's individual material consciousness is directly related to the organization of the material parts of the organism, as we have already seen. Thus, due to this interrelationship between body and consciousness, any disturbance of a material (physiological) nature in the body of the being will affect its individual material consciousness, and any psychic disturbance imposed upon its consciousness affects the physiology of its body.

When a consciousness is strongly affected to the extent of unmaking the Bose-Einstein's condensate, which gives it the status of individual consciousness, there also occurs the simultaneous disappearance of the knowledge made accessible by said condensation. Therefore, when a cell's consciousness no longer constitutes a Bose-Einstein condensate, there is also the simultaneous disappearance of the knowledge that *instructs and maintains* the cellular metabolism. Consequently, the cell no longer functions thus initiating its decomposition (molecular disaggregation).

Similarly, when the consciousness of an animal (or plant) no longer constitutes a Bose-Einstein condensate, the knowledge that instructs and maintains its body functioning also disappears, and it dies. In this process, after the unmaking of the being's individual consciousness, there follows the unmaking of the individual consciousnesses of the organs; next will be the consciousnesses of their own cells which no longer exist. At the end there will remain the isolated psyches of the molecules and atoms. *Death, indeed, destroys nothing, neither what makes up matter nor what makes up psyche.*

As we have seen, all the information available in the consciousnesses of the beings is also accessible by the consciousnesses of their organs up to their molecules'. Thus, when an individual undergoes a certain experience, the information concerning it not only is recorded somewhere in this consciousness

but also pervades all the individual consciousnesses that make up its total consciousness. Consequently, psychic disturbances imposed to a being reflect up to the level of their individual molecular consciousnesses, perhaps even structurally affecting said molecules, due to the interrelationship between body and consciousness already mentioned here.

Therefore, one can expect that there may occur modifications in the sequences of nucleotides of DNA molecules when the psychism of the organism to which they are incorporated is sufficiently affected.

It is known that such modifications in the structure of DNA molecules may also occur because of the chemical products in the blood stream (as in the case of the mustard gas used in chemical warfare) or by the action of radiation sufficiently energetic.

Modifications in the sequences of nucleotides in DNA molecules are called mutations. Mutations as we know, determine hereditary variations which make up the basis of Darwin's theory of evolution.

There may occur "favorable" and unfavorable" mutation to the individuals; the former enhances the individuals' possibility of survival, whereas the latter decrease such possibility.

The theory of evolution is established as a consequence of individuals' efforts to survive in the environment where they live. This means that their descendants may become different from their ancestors. This is the mechanism that leads to the frequent appearance of new species. Darwin believed that the mutation process was slow and gradual. Nevertheless, it is known today that this is not the general rule, for there are evidences of the appearance of new species in a relatively short period of time [14]. We also know that the characteristics are transmitted from parents to offsprings by means of genes and that the recombination of the parents' genes, when *genetic instructions* are transmitted by such genes.

However, it was shown that the genetic instructions are basically associated with the psychism of DNA molecules. Consequently, *the genes transmit not only physiological but also psychic differences*.

Thus, as a consequence of genetic transmission, besides the great physiological difference between individuals of the same species, there is also a great psychic dissimilarity.

Such psychic dissimilarity associated with the progressive enhancement of the individual's psychic quantities may have given rise, in immemorial time, to a variety of individuals (most probably among anthropoid primates) which unconsciously established a positive mutual affinity with *primordial consciousnesses* must have been attracted to the Earth. Thus, the relationship established among them and the consciousnesses of said individuals is enhanced.

In the course of evolutionary transformation, there was a time when the fetuses of said variety already presented such a high degree of mutual affinity with the primordial consciousnesses attracted to the Earth that, during pregnancy, the incorporation of primordial consciousnesses may have occurred in said fetuses.

In spite of absolute psychic mass of the fetus's material consciousness being much smaller than that of the mother's consciousness, the degree of positive mutual affinity between the fetus's consciousness and the primordial consciousness that is going to be incorporated is much greater than that

between the latter and the mother's, which makes the psychic attraction between the fetus's consciousness and primordial consciousness much stronger than the attraction between the latter and the mother's. That is the reason why primordial consciousness incorporates the fetus. Thus, when these new individuals are born, they bring along, besides their individual material consciousness, an individualized consciousness of the Supreme Consciousness. This is how the first *hominids* were born.

