

The Auric Time Scale

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Sergey Smelyakov. The Auric Time Scale (ATS)

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1. Mathematical background of the Auric Time Scale (ATS)

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1.1. Introduction

As it is shown in Part 0 and will be described below, a wide spectrum of quite exactly determined time correlations has been established for the diverse phenomena in various spheres of knowledge – from quantum mechanics and chemistry to biology, botany, and economy, and further on – up to geology and cosmology.

To a significant extent the periods of these phenomena are synchronous with the average length of Solar cycle and its harmonics, as well as with the Sun-Jupiter conjunctions and Jovian perihelion. Besides, many dependencies are now discovered which are expressed not only in naturals and their multiples, but, in contrast to the principle of harmonical resonance, in the Golden section number $\Phi = 1.618\dots$ and its powers Φ^k , ($k = 0, \pm 1, \pm 2, \dots$). Apart from harmonics of basic periods and Φ -multiple periods, an effect of quantization of periods is observed [10, 14, 25, et al].

However, making use of diverse statistical approaches (spectrum analysis, etc.) for obtaining of the bulk of these results hampers search of algebraic structure of the obtained estimates and study of their accuracy for revealing a *system of periods* within a frame of some algebraic structure. Besides, the trustworthiness of correlations between some of these periods is frequently called in question, since speculations in most cases dominate over a quantitative analysis. As a result, we come to a situation when absence of consolidated criterion for accepting a synchronism between periods on the one hand, and lack of generally accepted structure of periods, on the other hand, put the impediments in study of cycle structures and correlations. For settling this problem, a numerical approach is required for testing the correlations on the ground of error analysis.

From the other hand, it was discovered that there exists a discrete structure of periods (Auric Time Scale – ATS) being formally defined by the Golden section number and its powers, with the average Solar cycle length for the unity, which specify the bulk of the above mentioned periods being discovered in nature and society [5, 6], including those ones which are more or less definitely detected [4, 25] in Solar cycles.

In this connection an influence of Jupiter on the development of Solar cycle presents special interests, as it is proved statistically [3, 25] that the Jovian revolution period modulates this cycle. However, a significant difference in basic 11-year SA cycle and Jovian periods gives no grounds for stating that the latter "controls" the former one. On the contrary, we may presume that namely this difference in basic periods provides definite "defence line" from a destructive resonance within the Solar system, since these two periods form a sufficiently precise double-structured system [5] of harmonic- and Φ -resonant periods (Part 2).

From these considerations a question arises – whether there exists a relation between the ATS and those periods and harmonics being revealed in the development of the Solar cycles, which appear not from a statistical analysis, but in a definite sense explicitly – as the *parameters* of analytical *model* of Solar cycles, within the accuracy of source data.

Before answering this question, we have to define the required mathematical tools for carrying out such an analysis.

1.2. AN interdisciplinary Concept of Synchronism and Resonance

1.2.1. Esoteric Approach

During the preceding centuries, if not millennia, retaining of relative immutability of social relations and production abilities has led to a definite conservation of astrological concepts, within the bounds of which the modern astrology continuous to develop. At the same time, the revolutionary changes that take place in Nature and society over the last century and, especially, the decades due to an explosive informatization of society, growth of power potential, scientific knowledge and technological abilities are unprecedented in the history of this civilization and accompanied by significant intensification of energy emitting processes on the Earth and within the Solar System, or Solarsphere, itself [73].

Example 1.1. The amount of energy issued by humanity approaches the Earth's energy excretion; melioration and water storage ponds have drastically changed the climate in definite regions. Moreover, the world wide effects are seen in acceleration of the Earth's magnetic pole shift, in increased frequency and magnitude of significant catastrophic climatic events, etc. [73].

But if the qualitatively new trends have originated both on the Earth and within the Solar System, they must have their sources and possible new consequences. That is why revealing of the cause-and-effect relations which define the existing and new world trends from the point of view of synchronism of heterogeneous phenomena (including physical and archeological ones) may provide us with a powerful research instrument. From physical and mathematical viewpoints, this approach cannot be considered incorrect as far as it is based on the established synchronism between the events in Space and on the Earth, and though the absence of physical explanation for it makes a gap in our knowledge, it does not prohibit us from using such synchronism for predictive or other relevant purposes. The more so, the given below examples emphasize the efficiency and applicability of this approach.

With respect to time and place of birth of a human being, the conventional astrology takes account of *static* and *kinematic* parameters of definite space objects in Geocentric coordinate system that are related to the place of birth. Note, that from a physical point of view, this approach might be called *astrology in a narrow sense*, as it does not deal with mass or energy. After then, a psychological description and/or prediction for the given birth data are obtained for that human being with the use of empirical rules that define a correlation between the values of these parameters or symbolic qualities being attributed to the planets and their configurations, and possible reflection of these numerals and symbols in traits and events.

Example 1.2. The inconsistency of the statement that astrology has no physical background is illustrated by a number of physical facts. For instance, in a series of experiments being conducted in 50-ies by Prof. G. Piccardi and his colleagues [2, 74] the rate of definite chemical reactions was continuously measured for ten years at different latitudes. On the basis of 250 thousand experiments it has been definitely shown that this rate depends on the level of Solar activity, continuously increases with latitude by 2.5 times as the laboratory position is changed from South to North Pole, and presents the yearly minimum around the Spring equinox when the Earth moves in the direction of the Galactic Center.

Application of these rules, as of laws in science, is based on the principle of analogy which, in its general astrological form, is given by the Hermetic axiom "as above, so below; as below, so above". At this, if other object than a human being is considered (e.g. a state, or a company) this principle allows us to use the same rules, but in a natural conceptual adaptation to the essence of this new type of object.

Besides, this approach possesses the basic properties of a scientific theory: it includes *axioms* (viz. basic assumptions), which set up correspondence between the astronomical and psychological and/or eventual concepts, *rules of drawing the conclusions*, which use formal logic and calculus for obtaining conclusions from axioms, and allows us to *verify the conclusions* with taking account of the nature of the considered objects. It is obvious however, that due to their irreproducible nature these conclusions, as in medicine or economy dealing with different reaction of the objects being "the same" just in average, might be true

(and, thus, verified) with a definite probability only. Nevertheless, in the sense of mathematical statistics, this verifiability is relevant to physical reproducibility of experiment for the case when the initial conditions could not be reproduced exactly, or the experiment itself cannot be repeated.

At the same time, as far as astrology rests upon the concepts of synchronism and resonance, but for static and kinematic factors, no obstacles exist that prevent us from considering the concept of resonance relative to its essence – exchange of energy. For this, the third, *dynamic*, factor of influence is proposed to be taken into routine consideration, the more so the electromagnetic waves, high-energy particles and other energy-carrying media may exert explicit influence (Part 0).

For the most powerful and, therefore, important dynamic factor we must take the Solar activity (SA), both the current SA level and the 11-year SA cycle, the influence of which on Nature, human beings and social processes (including wars, revolutions, etc.) is well known [2, 4]. However, though the influence of the SA surges (first of all, in a form of sunspots) is known from the ancient times, it is rarely used in forecasting and it is analyzed, primarily, a posteriori due to a lack of reliable forecasting techniques for the SA level.

As well, a significant, although sporadic, influence over the Earth exert the comets that come from beyond the Pluto's orbit. Thus, the miraculous synchronism [41, 42] between the comet Hale-Bopp's (HB) Time Focuses, the SA surges and significant events in Nature and society could not be explained until the recent years except by esoterically; but now it is known from Prof. J. McCanney's work [40] that a comet coming from the outer part of the Solar System possesses a huge electric charge, and alignment of such comet with two or more Space objects (especially with the Sun) results in discharge of the Solar capacitor with subsequent coercion onto the concerned Heavenly bodies.

If the Earth is included in this process, in the Geocentric system this corresponds to conjunction or opposition of the comet and Sun (besides, we may suggest the square may also have a sound physical background as the electric and magnetic field strength vectors are perpendicular). But namely these aspects between the Sun, HB and Moon, and first of all – Sun/HB conjunctions, were independently of Prof. J. McCanney's theory used [41] in astrological considerations when obtaining the comet HB's Time Focuses of influence!

Therefore, by taking account of that influence the SA, comets and other Space objects may exert over the Earth's life side by side with the static and kinematic factors, when regarding astrology as science or knowledge that reflects the influence the Space exerts on the Earth's phenomena, it makes no sense to exclude *astrology* from considering *in a wide sense* as well – as the replenishment of the conventional approach (viz. astrology in a narrow sense) with the dynamic factors of influence on the ground of concepts of synchronism and resonance.

1.2.2. Numerical Approach

Until now there exists neither a constructive mathematical model that would allow us to describe the synchronisms that take place between the Solar, planetary and terrestrial phenomena (including non-harmonical ones) within a frame of some algebraic structure, nor a regular approach for testing the consistency of the proposed periods, though some results were obtained as to an existence of Golden section and fractal correlations in various applications [4, 10, 14, 15, 16]. To this end, the aim of this work consists in revealing of presence of a structure being described by the ATS in Solar cycles on the ground of error bound analysis for obtaining quantitative estimation of synchronism [44].

