

Model of cosmic cyclicity of terrestrial human activities*

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Abstract: The paper has in view to continue and develop the *human models* that lie at the basis of Informational Anthropology (Guja, 2008) and Individual's Anthropology (Guja, 1989), by placing the human being and society within the cosmic context in which it actually is and with which it coexists. It is important to underline *the effects of the Earth's continuous movement in space upon our everyday existence*. We attempted to answer questions with anthropological character, such as: *What is the process ensuring good transmission of fundamental sociocultural behaviours, the generic and genetic causative support of their historical continuity?* The field is studied by cultural anthropology and other sociocultural sciences and there is a great diversity of the debates depending on the work hypothesis we started from. In this paper I deal with the problem from the positions of Informational Anthropology, Biocosmology and modern Relativistic-Quantum Physics, starting from the hypothesis that *the fundamental causal factor that determined the good organization of anthropological processes in time is cyclicity and periodicity of the cosmic context which is reflected at the level of individual and collective conscience*.

Key words: anthropologic model, cosmic cyclicity, cyclic cultural interface

Introduction

The purpose of the paper is to continue and develop *human models* lying at the basis of Informational Anthropology (Guja, 2008), and Individual's Anthropology (Guja et al., 1989), by placing the human being and society within the cosmic context in which it actually lives and coexists. It is important to notice *the effects of the Earth's continuous movement upon our everyday existence*. The motivation is to include among the Anthropological fundamental modeling factors, analyzed today as the cause of evolution for the human society and culture, *the well known cosmic factors: our permanent movement in the space together with the Earth in the gravitational and electromagnetic field of the Solar* (Hawkings, 1988, Penrose, 1997) *and cosmic system* (Figure 1).

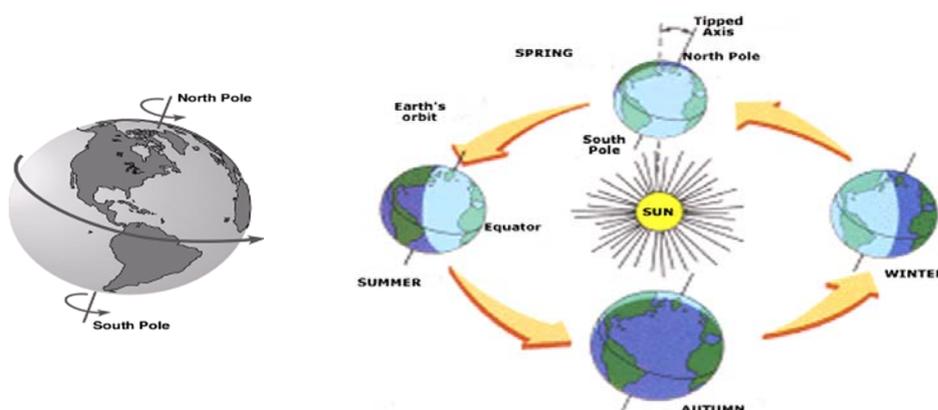


Figure 1. The Earth's rotation around its own axis and around the Sun, which determines the annual season cyclic nature of our life.

[<http://www.learner.org/jnorth/images/imageshtml/earth-tilt.gif>]

Predisposition towards culture is said to be one of the most important critical aspects in anthropogenesis, having a significant effect on the evolution of the human species. The study of man's biological and cultural evolution in the past, present and future is covered by the field called „Evolutionary Anthropology.” The origin of the factors determining this evolution has been long debated upon and the diversity of explanations ***depends on the initial work hypothesis***. Specialized literature is therefore quite rich in this field (Bonvillain, 2006, Guy and Palayret, 1995, Haviland, 1990 Steiner, 1921). It is based on interdisciplinary researches and brings together determining factors from various fields, such as: Archaeology, Ecology, Psychology, Primatology, Genetics (Graber, 1995, Mânzat and Craiovan, 1996, Odobleja, 1938-1939). The complexity of the cultural phenomenon and intercultural interactions as a consequence of ***ecological and technological factors***, the modern changes in point of interdependence with the environment and its limited control leave their mark on the human society, on its culture and the biology of its systems. Modern industrialization affects the living, activity and human option possibilities. The studies carried out by Evolutionary Anthropology refer to a series of cultural models imagined while trying to find *the causes that determined the progress of society and succeeding civilizations on the Earth*. They include more or less explicit factors whose part is considered determining in the process of continuity and historical evolution of human collectivities (Guy and Palayret, 1995, Lupasco, 14960, Radu, 2003). What are missing are a unitary vision and *a model that should explain as many phenomena specific of this process*. It is important to mention that among the determining causes ***the cosmic factors*** dealt with in Cosmology and Biocosmology ***are not present. Nevertheless we consider them fundamental, essential*** for our entire past, present and future evolution. (*Consciousness and the*

Universe, Edited by Penrose Roger, FRS, Stuart Hameroff M.D., 2011, Bloom, 2000, Capra, 1992, Carneiro, 2005).