Having been directly individualized from Supreme Consciousness, the primordial consciousnesses constitutes as perfect individualities and not as phase condensates as the consciousnesses of matter. In this manner, they do not dissociate upon the death of those that incorporated them. Afterwards, upon the action of psychic attraction, they were again able to incorporate into other fetuses to proceed with their evolution.

These consciousnesses (hereinafter called *human consciousness*) constitutes individualities and, therefore, the larger their psychic mass the more available knowledge they will have and, consequently, greater ability to evolve.

Just as the human race evolves biologically, human consciousnesses have also been evolving. When they are incorporated, the difficulties of the material world provide them with more and better opportunities to acquire psychic mass (later on we will see how said consciousnesses may gain or lose psychic mass). That is why they need to perform successive reincorporations. Each reincorporation arises as a new opportunity for said consciousnesses to increase their psychic mass and thus evolve.

The belief in the reincarnation is millenary and well known, although it has not yet been scientifically recognized, due to its *antecedent probability* being very small. In other words, there is small amount of data contributing to its confirmation. This, however, does not mean that the phenomenon is not true, but only that there is the need for a considerable amount of experiments to establish a significant degree of antecedent probability.

The rational acceptance of reincarnation entails deep modifications in the general philosophy of the human being. For instance, it frees him from negative feelings, such as nationalistic or racial prejudices and other response patterns based on the naive conception that we are simply what we appear to be.

Darwin's lucid perception upon affirming that not only the individual's corporeal qualities but also his psychic qualities tend to improve made implicit in his "natural selection" one of the most important rules of evolution: *the psychic selection*, which basically consists in the *survival of the most apt consciousnesses*. Psychic aptitude means, in the case of human consciousnesses, mental quality, i.e., *quality of thinking*.

Further on, we will see that the human consciousnesses may gain or lose psychic mass from the Supreme consciousness, respectively due to the mode of *resonance* (quality) of their thoughts. This means that the consciousnesses that cultivate a greater amount of bad-quality thoughts will have a *lesser* chance of psychic survival than the others. A human consciousness that permanently cultivates bad-quality thoughts progressively loses psychic mass and may even be extinguished.

With the progressive disappearance of psychically less apt consciousnesses, it will be increasingly easy for the more apt consciousnesses to increase their psychic masses during reincorporation periods. There will be a

time when psychic selection will have produced consciousnesses of large psychic mass and, therefore, highly evolved. It may happen that such time will precede the critical time from which material life will no longer be possible in the Universe.

4. INTERACTION OF HUMAN CONSCIOUSNESSES

The thought originated in a consciousness (static thought) presupposes the individualization of a *quantum* of psychic mass Δm_ψ in the very consciousness where the thought originated. Consequently, the wave function Ψ_ψ associated with this psychic body must collapse after a time interval Δt , expressing in the space-time its psychic content when it contains sufficiently psychic mass for that, or otherwise transforming itself in radiation (*psychic radiation*). In both cases, there is also production of “virtual” photons (“virtual” psychic radiation) to convey the psychic interaction.

According to the Uncertainty Principle, “virtual” *quanta* cannot be observed experimentally. However, since they are interaction *quanta*, their effects may be verified in the very particles or bodies subjected to the interactions.

Obviously, only one specific type of interaction occurs between two particles if each one *absorbs* the *quanta* of said interaction emitted by the other; otherwise, the interaction will be null. Thus, the null interaction between psychic bodies particularly means that there is no mutual absorption of the “virtual” psychic photons (psychic interaction *quanta*) emitted by them. That is, the emission spectrum of each one of them does not coincide with the absorption spectrum of the other.

By analogy with material bodies, whose emission spectra are, as we know, identical with the absorption ones, also the psychic bodies must absorb within the spectrum they emit. Specifically, in the case of human consciousness, their thoughts cause them to become emitters of psychic radiation in certain frequency spectra and, consequently, receivers in the same spectra. Thus, when a human consciousness, by its thoughts, is receptive coming from a certain thought, said radiation will be absorbed by the consciousness (resonance absorption). Under these circumstances, the radiation absorbed must *stimulate* – through the *Resonance Principle* – said consciousness to emit in the same spectrum, just as it happens with matter.

Nevertheless, in order for that emission to occur in a human consciousness, it must be preceded by the individualization of thoughts identical with that which originated the radiation absorbed because obviously only identical thoughts will be able to reproduce, when they collapse, the spectrum of “virtual” psychic radiations absorbed.