While considering this problem, we will distinguish between its mathematical and application aspects. If the former one is basically concerned with revealing of presence of correlation between the periods and constructing of a structure of cross-correlations, the latter one is associated with the conclusions that could be made on the grounds of the obtained mathematical model. From physical point of view, this approach cannot be considered incorrect: even though the absence of physical explanation makes a gap in our knowledge, it does not prohibit us from using of established synchronism for predictive or other relevant purposes, the more so if the conclusions are verifiable, and, in many cases, may be supplied with a vanishingly small estimate of probability of randomness of synchronism.

Resonance, in a common sense, is understood as a simultaneous action of several factors of influence, which are similar in their action or applied to a definite element. In physics, the resonance is understood as increase in amplitude of mechanical or other quantity, or exciting oscillation of one object when the exciting frequency of another object approaches some natural frequency of the former one. The phenomenon of resonance is the basis of functioning of some systems and undesirable hinder for others. A resonance occurring in an oscillatory circuit being tuned to coincidence of frequency with the radio signal forms the basis for radio communications, whereas a resonance in an engine may cause its destruction. In parallel, a **unison** being commonly understood as a desirable (or non-destructive) resonance is the necessary thing in music, etc. The phenomenon of unison and its ultimate form – resonance, relates directly to the discussed question, as the dynamic factor may cause both transfer of a desired influence and irreversible or destructive changes. Thus, astronomy presents the following

Example 1.3. Orbital spreading of asteroids is not uniform: distribution of asteroids in sidereal periods shows minima (Kirkwood's windows) corresponding to simple ratios ($1/2$, $2/5$, etc.) of asteroid and Jupiter periods; these period ratios lead to strong disturbances and loss in motion stability. In other words, out of the asteroid revolution periods those are "knocked out" which coincide with Jovian harmonics. The same situation takes place with the slots in the Saturnian's rings.

This concept is grounded theoretically by Kolmogorov, Arnold, and Moser (KAM theorem) who proved that instability catastrophes in planetary systems can be prevented by planetary periods of revolution that form highly irrational quotients, and maximal stability takes place if the Golden section defines their ratios; on the contrary, the commensurable ratios-quotients formed by simple integers like 1 to 1 , 1 to 2 , 2 to 3 etc., can induce resonance catastrophes by amplifications of disturbances. This theoretical conclusion explains why an "exact" harmonical synchronism or resonance is so seldom in natural phenomena and testifies to validity of the proposed error bound approach in search of synchronism between the phenomena.

Though the concept of resonance pertains to the considered problem, the latter is not reduced to it, as the dynamic, or energy, factor of influence is not the only one which must be considered; the time factor, without causal background, is of great importance as well, especially in those cases when the physical source of interaction is unknown. Thus, the influence the Solar Activity cycles exert to the Earthy processes was known from the ancient times, but this was proved statistically, when studying some processes in biology, botany, etc. [2], only in 19th century, and physically – in the 20th one. To this end, the 11-year SA cycles (in particular, the current SA levels) present special interest since their average length T_o^* specifies, as it is shown below, both the basic time unity for the Solar System, and the "frequency" at which the Sun oscillates synchronously with the Hypernova Eta Carinae (Part 4).

In general, the **synchronism** is understood as a correlation between periods which takes place, but within the specified accuracy: the higher the accuracy, the more chances for a resonance to occur, the lower - the more chances for a unison as non-destructive type of resonance. To this end a synchronism may reflect a resonance or, inversely, an "escape" from an exact resonance (as we may suggest this for the Jovian period and T_o^* , Part 2). In either case it establishes a functional dependence that could be used in application or research purposes.

Define the basic concepts of synchronism and resonance qualitatively, while postponing the account of data accuracy till the next section.

Let A , B be some recurrent events that take place at definite moments of time. In a narrow sense, these events are synchronous if they occur at the same moments of time. But this definition is too rigid and, therefore, useless for describing the concept of simultaneous appearing of events for the dominant part of phenomena, because the parameters of physical and social phenomena always show definite instability, their values are frequently time-shifted or defined statistically or by rough data. Besides, the events themselves require some time for development, which causes delays.

Let some process a be defined by appearing of a recurrent event A that occurs at the specified time moments t_i , which form the sequence

$$t_A = \{\dots, t_i, t_{i+1}, \dots\}_i. \quad (1.1)$$

This event may specify definite value of some quantity (e.g. maximum, minimum, etc.) or some qualitative state (e.g. passing of the vernal point, culmination of social process, etc.). Call this determined process the *periodic*, if the difference $T_{i+1} = t_{i+1} - t_i$ (to be called the *period*) remains its value for any i ; *progressive*, if this difference for the subsequent cycle equals to αT_i , $T_i = t_i - t_{i-1}$, and α is constant; and *irregular*, if the same sequence of moments

$$t^* = \{t_1, t_2, \dots, t_k\}. \quad (1.2)$$

repeats with period t_α so that (1.1) takes form $t_1, t_2, \dots, t_k, t_1 + t_\alpha, t_2 + t_\alpha, \dots, t_k + t_\alpha, t_1 + 2t_\alpha, \dots$.

Example 1.4. The rotation of the Earth around the Sun presents a periodic process. The Golden Section separation epochs (Part 3) of the Mayan Calendar present a progressive time scale [6], which are synchronous with the process being defined by the distribution of maxima in a series of geophysical phenomena over the time interval of 13 millennia. The sequence of calendar holydays presents an irregular process being defined by the dates.

The *periodic processes* a, b are called *synchronous*, if their periods satisfy the equation

$$T_a = k \cdot T_b, \quad k > 0. \quad (1.3)$$

This synchronism is *harmonical*, if k is natural or simple ratio ($1/2, 2/3$, etc.), and *Auric* (as adjective to Golden Section) if $k = n\Phi^m$, ($m \in \{\pm 1, \pm 2, \dots\}$) where n is small natural. In this case call the value T_a (order k) *harmonic* of period T_b ; by analogy, the factor k , for brief, is also called harmonic, if it relates period T_a to period T_b .

Respectively, the progressive processes a, b are synchronous, if their time sequences (1.1) coincide (to within a summand). The *processes* a, c are *partly synchronous* (*p-synchronous*) with respect to event C , if each event A with a definite possibility (e.g. in a probabilistic sense) is accompanied by the event C (viz. the event C may take place without the event A).

This type of synchronism may be useful in predicting of moments of appearing of cyclic or sporadic events by the moments of determined (periodic, cyclic or irregular) ones. From general consideration it is reasonable to assume that combining of several processes of this type will increase the probability of appearing of event C : this may be considered as a kind of resonance. Taking this in mind, we shall say that the pair-wise p-synchronous processes a, c and b, c come to *resonance* at moment t with respect to event C , if both events A, B take place at t . If a and b are synchronous periodic or progressive processes that come to resonance at some moment t_i , they also come to resonance at the moments

$$t_i \pm n \cdot T_a, \quad (n = \pm 1, \pm 2, \dots); \quad (1.4)$$

$$t_i + aT, \quad t_i + aT + a^2T, \dots \quad (T = t_i - t_{i-1}), \quad (1.5)$$

$$t_i - T, \quad t_i - T - a^{-1}T, \dots;$$

where $+$ ($-$) is taken for the subsequent (preceding) moments. The same holds true for irregular processes, except that (1.4) must be corrected with respect to (1.2). If one or both of them present cyclic processes, the relation (1.4) shows when they may (in average) come to resonance. More exact forecasting of the moments of resonance for cyclic and stochastic processes requires us to know the distribution of (1.1).

1.2.3. Statistical Approach

Apart from more or less determined ones, the stochastic processes exist where the events may occur “at random” in a sense we do not know exactly when they would take place; call it *cyclic*, if time intervals between the events are close to their average value (e.g. Solar cycles), and *sporadic*, if these intervals show significant disperse. E.g., though pandemics, surges of social disturbances and other phenomena show a trend to appear around the 11-year SA maxima [2, 4, Part 5], they may occur at other moments; for this reason, they are rather to be considered as sporadic events.

Example 1.5. (Part 4). (1) *In terms of cycle duration being inverse to the frequency of the events, the average period $T_0 = 11.07$ yr of the 11-year SA cycles presents the second harmonics of the basic Eta Carinae radiation event cycle period of $T_{EC} = 5.5306$ yr with the accuracy of $\delta_0 = 0.08$ %.*

(2) *Within the existing two-centennial observation data, the 11-year SA cycles and Eta Carinae events present the synchronous processes, cyclic and periodic ones, where the model peaks t_k^* of the SA Regular Model present the Most prominent Eta Carinae events [35] with not less accuracy than the peaks τ_i^* being defined by the accepted Eta Carinae event distribution.*

For describing the synchronism of sporadic processes numerically, consider the probability of randomness of synchronism Q_{AC} between all events C and A . For this, consider the total number N_C , N_A of events C , A , respectively, over the interval of observation T , and the number of times N_{CA} the events A , C coincide within the accuracy δ^* .