The **main objective** of the present paper is to present (as simply and clearly as possible) a model of man integrated in society that should explain *the way everyday experience is transmitted* to the successors and the importance for the evolution of human society. We started from the fact that a human system, a collectivity placed at the level of a terrestrial geographical parallel, by diurnal rotation, covers in space circular trajectories corresponding to the latitude where it lies at the same time with the Earth's rotation around its own axis. At the same time it moves with the Earth along *the solar planetary orbit, executing complex successive elliptical-helical trajectories: spiral trajectories around the orbit, about 365 day/night cycles per year in slanting planes as to the Earth orbit (Figure 1)*. The main problem which we wanted to complete with our model is that of highlighting the effects of this perpetual "spatial adventure" of the terrestrial life and of ours as human beings. We are characterized by *a vertical bipedal station* (along the terrestrial globe radius) while awake and by a *horizontal position* (tangent to the surface) while resting and sleeping. We are a hyper complex energetic and informational system (the evolved and evolving synthesis of the living world) *with systems of organs having very active electromagnetic and informational activity*, the most developed and well known in Universe so far (Drăgănescu, 1990, Săhleanu, 1973, Stancovici, 1975). What are the effects? The hypothesis we started from was that *the fundamental causative factor determining the good organization of anthropological processes in history is the cyclicity and periodicity of the cosmic context which gets reflected at the level of individual and collective awareness. They should become more and more conscious and materialized from the socio-cultural point of view* (Brazdau, 2011, Guja, 2008). In order to develop the previous models (Guja and Baciuc, 2008) and to demonstrate the hypothesis, we used two key concepts which we consider essential: the concepts of *information* and *interface*. *Information* is defined as a fundamental self-standing entity of existence, *alongside with matter mass and energy* (Guja, 2009, Guja, 2008, Guja and Baciuc, 2008, Guja et al., 1998, Lupasco, 1960). *The laws of information are likely to include the existence and evolution of Bios in the Universe*. (Drăgănescu, 1990, Lupasco, 1960). *The concept of interface* defines a state of manifestation and organization specific of interactive-intersection with different systems (Figure 2). *Interface* is the place where information mainly gets manifest in an *ephemeral form*. *The concept of system* defines a state of manifestation and organization *mainly of the mass and energy, being a quasistable state*. The assembly *system/interface* make up an informational couple that may be associated with the couple of concepts: *relativistic/quantum* in modern Physics. These two pairs of couples-paradigms of modern science better describe the specific phenomena we are planning to model. Our *Terrestrial-Cosmic* living environment is very complex. It can be described and studied as an *informational interface, multiple intersections of cosmic and terrestrial*

systems. It comprises cosmic phenomena that are dealt with nowadays by the concepts of Relativistic Physics and also processes of human life, behavior and brain studied by Quantum Physics and Biophysics, by Neurology, Psychology, Anthropology, Biocosmology, etc. (Hawkins, 1998, Khroutski, 2011, Penrose, 1997, Smolin, 2000). As representatives of the most evolved living form known until now, we could say that we are in the area of intersection of two great extremes of the Cosmos: Macro and Micro. As a cooperating and coexistence interface, the interface Bio-Cosmically is life and information generating (Figure 3).

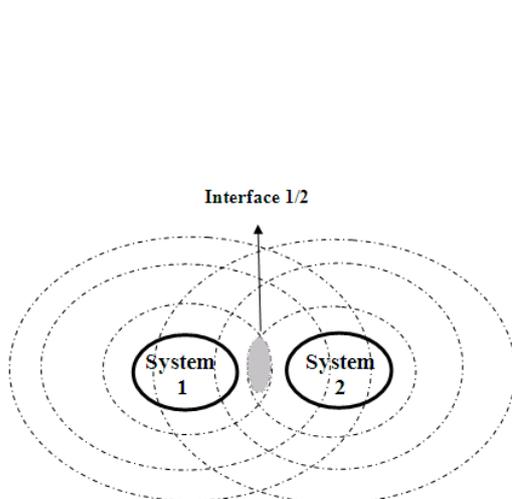


Figure 2

. – Model defining the concept of interface. Between systems 1 and 2 one may define as many interfaces as the determined number of communication-interaction at a certain given moment between the two systems.