These *induced thoughts* – such as the thoughts of consciousnesses themselves – must remain individualized for a period of time Δt (lifetime of the thought) after which its wave function will collapse, thus producing the “virtual” psychic radiation in the same spectrum of frequencies absorbed.

The Supreme Consciousness, just as the other consciousnesses, has its own spectrum of absorption determined by its thoughts – which make up the standard of a good-quality thought is hereby established. That is, they are *resonant* thoughts in Supreme Consciousness. Thus, only thoughts of this kind,

produced in human consciousnesses, may induce the individualization of similar thoughts in Supreme Consciousness.

In this context, a system of judgment is established in which the good and the evil are psychic values, with their origin in free thought. *The good is related to the good-quality thoughts, which are thoughts resonant in Supreme Consciousness. The evil, in turn, is related to the bad-quality thoughts, non-resonant in the Supreme Consciousness.*

Consequently, the moral derived thereof results from the Law itself, inherent in the Supreme Consciousness and, therefore, this psychic moral must be the *fundamental moral*. Thus, fundamental ethics is neither biological nor located in the aggressive action, as thought by Nietzsche. It is psychic and located in the good-quality thoughts. It has a theological basis and in it the creation of the Universe by a pre-existing God is of an essential nature, opposed, for instance, to Spinoza's "geometrical ethics", which eliminated the ideas of the Creation of the Universe by a pre-existing God the main underpinning of Christian theology and philosophy. However, it is very close to Aristotle's ethics, to the extent that, from it, we understand that we are what we repeatedly do (think) and that *excellence is not an act, but a habit* (Ethics, II, 4). According to Aristotle: *"the goodness of a man is a work of the soul towards excellence in a complete lifetime: ... it is not a day or a short period that makes a man fortunate and happy."* (Ibid, I, 7).

The "virtual" psychic radiation coming from a thought may induce *several* similar thoughts in the consciousness absorbing it, because each photon of radiation absorbed carries in itself the electromagnetic expression of the thought which produced it and, consequently, each one of them stimulates the individualization of a similar thought. However, the amount of thoughts induced is, of course, limited by the amount of psychic mass of the consciousness proper.

In the specific case of the Supreme Consciousness, the "virtual" psychic radiation coming from a good-quality thought must induce many similar thoughts. On the other hand, since Supreme Consciousness involves human consciousness the induced thoughts appear in the surroundings of the very consciousness which induced them. These thoughts are then strongly attracted by said consciousness and fuse therewith, for just as the thoughts generated in a consciousness have a high degree of positive mutual affinity with it, they will also have the thoughts induced by it.

The fusion of these thoughts in the consciousness obviously determines an *increase* in its psychic mass. We then conclude that the cultivation of good-quality thoughts is highly beneficial to the individual. On the contrary, the cultivation of bad-quality thoughts makes consciousness lose psychic mass.

When bad-quality thoughts are generated in a consciousness, they do not induce identical thoughts in Supreme Consciousness, because the absorption spectrum of Supreme Consciousness excludes psychic radiations coming from bad-quality thoughts. Thus, such radiation directs itself to other consciousnesses; however, it will only induce identical thoughts in those that are receptive in the same frequency spectrum. When this happens and right after the wave functions corresponding to these induced thoughts collapse and *materialize* said thoughts or changing them into radiation, the receptive consciousness will lose psychic mass, similarly to what happens in the consciousness which first produced the thought. Consequently, both the

consciousness which gave rise to the bad-quality thought and those receptive to the psychic radiations coming from this type of thoughts will lose psychic mass.

We must observe, however, that our thoughts are not limited only to harming or benefiting ourselves, since they also can, as we have already seen, induce similar thoughts in other consciousnesses, thus affecting them. In this case, it is important to observe that the psychic radiation produced by the induced thoughts may return to the consciousness which initially produced the bad-quality thought, inducing other similar thoughts in it, which evidently cause more loss of psychic mass in said consciousness.

The fact of our thoughts not being restricted to influencing ourselves is highly relevant because it leads us to understand we have a great responsibility towards the others as regards what we think.

Let us now approach the intensity of thoughts. If two thoughts have the same psychic form and equal psychic masses, they have the same psychic density and, consequently, the same intensity, from the psychic viewpoint. However, if one of them has more psychic mass than the other, it will evidently have a larger psychic density and, thus, will be more intense.