Let $N = \min(N_C, N_A)$ and Δt_i , ($i=1, 2, \dots, N$), be time intervals between the most close pairs (A_i, C_i) of events A , C . As we estimate the randomness of synchronism, assume the events A , C be not correlated and C to be uniformly distributed in time. Then, the conditional probability $P(C/A)$ is estimated as

$$P(C/A) = N_{CA} / N_A . \quad (1.6)$$

By considering the width of intervals Δt_i with respect to interval of observation T , together with the number N with respect to N_C , we obtain [75] an estimate for Q_{AC} with the use of combinatorics and basic concepts of the theory of probability. The below calculations illustrate that the results are overwhelming.

Note 1.1. 7. The defined types of synchronism specify just the basic models and in the least degree pretend to cover all possible types of correlations. Thus, though coming of the comets presents a sporadic process, those ones that have arrived since 1996 show the coincidence of their cardinal points with the comet HB's Time Focuses; e.g. the comet Hyakutake (1996) and Ikeya-Zhang (2002) cross the comet HB's trajectory at a close vicinity of Algol almost at the same dates of April 11, 1996 and April 7, 2002, that is at the comet HB's Focal belt of April 7-11 being specified by the comet HB's alignment with New Moon and Algol (Part 9).

Example 1.6. (Part 3). The analysis of correlation between the 21 most destructive (relative to number of victims) earthquakes on Record in the world [32] and the separation epochs of the Auric partition of the Mayan Calendar specified by 7 dates over the period of 1142 years undoubtedly testifies [6] that they are synchronous, since the probability of randomness of this synchronism, $Q_{Quakes/MC}$ is not greater than $10^{-10} - 10^{-14}$, or 10^{-12} in average, what is close to $Q_{ssn/HB} = 10^{-12}$.

The Time Focuses of the comet Hale-Bopp [41] were specified in Spring 1997 by the moments of comet's alignment with the Sun, Earth and Moon. A posteriori, it was discovered, that the local SA maxima took place in close vicinities of these Focuses. The first period of observation (July 1997 – April 1998) includes 9 Focuses and 16 local SA surges being measured in SSN [Sunspot indices <http://sec.noaa.gov>].

As far as in accordance with the above consideration the time and date for the Focuses are specified for the GMT, the coincidence of the Focus and local SSN maximum dates is accepted within the threshold absolute error $\Delta^* = 1 \text{ day}$ (Note, that even 5 day orb corresponding to a natural disperse of natural and social phenomena might be taken; the more so, the HB's Time Focuses are defined by the Sun/HB conjunctions: in this case a conventional 5° orb of Ecliptic for the Sun corresponds to 5 days).

As far as the differences between the Focuses and local SA maxima, in days, are as follows [75] 0, 0, 4, 2, 1, 1, 0, 2, 0, the estimation for the conditional probability $P(\text{SA maximum/ Focus})$ of appearing of local ssn maximum at the comet HB's Focus for an "exact" coincidence being defined by the discrepancy of $\Delta^* = 1 \text{ day}$ makes

$$P_{1 \text{ day orb}} (\text{SA maximum/ Focus}) = 6/9 \approx 0.67,$$

whereas this value for the $\Delta_{\text{Sun}} = 5 \text{ days}$ orb is as follows

$$P_{5 \text{ day orb}} (\text{SA maximum/ Focus}) = 9/9 = 1.$$

At this, the probability of randomness of synchronism $Q_{\text{ssn/HB}}$ between the 9 HB's Focuses and 16 local SSN maxima is estimated [75] by the value $Q_{\text{ssn/HB}} = 10^{-12}$. For comparison, this value is about several dozen times lesser than the ratio of a poppy-seed and the Earth radii; or 1000 times lesser than a chance for a citizen of this Globe to win the only prize being raffled among 10 billion people.

In other words, the local SSN maxima and comet HB's Time Focuses are synchronous with a probability $P_{\text{SA/HB}} = 1 - 10^{-12} = 0.999\,999\,999\,999$; from a physical viewpoint, this means the determined correlation.

Moreover, this synchronism continues until now. Thus, in 2000 there were two more events that might be considered as such that were organized by the Providence for energizing <http://sec.noaa.gov> these Factors of Influence and Focuses [41]: a Solar Storm, the largest and most destructive since 1991 on July 14, 2000 (viz. exactly at the Focus T6) that was accompanied by an explosion of the comet Linear (about July 22) the first comet to be seen in three years (viz. after the comet HB!).

Further on, the largest SA splashes in 2001 took place in the vicinity of the Focuses T5 and T7. Besides, on April 2, 3 (viz. within an orb of the Focus TB), the Sun produced two X-class flares, one of which had the largest X-ray magnitude seen to date in Cycle 23 and, to some estimations, was the largest in 25 years; the subsequent diverse SA manifestations (X-ray emissions, sunspots, coronary mass ejection) had resulted in massive bombardment of the Earth in the following two weeks, which coincided with the distributed HB Time Focus TB (April 7 – 11).

This coincidence that takes place for the fifth year might be considered random, but just with a fantastically small probability of approximately 10^{-50} [42].

From materialistic point of view an event with such vanishing probability can be considered as impossible, though from Theosophical point of view this may denote the only thing, that the Sun being the Brain and the Heart of the Solar System [46] has turned its intent look to the Earth by aimingly participating in the Earthy processes [42, Parts 8, 9] on the phase of rise of its activity within the 11-year cycle through directing complementary energy inflow [40, 42, 73, et al] in conjunct with the HB's Focuses.

Independently of these astrological and numerical considerations, a physical theory has been put forward [40] that explains comet's influence by electrical interaction between the Sun, comet and Earth, that is caused by an extremely high electric charge of the comet within the Solar sphere capacitor. This theory and a great size of the comet Hale-Bopp approaching the size of Moon [40] explain those large effects this interaction has exerted to the Earth and Sun.

At the same time, as far as this interaction manifests itself at the Focuses until now, we may assume that the supposed "channels" [75] not only provided the electrical interaction [40] in 1997-1998 (when the

comet HB was at perihelion), but had left ionized channels in the Space that continued to support interaction, after the comet flew away, when the Earth recurrently passed the same Ecliptic points of alignment.

Example 1.7. Such events as local maxima of daily SSN (more exactly – a sharp increase in SSN) show a trend to be synchronous with a series of terrestrial phenomena [2, 4]. Thus, in close correspondence with Tchijevsky's theory such well-known events as unsuccessful coup d'etat in the former USSR (August 19 - 21, 1991) and September 11 Attack occur after a sharp increase in daily SSN as it is seen in Figs. 1.1, 1.2.

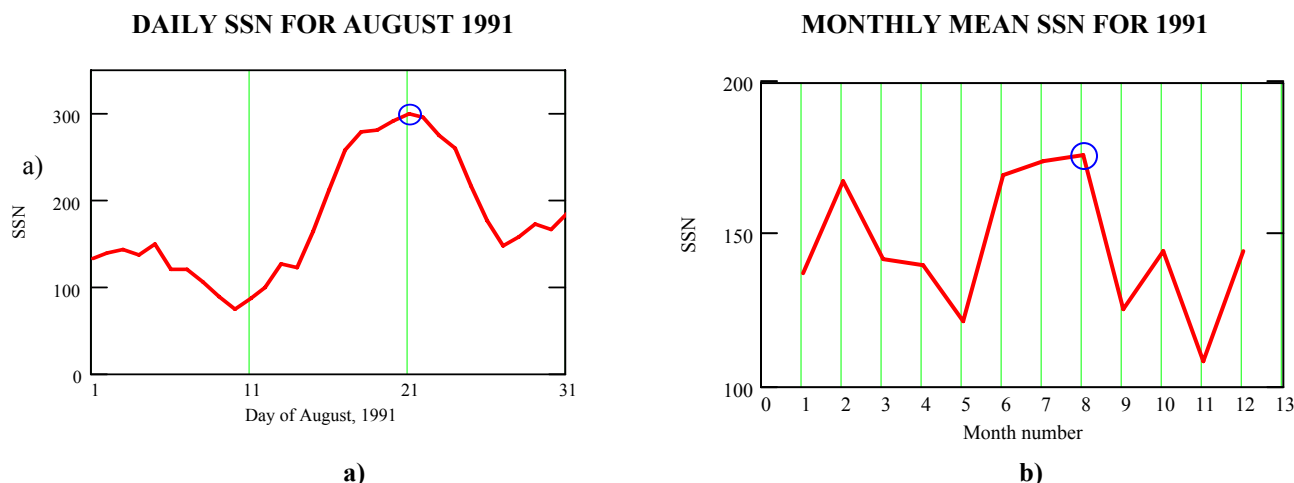


Fig. 1.1. Growth of SSN (in SWO units) before the coup d'etat in the former USSR (Aug. 19 – 21, 1991)

- a) The daily maximum SSN = 300 for August 1991 (and even for the whole year) is marked by a circle.
b) The monthly mean maximum SSN=176.3 (August) for 1991 is marked by a circle