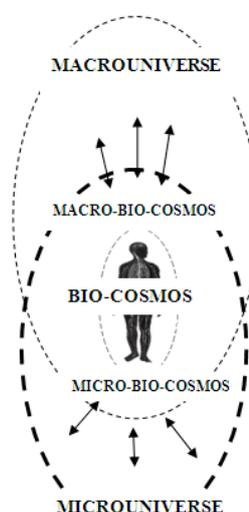


Figure 3. – The model of human informational interface implies communication by means of common interactive modalities (archetypal interaction fields: gravitational, sociocultural and possibly other unknown ones, between the micro and macro-universe.

We can therefore assert that, ever since life appeared on the Earth, the fundamental biological, biosocial, sociocultural conducts *were modeled within a relativistic-quantum framework*, in which we have to learn to think today (Smolin, 2000). This interactive mechanism, a *cosmic regulator*, has become a sociocultural factor by means of the self-aware human individual (Guja et al., 1998) who is familiar with and is able to turn these interactive processes conscious. The phenomenon MAN may be understood and studied as *a unitary fundamental process of "human matter" that creates information*, existing in the complex network of the group he belongs to. The

cyclic sociocultural patterns of behaviour such as *diurnal* feeding, work organized around the *calendar*, **periodical** practice of the sacred in man's life (hierophany), *prayers*, *Sundays*, *holidays* are marked by the imprint of cyclicity and periodicity: *diurnal*, *weekly*, *monthly*, *yearly*, *multiannual*, *secular*, *millenary cosmic phenomena*. Nowadays they can be studied and modeled starting from the newest ways of thinking formulated in various fields of modern science.

As mentioned ever since introduction, this paper deals with these matters from the following positions: I. of Informational Anthropology (Guja, Inst. of Anthropology, Bucharest [Guja, 2009, Guja, 2008), II. of *Bio-Cosmology* (Khroutski, K.Univ.Veliky Novgorod (Khroutski, 2011, Khroutski, 2001) and III. *Of Modern Relativistic-Quantum Physics* (Smolin, 2000).

Material And Methods

Our working hypothesis was suggested after visiting several ethnographic museums in Romania, Italy and Russia, mostly by that in Torgnon, a place in the north of Italy, in the Alps (1600 m) called symbolically „*Petit-Monde*” *(*Il museo etnografico Petit-Monde, Biblioteca Comunale, 2005*)

***The people in this place lived in symbiosis with the territory in the rhythm of the seasons and seasonal farm work.** Their life was focused around the village, animal stables and hay fields, around the places where they preserved their products and around the collective edifices, the dairy (where they processed the milk in a centralized manner), the mill, the oven (where they *periodically* baked the bread), the school and church (chapel). The place where the inhabitants first built had been chosen with great care (there are documents from the year 1200). This locality has plenty of water, is well exposed and easy to defend. No one could pass by without being noticed. The local community passed through the centuries. The inhabitants, in close collaboration deforested, fallowed, dug water canals, built embankments and all the structures required for their development. Life, its functionality, social development **based on the community** is important to mention. They exploited land rationally. Almost all the families owned land in the lower part of the valley. In spring and autumn they transferred to the valley to plant vineyard, vegetables and fruit trees while in summer they worked on the hay fields up in the hills. The museum in Torgnon may be visited by car, the road being very narrow but beautiful. The road is asphalted and the view is splendid. The locality penetrated history up to the present times. It is at a high level of civilization and modernity transferring and switching the old patterns to the industrialized homologue and offering today very good services.

The mayor of Turgnon said the following when the museum was inaugurated (August 2004): “We hope that these buildings, unique in their own way, will be not only a tourist attraction, but also a bridge connecting the past, the present and the future. They are still remembered by the elders who had the opportunity to use them while

for the younger the exhibits will prevent them from *forgetting our roots and cultural traditions*”

The existence of the special buildings with multiple resonance: *historical, ethnographic, etological, generally cultural and cosmic* (owing to their cyclic seasonal function) and of life organized as presented in the above mentioned museums made me think of making up a few questions of anthropological character. *What is actually the process ensuring good transmission of fundamental sociocultural behavior, the generic and genetic causal support of their historical continuity?* What is the specific way in which everyday collective life experience is transmitted to the offspring's and what is their importance for the evolution of human society? “Petit-Monde” collectivity in Torgnon – “*a small world*”, *by transmitting seasonal conduct, turned them into conscious, materialized social and cultural edifices with cosmic periodicity. Collectivity has acquired in time the unity and functionality of a “Large Family”*.

We will further briefly present the scientific data, fundamental principles and study methods we took over from the above mentioned disciplines and which lie at the basis of our informational, anthropological cyclic-cosmic pattern.