The same thought repeated with different intensities in a consciousness – in a time period much shorter than the lifetime of thought – has its psychic mass increased due to the fusion of the psychic masses corresponding to each repetition. The fusion is caused by a strong psychic attraction between them, because the inertial thought and the repeated ones have high degree of positive mutual affinity.

It is then possible by this process that the thought may appear with enough psychic mass to materialize when its wave function collapses.

If the process is jointly shared with other consciousnesses, the thoughts in these consciousnesses evidently correspond to different dynamics states in the same thought. Thus, if Ψ_{ψ_1} , Ψ_{ψ_2} , ..., Ψ_{ψ_n} refer to the different dynamic states that the same thought may assume, then its general dynamic state, according to the superposition principle, may be described by a single wave function Ψ_{ψ} , given by:

$$\Psi_{\psi} = c_1 \Psi_{\psi_1} + c_2 \Psi_{\psi_2} + \dots + c_n \Psi_{\psi_n}$$

Therefore, everything happens as if there were only a single thought described by Ψ_{ψ} , with psychic mass determined by the set of psychic masses of all the similar thoughts repeated in the various consciousnesses. In this manner, it is possible that in this process the thought materializes even faster than in the case of a single consciousness.

It was shown that the consciousnesses may increase their psychic masses by cultivating good-quality thoughts and avoiding the bad-quality thoughts ones. However, both the cultivation of good thoughts and the ability to instantly perceive nature in our thoughts to quickly repel the bad-quality thoughts result in a slow and difficult process.

The fact of intense enough mental images being capable of materializing suggests that we must be careful with mental images of fear. Thus more than anything else, it is imperative to avoid their repetition in our consciousnesses, because at each repetition they acquire more psychic mass.

Great are the possibilities encompassed in the consciousnesses, just as many are the effects of psychic interaction. At cellular level, the intervention of

psychic interaction in the formation of the embryo's organs is particularly interesting.

Despite the recent advances in Embryology, embryologists cannot understand how the cells of the *internal cellular mass*⁷ migrate to defined places in the embryo in order to form the organs of the future child.

We will show that this is a typical biological phenomenon which is fundamentally derived from the psychic interaction between the cells' consciousnesses.

Just as the consciousnesses of the children have a high degree of positive mutual affinity with the consciousnesses of their parents, and among themselves (*principle of familiar formation*), the embryo cells, by having originated from cellular duplication, have a high degree of positive mutual affinity. The embryo cells result, as we know, from the cellular duplication of a single cell containing the paternal and maternal genes and, hence, have a high degree of positive mutual affinity.

Thus, under the action of psychic interaction the cells of the internal cellular mass start gathering into small groups, according to the different degrees of mutual affinity.

When there is a positive mutual affinity between two consciousnesses there occurs the *intertwining* between their wave functions, and a *Phase Relationship* is established among them. Consequently, since the degree of positive mutual affinity among the embryo cells is high, also the relationship among them will be intense, and it is exactly this what enables the construction of the organs of the future child. In other words, when a cell is attracted by certain group in the embryo, it is through the cell-group relationship that determines where the cell is to aggregate to the group. In this manner, each cell finds its correct place in the embryo; that is why observers frequently say that, "*the cells appear to know where to go*", when experimentally observed.

The cells of the internal cellular mass are capable of originating any organ, and are hence called *totipotents*; thus, the organs begin to appear. In the endoderm, there appear the urinary organs, the respiratory system, and part of the digestive system; in the mesoderm are formed the muscles, bones, cartilages, blood, vessels, heart, kidneys; in the ectoderm there appear the skin, the nervous system, etc.

Thus, it is the mutual affinity among the consciousnesses of the cells that determines the formation of the body organs and keeps their own physical integrity. For this reason, every body rejects cells from other bodies, unless the latter have positive mutual affinity with their own cells. The higher the degree of cellular positive mutual affinity, the faster the integration of the transplanted cells and, therefore, the less problematic the transplant. In the case of cells from identical twins, this integration takes place practically with no problems, since said degree of mutual affinity is very high.

⁷ When a spermatozoon penetrates the ovum, an *egg* is formed. Roughly twelve to fourteen hours later, the egg divides into two identical cells. This is the beginning of the phase where the embryo is called *morula*. Six days later, in the *blastula* phase, the external cells fix the embryo to the uterus. The cells inside the blastula remain equal to each other and are known as *internal cellular mass*.