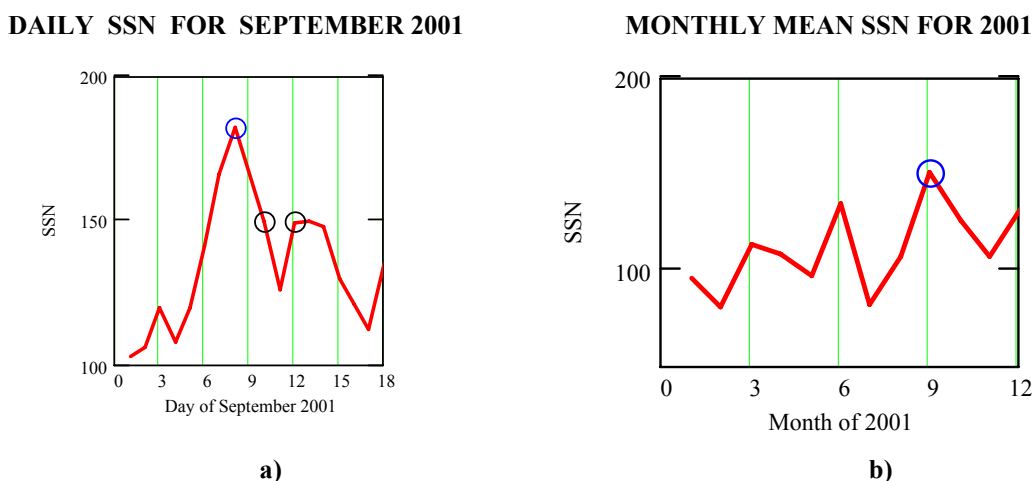


Fig. 1.2. Development of SSN (in SWO units) before the September 11 Attack

- a) Daily SSN local maxima (marked by circles) for September 2001: 182 (Sep.8), 150 (Sep.10), 149 (Sep.12)
b) The monthly mean maximum for 2001 (September, SSN=150.7) is marked by a circle.

In general, a definition of synchronism is to take account of epochs specifying the origins of the considered processes. However, as far as in many cases these are only the periods that are known or present impor-

tance when establishing an algebraic relation between two or more processes, in the below consideration we will interpret a synchronism in this context, if not specified otherwise.

1.3. Auric Time Scale (ATS)

Measuring of pyramids and other objects of the ancient Egypt and India allows us to state that the Golden Section is known from the antiquity. Leonardo da Vinci gives it a name Sectio Aurea (that is used below as an adjective for the Golden Section), while much earlier the discovery of Fibonacci series had laid the base for detailed mathematical study of this object. As well, a series of processes in nature develop according to this ratio [3, 4, 5, 14, 16]. Historically, the Golden Section came to us as the law of proportional connection between the whole and the parts composing this whole. To this end, a classical definition of the Golden Section is the division of a segment (or a rectangle) in the mean-proportional ratio, where the whole ($c = a + b$) is to greater part (b) as the greater part to the lesser part (a)

$$\Phi \equiv \frac{a+b}{b} = \frac{b}{a}.$$

If we equate a to 1, we come to the square equation $1+b=b^2$ with the roots

$$\alpha = \frac{1+\sqrt{5}}{2} = 1.6180339... \quad , \quad \beta = \frac{1-\sqrt{5}}{2} = -0.6180339... \quad . \quad (1.7)$$

The positive root in (1.7) specifies the **Golden section** $\Phi = 1.6180339...$, and its negative root – the inverse value (viz. the ratio of a/b) $\varphi = 0.6180339...$, $\varphi = -\beta$, where coincidence of fractions is not occasional as

$$\Phi = \varphi^{-1}, \text{ and } \Phi = 1 + \varphi. \quad (1.8)$$

The following two-sided progression with Golden section geometric ratio and unitary initial term is called [5] the **Auric series** Γ (Table 1.1, column 6)

$$..., \Phi^{-2}, \Phi^{-1}, \Phi^0 = 1, \Phi^1, \Phi^2, ... \quad . \quad (1.9)$$

With the use of φ , for excluding negative powers, the series Γ may be presented as follows

$$..., \varphi^2, \varphi^1, \varphi^0 = \Phi^0 = 1, \Phi^1, \Phi^2, ... \quad . \quad (1.10)$$

Note, that within a scale factor the series (1.9) presents the only geometric series that also satisfies the Fibonacci's property $\gamma_{n+2} = \gamma_n + \gamma_{n+1}$. If a natural value n is assigned to the initial term of series Γ , we obtain series Γ_n to be called the **natural replenishment** of series Γ or order n

$$..., n\Phi^{-k}, n\Phi^{-k+1}, ..., n\Phi^{-1}, n\Phi^0 \equiv n, n\Phi^1, n\Phi^2, ..., n\Phi^{k-1}, n\Phi^k, ...$$

Among all these series, the greatest interest presents the series $\Gamma^* = \Gamma_2$ (Table 1.1, column 8).

The **Fibonacci numbers (series)** are the terms of infinite series u of natural numbers $u_1, u_2, ...$ being defined by initial terms $u_1 = u_2 = 1$ and recurrent equation $u_{n+1} = u_n + u_{n-1}$, which defines the rule for obtaining of the consequent term u_{n+1} by two antecedent terms u_n and u_{n-1} . Thus $u_3 = 1 + 1 = 2$, $u_4 = 2 + 1 = 3$, etc. (Table 1.1, column 2).

The Golden section number and Fibonacci numbers are interconnected as follows

$$u_n = \frac{\alpha^n - \beta^n}{\sqrt{5}}, \quad (1.11)$$

$$\Phi^n = u_n \cdot \Phi + u_{n-1}. \quad (1.12)$$

The equation (1.11) means that with the growth of n the ratio $\Phi^n / \sqrt{5}$ converges to u_n , whereas the equality (1.12) yields a convenient rule for calculation of powers of Φ ; for example, $\Phi^2 = 1 \cdot \Phi + 1$, $\Phi^3 = 2 \cdot \Phi + 1$, $\Phi^4 = 3 \cdot \Phi + 2$, etc.

This unity of multiplicativity and additivity engenders a close connection between the natural Fibonacci numbers and irrational Golden section power series which is very important for further consideration.

In parallel with the series u consider the series v which is generated as the series u , but with other initial terms. The connection between this series (See Table 1.1, column 4) and series u may be described as follows

$$v_n = u_{n-1} + u_{n+1}, \quad n > 1; \quad v_n = u_{2n} / u_n; \quad v_n = \Phi^n + (-\varphi)^n. \quad (1.13)$$

In parallel with series u and v , consider the **United series** z being composed of their terms as follows

$$u_1, v_0, u_2, v_1, u_3, v_2, u_4, v_3, \dots, \text{ where } v_0=0. \quad (1.14)$$

Other properties of these series are given in [5].

Table 1.1. Fibonacci Numbers and Basic Auric Series

Series u		Series v		Series Γ		Series Γ^*	
Term	Value	Term	Value	k	Φ^k	k	$2\Phi^k$
				\vdots	\vdots	\vdots	\vdots
				-3	0.24	-3	0.47
				-2	0.38	-2	0.76
				-1	0.62	-1	1.24
u_1	1	(v_0)	1	0	1.00	0	2.00
u_2	1	v_1	1	1	1.62	1	3.24
u_3	2	v_2	3	2	2.62	2	5.24
u_4	3	v_3	4	3	4.24	3	8.47
u_5	5	v_4	7	4	6.85	4	13.71
u_6	8	v_5	11	5	11.09	5	22.18
u_7	13	v_6	18	6	17.94	6	35.89
u_8	21	v_7	29	7	29.03	7	58.07
u_9	34	v_8	47	8	46.98	8	93.96
u_{10}	55	v_9	76	9	76.01	9	152.03
u_{11}	89	v_{10}	123	10	122.99	10	245.98
u_{12}	144	v_{11}	199	11	199.00	11	398.01
u_{13}	233	v_{12}	322	12	322.00	12	643.99
u_{14}	377	v_{13}	521	13	521.00	13	1042.00
u_{15}	610	v_{14}	843	14	843.00	14	1686.00
u_{16}	987	v_{15}	1364	15	1364.00	15	2728.00
u_{17}	1597	v_{16}	2207	16	2207.00	16	4414.00
u_{18}	2584	v_{17}	3571	17	3571.00	17	7142.00
u_{19}	4181	v_{18}	5778	18	5778.00	18	11556.00
u_{20}	6765	v_{19}	9349	19	9349.00	19	18698.00
u_{21}	10946	v_{20}	15127	20	15127.00	20	30254.00
u_{22}	17711	v_{21}	24476	21	24476.00	21	48952.00
u_{23}	28657	v_{22}	39603	22	39603.00	22	79206.00
\vdots	\vdots	\vdots	\vdots	\vdots	\vdots	\vdots	\vdots

It follows from (1.12), (1.13) that with the growth of n the natural number v_n more exactly approximates the value Φ^n , and the term $2\Phi^n$ of the series Γ^* converges to $(2\sqrt{5} / \Phi^3) \cdot u_{n+3} \approx 1.056 \cdot u_{n+3}$; the latter equality means that the terms of series Γ^* converge to the values being 5%-close to terms of series u .