1. From **Informational Anthropology** (Guja, 2009 Guja, 2008, Guja and Baci, 2008, Guja et al., 1998) which is based on the interface theory we used the concept of interface in order to represent the sociocultural, environmental and cosmic context in which our everyday life takes place. It is described as a state resulting from the intersection and interdependence of the systems on the Earth and in the Universe. **The human being**, considered a fundamental component of ‘*human matter*’, is represented by a couple of *unitary informational vectors* – **man is a measure of all things** (according to Protagoras’ desideratum) (Figures 3, 4). It is represented by a vector perpendicular on the terrestrial surface and a vector tangent to it for the resting status. This couple of unitary rectangular vectors describes every day on the Earth an apparently random („Brownian”) trajectory, a man’s route during one day. Human activities are carried out every day on the terrestrial surface in an environment we will call *terrestrial diurnal interface*. The trajectory we move along during one day is continuous in this interface (Figure 4). **The vertical- horizontal oscillation** (wakeful state-sleep), i.e. standing- lying position, is **a cosmic fundamental periodical process** which defines *the human informational oscillator*. It is informational in order to express a repeating, periodical fundamental state of behavior, **an archetypal pattern for the animal kingdom** (Iliescu, 2002). It is an essentially informational process owing to the prevalingly repeating character, **activities being resumed every day and experience accumulated** by permanent processing and creation of fresh information and information. *Nothing is identical on the next day, only the pattern is resumed*. This interface moves with the Earth, covering a circular trajectory around the Earth axis in 24 hours. We will call it *diurnal informational orbit*. The period of activity actually corresponds to an intermediate state considering the two extremes wakeful

state and sleep and is an interface that corresponds to various degrees of *individual and collective awareness* (Brazdau, 2011, Khroutski, 2011, Khroutski, 2001). In this period, on the neurological substratum of the human brain fresh information is recorded, processed, analyzed and created and is permanently transferred to the collective memory of society. ***Bringing existence and importance of cosmic interface to a state of awareness is an evolving anthropological phenomenon and a way to happily integrate in the continuous circuit of cosmic processualities.***

Diurnal trajectories do not overlap. They are successive. Out of the two rotations and revolution movements it results a complex double helical movement with different steps. It reminds us of the *DNA helix structure*. *On the material and energetic substratum it contains the memory of the multiplication pattern of information as an essence of the living matter.*

Key syntagms:

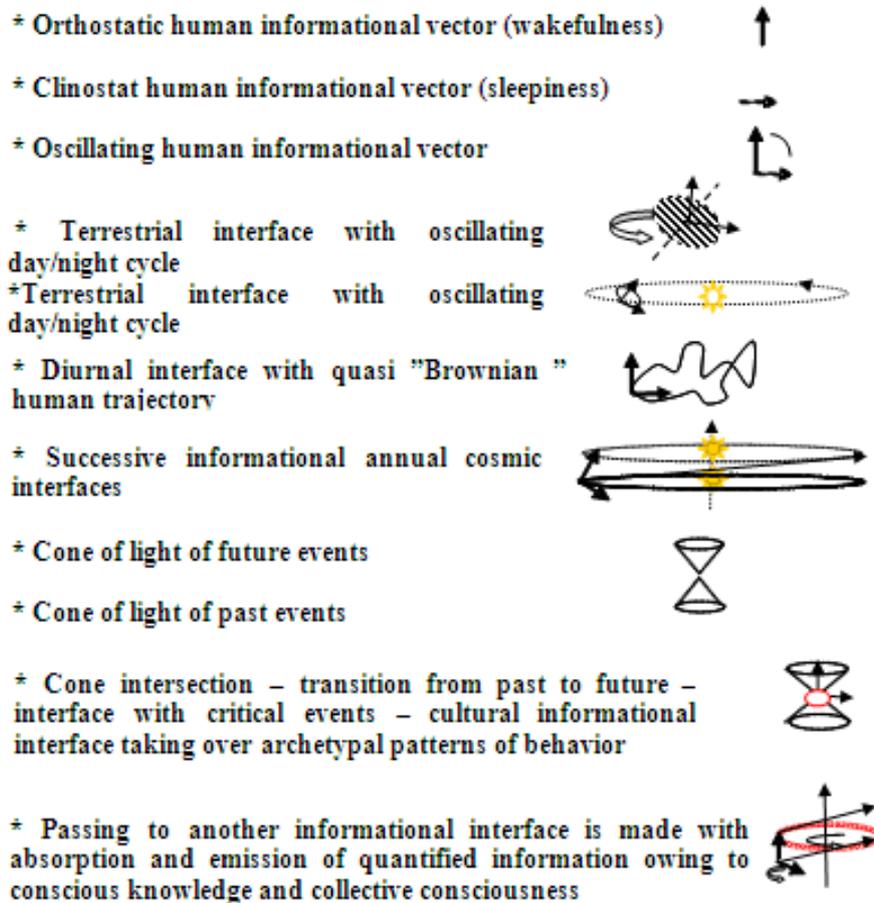


Figure 4. - Legend of the informational anthropological cyclic-cosmic pattern in terms of 'key syntagms' presents in Figures 5, 6, and 7.