In eight weeks of life, all organs are practically formed in the embryo. From there on, it begins to be called *fetus*.

The embryo's material individual consciousness is formed by the consciousnesses of its cells united in a Bose-Einstein condensate. As more cells become incorporated into the embryo, its material consciousness acquires more psychic mass. This means that this type of consciousness will be greater in the fetus than in the embryo and even greater in the child.

Thus, the psychic mass of the mother-fetus consciousness progressively increases during pregnancy, consequently increasing the psychic attraction between this consciousness and that new one about to incorporate. In normal pregnancies, this psychic attraction also increases due to the habitual increase in the degree of positive mutual affinity between said consciousnesses.

Since the embryo's consciousness has greater degree of positive mutual affinity with the consciousness that is going to incorporate, then the embryo's consciousness becomes the center of psychic attraction to where the human consciousness destined to the fetus will go.

When the psychic attraction becomes intense enough, human consciousness penetrates the mother-fetus consciousness, forming with it a new Bose-Einstein condensate. From that instant on, the fetus begins to have two consciousnesses: *the individual material one and the human consciousness attracted to it*.

It is easy to see that the psychic attraction upon this human consciousness tends to continue, being progressively *compressed* until effectively incorporating the fetus. When this takes place, it will be ready to be born.

It is probably due to this *psychic compression* process that the incorporated consciousness suffers amnesia of its preceding history. Upon death, after the psychic decompression that arises from the definitive disincorporation of the consciousness, the preceding memory must return.

It was shown that particles of matter perform transitions to the *imaginary* space-time when their gravitational masses reach the gravitational mass ranging between $+0.159M_i$ to $-0.159M_i$ [7]. Under these circumstances, the total energy of the particle becomes *imaginary* and consequently it disappears from our *ordinary space-time*. Since *imaginary mass is equal to psychic mass* we can infer that the particle makes a transition to the *psychic space-time*.

The consciousnesses are in the *psychic space-time*. Therefore, if material bodies can become psychic bodies and to interact with others psychic bodies in this space-time, then they reach a new part of the Universe where the consciousnesses live and from where they come in order to incorporate the human fetus, and to where they should return, after the death of the material bodies. Consequently, the transition to the *psychic space-time* is a door for us to visit the spiritual Universe.

REFERENCES

- [1] Capra, F. (1988) *O Tao da Física*, Ed. Cultrix, S.Paulo.
- [2] Zohar, D. (1990) *O Ser Quântico*, Ed. Best Seller, S.Paulo.
- [3] Wigner, K. (1967) *Symmetries And Reflections*, Blooming, Ind., Indiana University Press.
- [4] Young, A.M. (1976) *The Geometry of Meaning*, Delacorte Press, N.Y;
Young, A.M. *The Reflexive Universe: Evolution of Consciousness*, Delacorte Press, N.Y.
- [5] Herbert, N. (1979) *Mind Science: A Physics of Consciousness Primer*, Boulder Creek, Cal: C -Life Institute.
- [6] Bohm, D. (1980) *A New Theory of Relation of Mind and Matter*, The Journal of the American Society of Psychical Research, Vol. 80, Nº 2, p.129.
- [7] De Aquino, F. (2007) *Mathematical Foundations of the Relativistic Theory of Quantum Gravity*, preprint, physics/0212033.
- [8] Bohm, D. (1951) *Quantum Theory*, Prentice-Hall, N.Y, p.415.
- [9] D'Espagnat, B. *The Question of Quantum Reality*, Scientific American, **241**,128.
- [10] Teller, P. *Relational Holism and Quantum Mechanics*, British Journal for the Philosophy of Science, **37**, 71-81.
- [11] Landau, L. and Lifchitz, E. (1969) *Theorie du Champ*, Ed.MIR, Moscow, Portuguese version (1974) Ed. Hemus, S.Paulo, pp.116 and 363.
- [12] Landau, L. and Lifchitz, E. (1969) *Theorie du Champ*, Ed.MIR, Moscow, Portuguese version (1974) Ed. Hemus, S.Paulo, pp.363-364.
- [13] De Aquino, F. (2007) "*Gravity Control by means of Electromagnetic Field through Gas at Ultra-Low Pressure*", physics/0701091.
- [14] Grant, P.R., and Grant, B.R. (1995). *Predicting microevolutionary responses to directional selection on heritable variation. Evolution* **49**:241-251.