In other words, the Golden section series Γ engenders the series Γ^* , whereas the series v , and u give an integer presentation for the former ones. For this reason the system of series Γ and Γ^* , in parallel with u , v , and z , is further considered as the **Auric Time Scale** (ATS), the time unity of which (viz. the term

$\Phi^0 = 1$ of series Γ) corresponds to the selected period of physical process (e.g. Tropical year, Solar cycle length, or other period). For convenience, *the Earth year* is taken for this *unity*.

Namely this algebraic system, the core of which is specified by the series Γ , is used as a structure of *discrete* set of basic periods which, as benchmarks, synchronize the bulk of considered processes.

1.4. Threshold Error Analysis

The actuality of error analysis for the considered problem corresponds fully to that how frequently it is ignored, when the values being obtained from observations are taken for the “exact” ones. One of the best examples presents assigning the value of mathematical constant (π , Φ , etc.) to an approximant for a value which presents a result of rough measurement or calculation.

Even the Earth spin parameters, though they are relatively stable, are subject to variations: nutation in longitude and obliquity may reach a dozen of seconds of arc, while difference between the Ephemeris and Universal time makes about 1 minute for a century. Of course, much more significant error yields calculation of periods for social and natural phenomena, including detection of the main period and harmonics of Solar cycles. As a result, none of the actual processes could be synchronous in the sense of mathematical equality, whereas the idea that stands beyond this concept and its ultimate, or dynamic, manifestation – the resonance, presents the essence of actual interactions that take place in Nature and society, and definite discrepancy between the time parameters of such processes does not reject the possibility of interaction, but rather define its magnitude.

Meanwhile, the considered processes do not, in general, satisfy those conditions that are required for application of extensive mathematical techniques provided for studying of random processes, nor the results these techniques may provide us with are appropriate for the subject. This is so, because (i) it makes a special problem how to estimate the probabilistic parameters for the considered events with a limited prehistory, (ii) a relatively large uncertainty in values of source data results in obtaining of relatively wide confidence intervals for the solutions to have practical sense, (iii) application of those techniques requires use of special software and high skill in mathematics.

Besides, as far as the co-existence of harmonical and Φ -harmonical correlations makes the essence of physical world within the range from the terrestrial to Solar system phenomena, not only natural and rational harmonics $n \cdot T$, T/n , $T \cdot (n/k)$, but Φ -harmonics $n\Phi^m \cdot T$ and $T/n\Phi^m$, ($m \in \{\pm 1, \pm 2, \dots\}$) are to be considered as well, where n, k are small natural numbers. As far as these correlations are not “exact” by their essence, it is proposed to seize the opportunity of an error bound approach for disseminating the concepts of synchronism and resonance onto harmonic and Auric periods so that an equality between two quantities being estimated by different numerical values is accepted if these values are equal to within the given accuracy.

That is why, with the due regard of the essence of the considered problem it makes sense to take advantage of obvious and practicable numerical approach being based on the error analysis. For this, show how the defined above qualitative concepts may be treated quantitatively [17], with the use of threshold criterion being defined with respect to the time parameter errors, as it is obvious, that, in general, we cannot obtain a result to be more exact than the accuracy of source data allows us. To this end, for the threshold error δ^* it is natural to take a relative error presenting an average accuracy of the least exact, but most important quantity among the considered system of processes, as this will allow us to explicitly adjust the decision making to the source data accuracy and, further on, to supply the result with its error for subsequent use.

Let δ^* present a **threshold relative error** for the given system of periods Z , and T, t – the estimates for the compared periods X, Y , the exact values of which be unknown. Define the error of equality for these values as the ratio presenting an analogue of relative error

$$\delta_{T,t} = |T - t| / \min(|T|, |t|). \quad (1.15)$$

In this case we accept the periods X, Y equal to within the error $\delta_{T,t}$, and denote this as $X \cong Y (\delta_{T,t})$. If $\delta_{T,t} \leq \delta^*$, we accept these periods equal $X \cong Y$ to within the system Z, δ^* . Thus, out of relation $2\Phi^n \approx 1.056 \cdot u_{n+3}$ for the terms of series u and Γ^* we get $2\Phi^n \cong u_{n+3} (5.6\%)$ and regard them as equal for $\delta^* = 6\%$.

Together with considering of relative error being appropriate for periods, in analysis of proximity of absolute time moments we must take account of the origin of time coordinate, as the denominator of (1.15) depends on this origin, whereas the numerator – does not. In this case we consider an absolute error

$$\Delta_{xy} = |x - y|, \quad (1.16)$$

and compare it against the threshold error Δ^* to be defined in compliance with δ^* , though in some cases the value δ^* is obtained from Δ^* , if the latter one defines the degree of a source data uncertainty.

Example 1.8. The basic Solar indices are collected on a daily basis since the world-wide Solar data are averaged over a day. If we attribute this value to the mid-day, the "actual" daily maximum of SSN (as time-continuous quantity) does not, in general, comes to the next or preceding day; in this sense its deviation Δ^* from a mid-day does not exceed half a day.

Meanwhile, since the daily variations in SSN are not very significant in study of general trend of Solar cycle, but the plentiful of these values embarrasses this study, the daily numbers are averaged over months. When considering a monthly mean SSN index, it is naturally, once again, to specify the epoch for each mean as the middle of the respective month.

However, though an epoch of "actual" monthly maximum is not defined formally, whatever reasonable concept we accept for it (maximal daily SSN, or maximum of smoothing polynomial for daily SSN, etc.), the deviation of the obtained epoch from the mid-month date, would not exceed half a month. Therefore, for the error of identification of monthly maximum we may take $\Delta^* = 0.5$ (month) and use it on when checking the proximity of monthly mean epoch to a definite date, whereas $\Delta = 1$ (month) is to be used for this error when a time distance between two means is considered.

Comparing of errors (1.15), (1.16) against the threshold value $\delta^* (\Delta^*)$ specifies a **binary relation** $X \cong Y$ **of synchronism** for elements of system Z with respect to the specified accuracy $\delta^* (\Delta^*)$. Though transitivity for this relation might not be guaranteed for all possible chains of periods for a continuous scale, this does not impede from revealing of classes of equivalences of periods (in a sense of equality, or synchronicity) in case of ATS due to its discrete structure if we specify these classes by δ^* -deviations from the exact values of ATS.

When considering a system of Solar and planetary revolution periods, the Solar parameters are evidently to be taken for estimating the value of δ^* (or Δ^*) as the least exact, but most important ones. The more so the 11-year Solar cycle period and its harmonics correlate not only with the majority of both planetary and terrestrial phenomena periods, but also with a probable "master generator" of the Solar System – the nearby and the most powerful hypernova Eta Carinae (Part 4).

This, once again, emphasizes the actuality of accurate estimating of the average Solar cycle length.

The effectiveness of error analysis consists in relative simplicity of setting the correspondence between the accuracy of source data and the result. This allows us to explicitly adjust the decision making to the accuracy of source data and, further on, to use the result supplied with its error estimate for subsequent usage.

Besides, effectiveness of this approach, in contrast to implicit ones, is stipulated by a relative simplicity of estimation of probabilities for concurrent events by a direct consideration of the number of coincidences of events and their absolute time discrepancies, which provides us with a direct probabilistic (i) confirmation of presence of synchronism and (ii) estimate of synchronism for the purpose of forecasting.

1.5. Stable estimate of the average Solar cycle length and its accuracy

1.5.1. Stable Estimate for the Average Solar Cycle Length

The average length of the 11-year Solar cycle T_o^* presents special interest for this study. The basic estimates for T_o^* are varying around the value of $T_o' = 11.1$ yr, but the principal question remains as to estimation of two decimal digits of mantissa.

Though a cycle is considered now as a time interval between the epochs of two sequential minima, in estimating this value the epochs of maxima are more useful, because the historical observations are basically associated with phenomena being originated at the latter ones. Thus, by making use of aurorae and other manifestations of SA we can go back to the depths of centuries, as the aurorae closely follow the frequency of sunspots. At the same time, the epochs of minima may only roughly be estimated for non-telescopic periods, and only approximately for the telescopic ones, since absence of exact definition of Solar minimum leads to a mess in defining of actual beginning of cycle, as it was shown above, for cycles 22, 23.