II. **Biocosmology** (Khroutski, 2011, Khroutski, 2001), developed in an original acceptance by Konstantin Khroutski (starting with the year 2003) was inaugurated as an organized field of activity at the seminar "The First International Seminar on Biocosmology" – "Bio-3/4" (Veliky Novgorod, July 21–24, 2010). The formula in the title – "**Bio-3/4**", "Bio-" – from the Greek «*Bios*- – Life», as the author himself specified when opening the seminar, is meant to bring to the present Aristoteles' cosmologic thinking which Khroutski develops within the new context of modern sciences with the help of the following notions: "**Bio-universality**", "**Three-dimensionality**" and "**Four-causality**". The "**Three-dimensional**" approach in the study of life processes implies understanding and simultaneous existence of two synchronous spheres that are polar, fundamentally autonomous, interdependent one as to the other and the existence of a third intermediate sphere. The intermediate sphere is also fundamental and autonomous in comparison with the other two; it is also significant for the whole system of organization of Bios. This is the process ensuring homeostasis and dynamic equilibrium between the organism and the environment. It is the reason why one *passes from the domination of one pole to the domination of the other*. We could give as example the physiological cycle inherent to life: *awake (conscious)*- whose purpose is the individual's active behavior and sleep (unconscious) in which nutrients are assimilated, and accumulation, regeneration recuperation, and development of organisms take place.

The syntagm "**Four-causality**" refers to reconsidering Aristoteles' philosophy based on a biocosmological conception, essentially different from Plato's philosophy. Containing mainly Aristotelian ideas, the realism of K. Khroutski's Biocosmology is a "realistic/nominalist" approach of the modern and contemporary philosophical realism (Khroutski, 2011). Biocosmological approach – Bio-3/4, means an Organicistic world-view, i.e. relation to the world (cosmos) as to the Organic whole (the Organism). Organicism directly implies universality of the existing world-cosmos (since all the subjects of life that constitute the organism – the organs – cannot but operate under the general (one the same) laws of the organization). Biocosmology confers *the human individual a sense and a part intrinsic to the Cosmos evolution*.

III. From the present preoccupations of Relativistic Quantum Physics we have chosen Lee Smolin's researches (Smolin, 2000). He is one of the pioneers supporting reconciliation of two fundamental theories that upset the classical perspective on the world: Einstein's theory of general relativity which describes phenomena at astronomical scale (planets, solar systems, galaxies) and Quantum Mechanics which explains phenomena at microscopic scale (molecules, atoms, nuclei, subatomic particles). We took over some of the proposed reasonings in our intention to explain at human level the evolution of certain complex events in man's life history. The world described by *Newton's mechanics* is static, frozen at a certain given moment.

Changes occur as an alternative to the way something is. Relativity and Quantum theory tells us (shout to us! – Smolin says) that *our world is a history of processes. Movement and change are primordial.* Existence as such is approximate and limited in time. 'The state' is an illusion! In the language of the new physics we will have to learn a new vocabulary in which *the process is more important than the motionless state and precedes it.* From this point of view the universe (the world) consists of processes, i.e, and the sum total of an infinite number of events. An event is the smallest part of the change. *Relations change, not the object.* The universe of events is a *relational universe. The most important relation is that of causality.* It means that an event is partially necessary in order to cause another. It can have several causes and in its turn it can cause other events. Time and change are not options. They are contained in events because *the universe is a story made up of processes in which time and causality are synonymous.* The future of a process is given by the set of future events it will influence. The causal universe consists in a series of static sequences following one after another out of *causal necessity.* In the theory of the so called "Cosmological natural selection" proposed by Smolin, he suggests that *processes analogous to natural biological selection should apply to a larger, cosmic scale.* Smolin synthetically put his ideas in a widely spread book entitled "The Life of the Cosmos". Smolin's book was the first to propose that Darwin's mechanism should explain the fate of the Cosmos. In a more recent work, "Scientific Alternative to the Anthropic Principle" he develops the theory on "Natural Selection of the Cosmos" (Smolin , 2000). The unity of the living world is common to the Cosmos!

Results and discussions

Based on the presented data we have built an orbital cyclic pattern of the human individual (conscious and socially integrated), which, similarly with the atom orbital pattern suggests its movement around the axis of the earth and on the solar orbit (Figures 1, 5).