As long as the estimates for T_o^* show a significant variations from cycle to cycle, make use of statistical approach for obtaining a reliable estimate for this quantity. For the given epochs of maxima $\tau_n = \{t_1, t_2, \dots, t_n\}$, the value of T_o^* can be estimated by the mean cycle length as follows

$$T_o = \frac{1}{n-1} \sum_{i=1}^{n-1} (t_{i+1} - t_i) = \frac{1}{n-1} (t_n - t_1). \quad (1.17)$$

that presents a *stable and unbiased estimate* of T_o^* , the accuracy of which the higher, the longer the series τ_n . The absolute error of this estimate may be evaluated as follows

$$\Delta_T = |T_o - T_o^*| = \left| \frac{1}{n-1} (t_n - t_1) - T_o^* \right|. \quad (1.18)$$

It depends on the errors $\Delta_{E,l}$, $\Delta_{E,n}$ in defining the epochs of the first and last maxima in the series τ_n , and in the deviations $\Delta_{D,l}$, $\Delta_{D,n}$ of length of the first and last cycles from the average value. Therefore, Δ_T does not exceed the following upper estimate for this error

$$\Delta_T \approx \left| \frac{1}{n-1} [(n-1)T_o^* + \Delta_{E,n} + \Delta_{D,n} - \Delta_{E,l} - \Delta_{D,l}] - T_o^* \right| \leq \frac{|\Delta_{E,n}| + |\Delta_{D,n}| + |\Delta_{E,l}| + |\Delta_{D,l}|}{n-1}, \quad (1.19)$$

where an average deviation in defining an epoch of maximum may take a value of up to 2 years, if they present a bimodal distribution of SSN, and up to 3 years for the ancient cycles being estimated by Aurorae which indicate maxima with such a delay [25]. As the duration of Solar cycle may have a length of 7 to 17 yr, an error $\Delta_D = [(t_{i+1} - t_i) - 11]$ may vary from -4 to 6 years. Then, the worst estimate for Δ_T makes

$$\Delta_{T,w} \approx \frac{2 + 3 + 6 + 6}{n-1} = \frac{17}{n-1} \text{ yr}. \quad (1.20)$$

At the same time, if for the first and last cycles of the series τ_n the errors Δ_E , Δ_D take average values of 0.5 and 2 years, an average estimate for Δ_T makes

$$\Delta_{T,a} \approx \frac{2(0.5 + 2)}{n-1} = \frac{5}{n-1} \text{ yr}. \quad (1.21)$$

At present, there exists three principal series of SSN. For brevity, call them the **short**, **medium** and **long samples**. The first one presents the Zurich series; in this system, the current Solar cycle is 23rd. The medium sample contains more or less systematic, but telescopic observations since 1610, where all SSN maxima are officially specified [8] and the recently passed one is 36th. The long sample presents the epochs of about two hundred Solar maxima being restored by observations of Aurorae and ¹⁴C.

The estimate $\Delta_{T,w}$ (1.20) makes about 0.75 yr for the short sample, 0.5 yr for the medium one, and about 0.085 yr for the long sample, whereas the estimate $\Delta_{T,a}$ (1.21) makes 0.23, 0.14 and 0.025 yr, respectively. However, the accuracy of estimate (1.17) might actually be even higher, since the deviations in t_l, t_n may compensate each other. For this reason we may presume that the *average error* Δ_a for the long sample can be estimated as a mean of the latter two values $\Delta_a \approx (0.025 + 0) / 2 \approx 0.01$ yr, but hardly less than 0.01 yr.

Meanwhile, even if the epochs t_l, t_n are defined exactly (viz. $\Delta_{E,l}, \Delta_{E,n} = 0$), the deviations $\Delta_{D,l}, \Delta_{D,n}$ may compensate by chance only. In this case the estimate (1.20) makes an order of 0.06 yr for a long sample, or $\Delta_w \approx 0.07$ as a mean for this and the above value of 0.085, while for the short and medium samples this effect is seen in a significant variation of reported estimates for T_o^* that range from 11.06 to 11.13 yr.

Thus, though (1.17) presents a **stable and unbiased estimation** for the average length T_o^* of Solar cycles, making use of long sample allows us to significantly increase its accuracy and evaluate the mean error in estimate (1.17) as lying between the values of $\Delta_a \approx 0.01$ and $\Delta_w \approx 0.07$ corresponding to Niroma's [25] intervals. By rounding the latter value to the tenth we obtain the **absolute** and **relative threshold errors**

$$\Delta^* = 0.1 \text{ yr}, \quad \delta^* = 0.1/11.07 \approx 1 \%. \quad (1.22)$$

To this end, as far as choice of the epoch of the last maximum within a series τ_n exerts the greatest influence on the accuracy of estimate (1.17), we should choose it by taking account of the integral level of SA, as the first maximum in this series could not be found otherwise but through the general increase in SA.

1.5.2. Selection of source data for estimating the average length of Solar cycle

The following estimate for T_o^* was put forward in [17, 28] with the use of data of [1, 8, 29]

$$T_o = 11.07 \text{ yr}. \quad (1.23)$$

A new catalogue [26] of sunspot observations estimates the period T_o^* as $T_{o,C} = 11.116 \pm 0.007$ and provides an approximation for maxima epochs: $Year = 4.0 + 11.116N$, where N is a cycle number ($N = 178$ for maximum of 1980/81). However, this value exceeds significantly other estimates which are in good correspondence with a series of cross-correlations, and, even for the specified N , gives the value 1982.648 against the official year of 1979.9 [8].

J. Schove [27] has made a mainly auroral analysis back to 649 BC, whereas a more reliable analysis begins in 215 BC [25]. He has calculated that between 215BC and AD 1947 there were 195 sunspot cycles thus giving $T_{o,S} = 11.08$ yr as the average length. But he has also showed, that there is so much vacillation even in periods of 500 to 1000 years (at least from 11.04 to 11.09 years), that the question is not definitively settled. In development of his work, T. W. Cole [34] obtained an estimate 11.06 yr. Note, that averaging this and Schove's values gives us, once again, the estimate (1.20).

With the use of statistical analysis, T. Niroma [25] has evidently shown a close correlation between the extrema in SA, Jovian perihelion, and a wide spectrum of periods of basic cycles and supercycles in nature,

which is based on the point estimate $T_o = 11.07$ yr [25]. He also obtained a series of confident interval estimates being symmetrical with respect to T_o , $(11.05; 11.09)$, $(11.067; 11.073)$ to be among them. In order to increase the length of the series τ_n , he has used the Schove estimates based on aurorae. On these grounds he states that still older records favour the mean of 11.07 years. So, T. Niroma [25] also supports an estimate of $T_o = 11.07$ yr with an interval of 11.05 to 11.09 years.

Therefore, as far as the basic cross-validated estimates for T_o^* oscillate around the estimate (1.23), this value $T_o = 11.07$ is considered below as the most grounded point estimate for the average Solar cycle length with the errors (1.22).

2. ATS as algebraic Structure of the basic Periods in nature and society

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2.1. Introduction

Revealing of cyclic processes in Nature and society and determining their periods for spiritual, scientific and application purposes are attracting attention of a man since the ancient times. At this, such basic properties of Time as periodicity and succession-of-events were always close, but not equivalent.

These days, we may only imagine we can qualify with confidence the entire system of the ancient knowledge, including count of time, as the most things were enciphered, and unveiling even some of them makes us astonished. Thus, as the cuneiform tablets show, the *Ancient Babylonians were watching the phases of Venus*, which became possible for modern astronomy only after invention of telescope in the XVII century. Not less admiration is provoked by the Mayan Calendar the Auric structure of which is studied below; though it has almost nothing in common with Solar and Lunar cycles which make the basis of the most calendars, the *Ancient Maya knew the duration of the average Solar year with several digits after the decimal point*, their concept of counting the days is now accepted in astronomy (Julian days), and *their Calendar for Venus was accurate to within two hours per 500 years!* That is why we may suggest this calendar to hide some more secrets of Time.

Revealing of cyclic processes in Nature and society is commonly carried out by detecting the basic period T of the phenomenon, which is preferably considered to be immutable, though sometimes harmonics are considered, viz. the periods kT and T/n where k and n are integers or rational numbers. Once these basic periods specifying the phenomena of various natures have been detected, we may state a problem of studying of synchronism between them. For this, in [5] the concept of Solar-planetary synchronism (SPS) was introduced.

In the narrow sense, the SPS is understood as a mathematical model (or system) that correlates the periods of the Solar system planetary revolutions, Solar rotation and average period of 11-year Solar activity cycle. It was found that this system behaves itself algebraically as if its structure consists of, at least, two components: harmonic (or linear) and exponential (or nonlinear) ones. At this:

- the first of them specifies time in a conventional uniform scale where the Earthy (e.g. tropical) year is taken for the unit, with respective derived units from seconds to centuries and millennia;
- the second, or the Auric Time/period Scale (ATS), presents the infinite *discrete* set of periods $\Gamma = \{\dots, \Phi^{-2}, \Phi^{-1}, \Phi^0 = 1, \Phi^1, \Phi^2, \dots\}$, viz. the geometrical progression with the ratio being equal to the Golden section number $\Phi = 1.618\ 033\ 9\dots$; its unit, $\Phi^0 = 1$, might be set up to any physical period (tropical year, average 11-year Solar cycle period, etc.) belonging to the system. This selection of time unit specifies the absolute value of periods relative to the chosen unit-period, though it does not influence the synchronism.

In the broad sense, the SPS denotes coincidence of the periods specified by the Auric Time Scales Φ^k and $2 \cdot \Phi^k$ with the known basic periods of most fundamental cycles in Nature and society, within the range of minutes to hundreds of million years. By having not a hint for explaining this, we, however, may state that ATS closely correlates practically all fundamental periods of phenomena in Nature and society namely through the Golden section, and not harmonically.