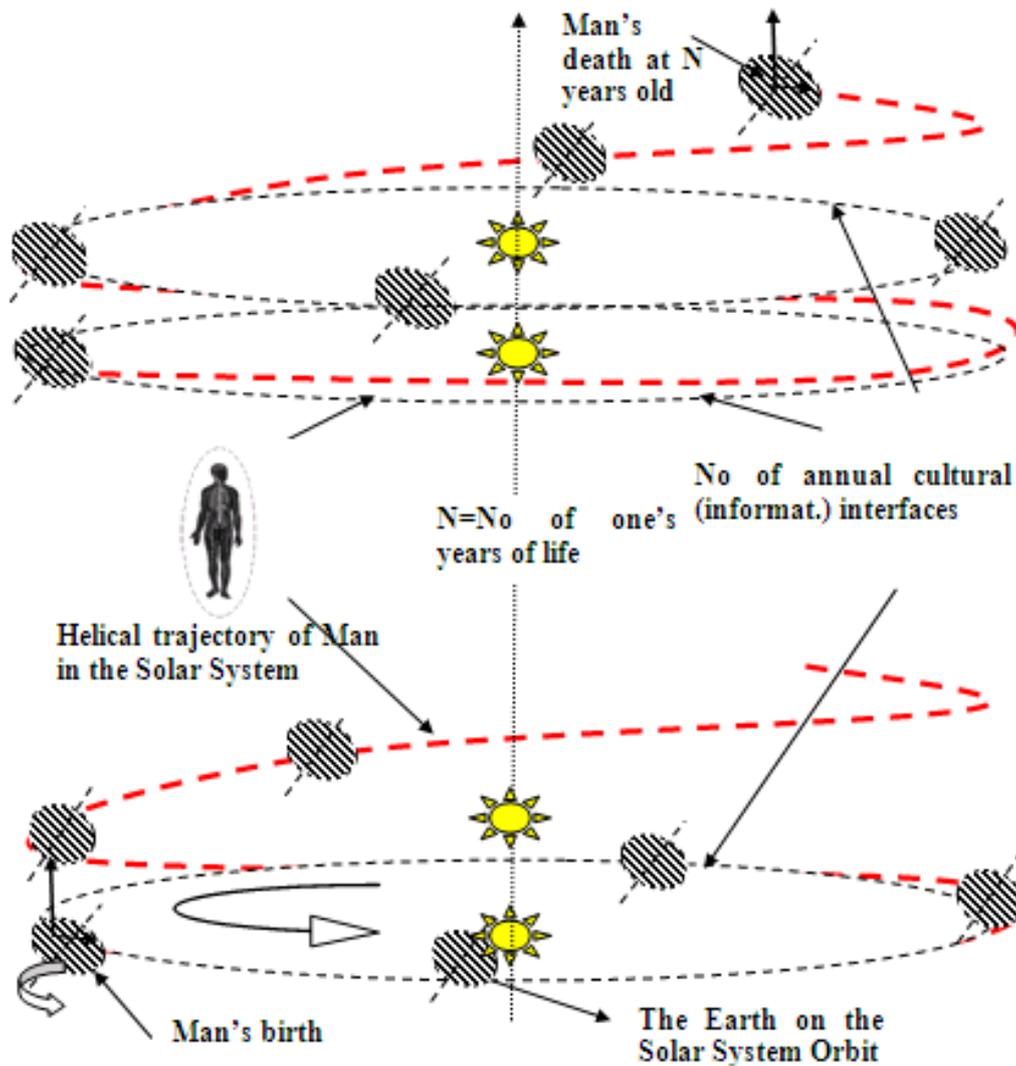
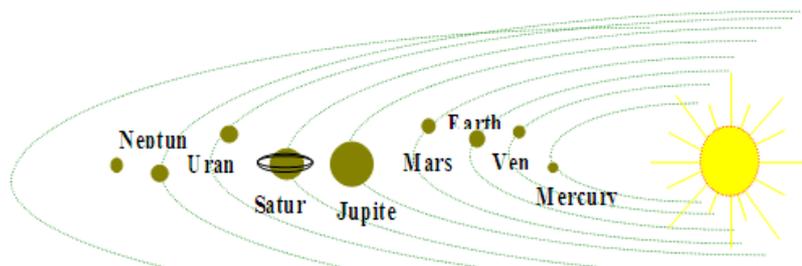
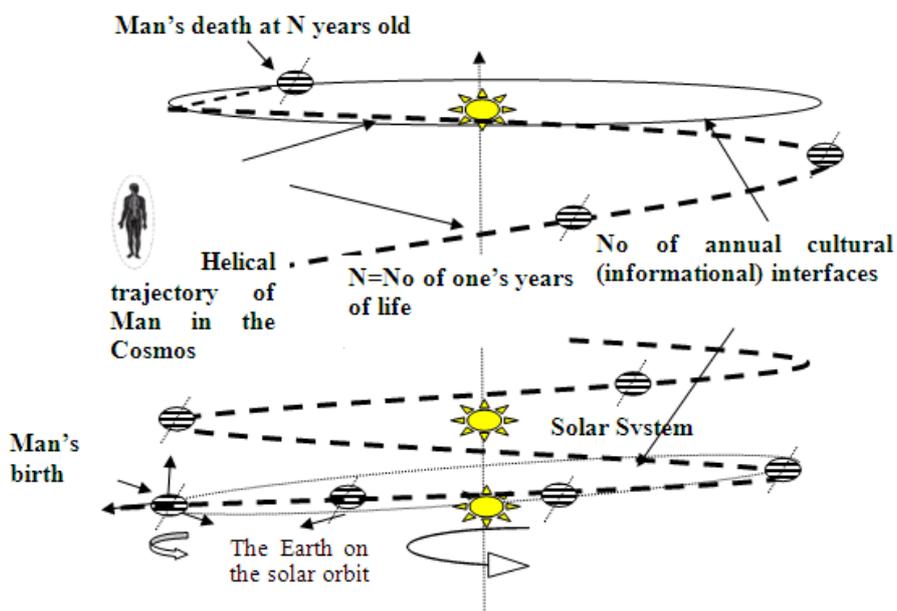


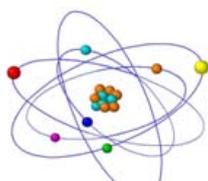
Figure 5. – Anthropological cosmic orbital pattern suggesting the determinism of periodicity at the basis of cyclic cultural fundamental conducts that are: daily, weekly, seasonal, annual, periodically-multiannual.



1. The Model of the Solar System in which the Earth rotates on the third orbit



2. Cyclic-cosmic orbital model of the human being lying at the basis of fundamental cultural conducts according to the calendar



3. Orbital model of the atom

[<http://www.glogster.com/media/5/19/56/63/19566370.jpg>]

Figure 6. – Comparative study of the patterns to the following systems:

1. Solar, 2. Human and 3. Atomic arguing that :

- a. The Phenomenon Man may be understood and studied as a fundamental *unitary process of "human matter "that creates information;* and
- b. The reflection that "*Man is the measure of all things*". (*Protagoras*)

Man makes a complete rotation in 24 hours and has two fundamental positions: the vertical position continuing the radius, and the other one, tangent to the surface, i.e. lying position for resting and sleep. At the same time, the Earth, with us on it, rotates penetrating the ellipse 365 times at an approximate velocity of 30 km/sec) during one year. As the Sun also moves with our galaxy, the annual trajectories do not overlap; they are placed so that by composing these movements, ***a daily/annual helical complex movement results***. This interactive movement in different fields (e.m. and gravitational) is common to all the events happening on the Earth, which may suggest a possible causal connection, more or less direct with ***the spiral structure of DNA***, common to the living world. Moreover, a simple comparative glimpse at three patterns (Fig.6): the well known pattern of the Solar System, that of the atom and the informational anthropological cyclic cosmic we proposed (placed at their interface) further confirms the unity of the laws and forms of manifestation of the general phenomena in our Universe. The existence of this unity was suspected a long time ago and is desired by many of us.

Man's evolution on its cosmic trajectory may be described mathematically and physically as a **line of universe** (called so by Einstein from relativistic physics) and has interesting theoretical and practical consequences. Representing the evolution of processes in space-time geometry, by the light cones of the past and future events of the present relativist-quantum physics, Minkowski could evaluate the quantities of energy and information "the human being event" manipulates alongside its line of universe in one day and, when it jumps on various days orbits and on the annual orbits with absorption and emission of energy and information (Penrose, 1997, Smolin, 2000) (Figure 7).

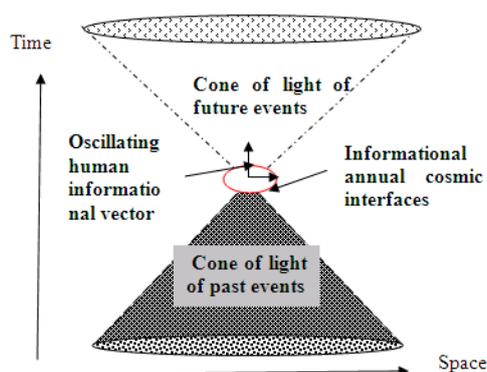


Figure 7. – Representation in space-time Minkovski geometry of informational interfaces comprising events in which patterns of behavior and culture are taken over and transmitted for: food habits during the whole day, activity, resting or relaxing patterns over the week, seasonal and religious holidays, national and international festivities that are periodical. *Annual cyclicality of the calendar*

determines the socio-cultural institutions to have seasonal activities, and to periodically take over behavior patterns (archetypal encoded).