But the concept of Time includes not only periods, chronology of events makes the essence of it as well. So, *if the powers of the Golden section define the fundamental periods in Nature and society which flow in parallel, we may suggest, that the Scale Γ defines, when its values are considered in succession, the phases of evolution, or historical cycles, the duration of which decreases with factor Φ .*

So, the ATS-based Solar planetary synchronism of periods is considered in this Part. The concept of the evolutionary time specified by the ATS makes the essence of Part 3. The Solar cycles as the “standard time signals” of the ATS are considered in Part 4.

2.2. Basic source data and Formulation of the Problem

Revealing of the laws that describe the time dependencies for the cosmogeneous objects still continues to present an unsolved problem the actuality of which is defined not only by theoretical interest. Its significance for applications arises, in particular, from the established synchronism between the periods of planetary revolutions, Solar rotation, and 11-year Solar activity cycle from the one hand, and cyclicity of a number of biological, geological, social, and other processes with duration of seconds to hundreds of million years (and, might be, in a much more wide interval), from the other hand.

However, without obtaining the general mathematical model, that describes the planetary (viz. in a narrow sense) synchronism, there exists no possibility for studying such synchronism in a broad sense, which, in a system, correlates the periods of phenomena of both Cosmogeneous and Terrestrial nature. For this, a mathematical model of the *Solar-Planetary Synchronism* (SPS) has been developed [5], which is based on the discovered algebraic structure of periods of the basic Solar System objects. The internal structure of this model is specified by the *Auric Time/Period Scale* (ATS) that presents both the essence of the established SPS, and general model which allows us to correlate, through the principle of Unison/Resonance being described below, the SPS periods with the known fundamental periods of cyclic phenomena in Nature and society.

In elaboration of studying of periods, in this work the concept of Auric Time Scale presenting a mathematical model of the SPS is applied to analyzing the phenomena in “historical” time with the aim to verify the hypothesis that the global processes in Nature and society are developing in exponential, or evolutionary time being also specified by the ATS rather, than in linear, or harmonic time being described by conventional unvaried periods (Part 3).

Note that all periods are given below in the units of Earthy tropical year, if not specified otherwise.

2.2.1. Solar Activity Parameters

It is known (Part 0), that growth of Solar activity exerts significant influence not only upon atmosphere and biological objects (first of all, onto nervous system and, then, onto cardio-vascular system), but over bio-systems and society as a whole. Thus, as it was shown by A. Chijevsky (Part 5) in 1924, maxima in distribution of extremal social events (revolutions, riots, wars, etc.) are closely correlated with the 11-year SA cycle maxima. Due to high degree of integration of the world society, this influence is so important today, that those social and economic forecasts, which describe the state and development of complicated systems might hardly be regarded efficient unless this factor is taken into consideration.

Therefore, with respect to that influence the SA exerts over all spheres of Nature (including social events and individual human beings), it becomes unreasonable to exclude from consideration those periods, which specify this activity. Namely, in addition to planetary revolution periods of Mercury to Pluto, the average 11-year SA cycle period T_o and Solar equator rotation period t_o are taken for system consideration. At this, if determines the duration of the basic cycle of Solar activity within which four basic phases of background influence are specified, the period t_o determines the periodicity of current SA influence specified by allocation of the actual sunspots, because they exert their influence mainly when passing the central Solar meridian; the latter factor of cyclic influence has an evident physical explanation and is closely correlated with a number of physical phenomena [2, 4].

As far as the polarity of sunspots and other factors is altered in the sequential 11-year cycles, and the SA influence increases sharply when the sunspots pass the central Sun's meridian at invisible side as well, consider also the periods $2 \cdot T_o$ (heliomagnetic, or Hale cycle) and $\tau_o = t_o / 2$ being not less actual than the basic ones.

The great importance of the period T_o is also emphasized by the Regular structure of the Solar cycles and their synchronism with the Hypernova Eta Carinae (Part 4).

The period T_o is estimated in Part 1 and makes 11.07 yr.

The Sun rotates about its axis not as a solid body: different parts of Sun's surface rotate at various speeds. At the beginning of each new cycle sunspots appear mainly by pairs and in both sides of the equator up to latitudes of $\pm 35^\circ$. Eventually (around the "second" cycle maximum), they begin to appear mainly near the equator zone, but rarely approaching closer than to $6^\circ - 8^\circ$. The largest number of sunspots is seeing near the latitudes of $\pm 16^\circ$.

The sidereal period of rotation for the points of Heliographic latitude b makes $360^\circ / \eta_b$, where η_b is the daily angular speed at this latitude, and $\eta_b = 14.37^\circ - 2.60^\circ \sin^2 b$ to within an error $\delta_\eta \approx 0.2\%$ [29]. This allows us to obtain the rotation periods for the bound latitudes of these zones.

Table 2.1. Sidereal and synodic rotation periods of the Sun surface for the bound latitudes (in days)

Period designation and area description	Sidereal period	Synodic period
t_E , Equator	25.05	26.90
t_L , Lower bound of Equator zone ($\pm 6^\circ$)	25.10	26.95
t_M , Maximal sunspot distribution zone ($\pm 16^\circ$)	25.40	27.30
t_O , Sunspot origination zone ($\pm 35^\circ$)	25.64	28.74

Since the Equator zone exerts maximal influence [29], the value $t_o = t_L = 25.10$ (d) is accepted below for Sun's rotation period; as far as uncertainty in bounds of this zone is from - 0.05 to 0.3, the accuracy of this estimate may be evaluated as $\delta^{**} \leq 0.35 / 25 \approx 0.1$ corresponding to the worst case error δ^* (Part 1).

Besides, since the Solar influence increases sharply [2, 4] when the sunspots pass the central meridian of the Sun, both at the visible and invisible sides, half the period $\tau_o = t_o / 2 = 12.55$ (d) is also taken into consideration. Thus, as T_o and $2 \cdot T_o$ present the basic periods of Solar cycle, so t_o and τ_o specify the basic periods for current manifestations of Solar activity.

2.2.2. Comet, Asteroid Belt and the Main Solar System Periods

The bulk of asteroids revolving around the Sun between Mars and Jupiter have periods from 3 to 7 years. Besides, the distribution of asteroids in sidereal periods shows a number of minima corresponding to simple ratios ($1/2$, $1/3$, $2/5$, etc) of Jovian period. These factors make difficulties for obtaining accurate estimate for an average asteroid belt revolution period. However, by showing interest to the Solar System planets, for this average we may take the arithmetic mean of Sidereal periods of the most stable elements of this Belt – all minor planets whose diameter exceeds 100 km (Table 2.2).

Table 2.2. Orbital parameters of the largest asteroids

Name	Diam. (km)	Sid. Period (yr)	Name	Diam. (km)	Sid. Period (yr)
Ceres	770	4.60	Flora	100	3.27
Pallas	490	4.61	Metis	130	3.69
Juno	190	4.36	Eunomia	228	4.30
Vesta	380	3.63	Massalia	106	3.74
Astraea	100	4.14	Aquitania	107	4.53
Hebe	170	3.78	Papagena	210	4.91
Iris	170	3.68	Davida	230	5.69

This mean makes $T_{AB} = 4.21 \pm 0.5$ yr [5] and is specified by a close distribution of these asteroid periods around this mean.

For verifying the model, the revolution period of the comet Halley $T_{Halley} \approx 76$ yr is also considered.

As well, we consider the *main Solar System's period* – a minimal number that engenders the planetary periods as its natural harmonics; for short, call a hypothetic object with this period to the name of **Proserpine** – a planet being searched until now.

Resume. So we consider the known Mercury to Pluto's orbital periods together with the average periods of Solar Equator (SR) rotation, asteroid belt (AB) and comet Halley revolution, and average 11-year Solar cycle length (Tables 2.3, 2.4, below). Though all these periods show definite influence onto Terrestrial and extraterrestrial phenomena, for the most powerful and, therefore, important ones we take those that are specified by the factor of SA which manifests itself both in 11-year cycles and their harmonics, and in current SA surges. Though the 11-year cycle with average length T_o is generally considered as the basic cycle of Solar activity, we must remember that its doubling – the 22-year Hale cycle with average duration $2 \cdot T_o$ is almost as important as the basic one.

2.2.3. Formulation of the Problem: How to correlate the periods

2.2.3.1. With respect to the concepts of *synchronism and resonance* considered in Part 1, on the level of the accepted model factors (viz. periods) we may describe the Solar System as a dynamic system whose elements perform their oscillations with definite periods. This way, we come to the basic concepts of unison and resonance describing an interaction in oscillating processes.

Thus, by analogy with harmonic analysis, define a period T^* as k -th harmonic of period T , if there exists such natural k that $T^* = T/k$, and k -th Φ -harmonic of period T (or Φ -harmonic of order k), if $T^* = T/\Phi^k$, where $\Phi = 1.6180339...$ is the Golden section number.