In Minkovski's space-time geometry the future of a process is given by the set of events it is going to influence. The perpetual process of repetition, revision and evolution specific of the activities of the human society, owing to cosmic cyclicity, instituted by calendar periodicity, takes over for the future, by learning and instruction fundamental cyclic-periodical conducts: feeding, sexuality, religiosity, etc. The societies in which this process was not fixed or could not be maintained at a certain moment were doomed to perish. In smaller collectivities where these seasonal, annual conducts became traditional, they successfully resisted in history, such as „Petit Monde” and others (*Il museo etnografico Petit-Monde, Biblioteca Comunale, 2005*).

We could therefore look upon Bio-Cosmos (man and society integrated in Cosmos) as a hypercomplex informational interface which manifests itself paradoxically, different from the way the interacting systems behave (see again Figures 2, 7). The two cones of light, the Past and the Future overlap permanently on the Present. **We could suggest a similitude of these phases of perpetual transition between the past and the future, with their horizon surface** from relativistic quantum theory (Hawking, Smolin). It is the support of informational dynamics perceived relativistically by the living systems at light speed and processed by the brain and other living structures at molecular, atomic, quantum and maybe sub-quantum level. (Smolin, 2000). *Such a causative universe may be represented in the terms of a complex transfer of information (archetypal communication)*. In Figure 6 we intended to explain Figure 2, in order to ponder on the patterns corresponding to the two Extreme systems (Micro and Macro), Biocosmos Earth being placed in between. We can assert that from certain points of view all three patterns are informational. They refer to the state of structuring, organization and functioning of the fundamental entities in our world. They are symbolic, archetypal, and contain primary, fundamental forms of manifestation – *”in-formed”* – of ordering, organization and functioning of the processes lying at the basis of the three well-known matters: non-living, living and human. (Drăgănescu, 1990, Guja et al., 1998). These patterns are based on knowledge, laws; interdisciplinary principles formulated in various fields and are very necessary instruments for thinking and work. Nevertheless they may not be sufficient for the thorough understanding of the world we live in. We will further mention some of them:

- The principle of archetypal similarity
- The principle of universal communication
- The principle of simultaneity of the past with the present and the future
- The principle of the cyclicity evolution or principle of the paradoxical symmetry
- The principle of the transformation of the energy in quantum of information

Conclusions

By analogy with the reasoning that led to creating the atomic model for the non-living matter, accepted today as operative and abstractly describing the dynamics of the processes in the atom of the non-living matter, we proposed a model for *the dynamics of human matter within cosmic context, having the human being as 'atom-messenger'* (Fig.5). In the created model we conceptually reunited the sum total of the events making up life processes in one year using the syntagm **annual cyclic-cosmic interface**. In it events occur with absorption and consumption of energy and information. During one's lifetime energy and information accumulate and get structured in a specific way at the level of the human individual and at the level of human collectivities. Owing to *revision and permanent creative enrichment*, the seasonal activities are biologically fixed forming successions of interface systems at all the levels of the organism. They get materialized in history as we demonstrated before, forming individual and collective interface systems at all the levels of organization in society. Owing to *revision of the specific cyclic-periodical conducts: daily, weekly, seasonal and annual they have become archetypal patterns implanted in everyday life symbolism and institutions with calendar functionality have been created to correspond to them*.

The exhibited model is an extremely common example and enables us to allot a quantitative value with cosmic resonance during a man's life or at the end of it:

$$L \text{ approx.} = l \times 365 \times N + l \times n$$

L = Approx. Length of the trajectory followed during one's life

l = Length of the parallel to the place; N = No. Years (age); n = No. of days of one's last year of life.

For the quantity of energy or information involved and accumulated by each of us we will find the ways to continue these calculations.

We finally formulated *a new hypothesis* for future specialized researches in the field of molecular Genetics and Biophysics: *the cause and dependence of DNA spiral, refolding and coiling in the nucleus of the living cell is in close connection with the periodical cosmic factors imposed on life by astronomic cyclicality*. If this is confirmed, we could "read" successions of events in Earth's history decoding the macro structured modalities and DNA folding induced by the events in its past in a similar way with reading the age and other interesting information in the rings of the tree trunks.

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