Example. Since the relation $T_{Ur} \approx 84 \cdot T_{Ea}$ holds for Uranian and Earthy periods, the Earthy year coincides with the 84th harmonic of Uranus (within an error of 0.01%). As $\Phi^5 \approx 11.089$, (within the accuracy of 0.2%) the Earthy year presents the 5th Φ -harmonic of the average duration $T_o = 11.07$ of 11-year Solar cycle.

At this, coincidence of harmonic $T^{(1)} / k$ of one object with the period $T^{(2)}$ of some other object may cause both unison ("mild" interaction, causing the "desired" transfer of energy) and resonance (a "destructive" growth of interaction) between these two objects.

From this point of view we can study both the synchronism between the Solar System objects (SPS in a narrow sense), and that between these objects and the Earthy phenomena (SPS in a broad sense), regardless of their physical nature.

2.2.3.2. If we assume that Solar cycles and planetary periods are tuned reasonably (it is hardly probable that we could find other alternative), then, out of rarity of exact SPS synchronism at simultaneous significance of their physical consequences, we can conclude that this fuzziness in synchronisms is provided by Nature and there exist no point in attempting to establish "exact" relations for harmonics of SA cycles and planetary revolutions there, where they are absent. From the other hand, this fuzziness in equalities might not be limitless.

In other words, we may expect that conciliating of the polarities of "destructive" resonance and "harmonizing" unison, which present the same mathematical idea of equality of periods (synchronism), is actually to be searched in definite vicinity, but not in precise equality or indefinite proximity of periods and/or harmonics, as far as no mathematically "exact" correlation could be met in Nature.

Due to this reason, for taking account of the accuracy of these correlations the *threshold error analysis* was proposed in Part 1. This approach provides us with an instrument, at least on the level of numbers, for estimating the intensity of interaction between the objects by their periods, even if we do not know the physical causes of interaction, but can acknowledge it statistically.

Thus establishing of synchronism is carried out below by considering a relative error δ_* for the equalities of periods and harmonics, which presents the average accuracy for the least exact, but actual periods T_o and t_o

$$\delta_* = \sqrt{\delta_o \cdot \delta_t} \approx 1\% .$$

Namely, in order to estimate the proximity of some quantities A and B , consider an analogue of relative error

$$\delta_{A,B} = \frac{|a-b|}{\min(|a|, |b|)} , \quad (2.1)$$

where a, b are the values A, B , or their estimations (or approximate values) being used in calculations. Then, the values A and B are considered equal, if $\delta_{A,B} \leq \delta_*$, which is denoted as

$$A \cong B \quad (\delta_{A,B}) , \quad \text{or} \quad A \cong B \quad (\delta_{A,B} \%) .$$

For the above Example, within an error of 0.01% the Earthy sidereal year $T = 1.00004 \text{ yr}$ might be considered as the 84th harmonic of the Uranian sidereal revolution period $T_{Ur} = 84.01529 \text{ yr}$, because $T_{Ur}/84 = 1.000182$ and the proximity of this harmonic to the Earthy period equals to

$$\delta_{T_{Ea}T_{Ur}/84} = \left| \frac{1.000182 - 1.00004}{1.00004} \right| \approx 0.00014 = 0.014\% \approx 0.01\%.$$

2.2.3.3. Hence, the *Problem of searching of SPS* is actually expanded into two problems:

Search for the SPS in a narrow sense:

Find an algebraic structure of unisons for the periods

$\tau, t_o, T_o, 2T_o, T_{Me}, T_{Ve}, T_{Ea}, T_{Ma}, T_{Ju}, T_{Sa}, T_{Ur}, T_{Ne}, T_{Pl}, T_{Halley}, T_{AB}, T_{SS}$

which take place in the sense (2.1) for $\delta \leq \delta_ \approx 1\%$.*

Search for the SPS in a broad sense:

Verify, whether that algebraic structure of periods is reflected in the natural and social phenomena on the Earth with taking account of the threshold error δ_ .*

Meanwhile, with the use of the entered above concepts the solution to this problem, viz. the correspondence between its mathematical components and their physical manifestations, might be understood as follows:

2.2.3.4. Principles of Synchronism (Unison/Resonance). Let Q_1, Q_2 be the objects with fundamental periods T_1, T_2 ; $T_1 > T_2$, and k - a natural number. Then:

PS1. Qualitative measure of synchronism between the objects Q_1, Q_2 is defined by the equation

$$T_1 \cong kT_2 (\delta). \quad (2.2)$$

At this, numerical dominance of the period T_1 allow us to draw an analogy by saying that the object Q_1 is “influencing” the object Q_2 by its k -th harmonic in a sense the object Q_1 may excite a resonance in Q_2 by fitting its fundamental period T_2 , but not vice versa.

PS 2. Quantitative measure of synchronism between the objects Q_1, Q_2 is estimated by:

- (i) accuracy δ in equality (2.2);
- (ii) value being inverse to the harmonic number k , viz. the vicinity of the value k to 1.

PS 3. Should k in (2.2) be a rational fraction, the objects Q_1, Q_2 are called to be in unison/resonance with respect to harmonics.

From the general considerations it could also be accepted that:

PS 4. The longer the objects are in unison, the more the probability for the resonance to sharpen.

PS 5. If some periods correspond to “absolute” time scale, there should be such reference point(s) relative to which all of them are synchronized.

2.2.3.5. The SPS model that is based just on a harmonic structure (viz. presents ratios of natural numbers only) would describe a phenomenon, in general, as a stationary process where the average parameters remain time-invariable. In this sense it could be named a *linear development*, or *harmonic* (cyclic) *time model* where time is basically measured in units of unvaried orbital revolutions (e.g. 1 year yields the de-

rivatives: 1 century=100 years, 1day=1/365.24 year, etc.). A linear development defines the most simple **two-phase system**: rest (no resonance) – variations (resonance).

We may suppose a **three-phase system** of **evolutional type** to be substantially more viable by virtue of providing both *qualitative* and *quantitative growth*: birth (coming of new feature into existence), rest (stationary accumulation), transformation (transition from quantity to quality). Other non-linear models might be possible as well; the main thing is that they must differ from harmonic-type system for their influencing factor to be able to modulate the harmonic cycles being homogeneous on the average (viz. to provide a development via the spiral), since replenishing a harmonic system with any additional harmonic or rational factor would not drop the model out of the harmonic model limits.

In the capacity of such replenishment for a harmonic model it has been proposed the concept of **development on similarity** (or by analogy to the achieved) specified by the **Golden section** being exceedingly widespread in natural phenomena and arts as a fundamental element defining their structure relative to time and space.

2.3. ATS: algebraic structure of Solar System and Terrestrial periods

2.3.1. Solar-planetary synchronism in the light of Natural Harmonics

With respect to the above definition, define the main period T_{SS} for the Solar System, that is the minimal period which specifies the planetary periods as harmonics, by averaging the close values $42T_{Ju}$, $6T_{Ur}$, $3T_{Ne}$, and $2T_{Pl}$ and call it by the name of hypothetical planet **Proserpine** whose period is associated with the close value. Either this planet exists, or not, this period T_{SS} presents the key-stone in the structure of the Solar-planetary synchronism as the fundamental period for both planetary and Solar activity ones. Indeed, its second harmonic coincides with period of Pluto (See above, $T_{SS} = 2T_{Pl}$), the third – with that of Neptune ($T_{SS} = 3T_{Ne}$), etc. (See Table 2.3).

Table 2.3. Basic Solar system periods and their distribution over the Planetary series J, U, P

Object			Series of Jupiter, J	Series of Uranus, U	Series of Proserpine, P
# <i>i</i>	Designation	Sidereal period T_i (Tropical years)	Harmonic in the series of Jupiter and relative error (δ %)	Harmonic in the series of Uranus and relative error (δ %)	Harmonic in the series of Proserpine and relative error (δ %)
1	SR (Solar Equator Rotation)	0.068718 ($t=25.1$ d)	174 (0.8) 175 (1.4)	1218 (0.4) 1225 (0.2)	7308 (0.2) 7350 (0.8)
2	Me (Mercury)	0.24085	50 (1.5)	350 (0.3)	2100 (0.9)
3	Ve (Venus)	0.61521	20 (3.7)	140 (2.5) 136 (0.4)	840 (3.0) 816 (0.2)
4	Ea (Earth)	1.00004	12 (1.2)	84 (0.01)	504 (0.6)
5	Ma (Mars)	1.88089	6 (4.9)	42 (6.0) 45 (0.7)	252 (5.7) 270 (1.3)
6	AB (Asteroid Belt)	4.21	3 (6.1)	20 (0.2)	120 (0.8)
7	SA (SA cycle)	$T_0 = 11.07$	1 (6.7)	8 (5.4)	45 (0.6)
8	Ju (Jupiter)	11.86223	1	7 (1.2)	42 (0.6)
9	Sa (Saturn)	29.45772		3 (5.2)	17 (0.07)
10	Ur (Uranus)	84.01529		1	6 (0.6)
11	Ne (Neptune)	164.78830			3 (1.4)
12	Pl (Pluto)	247.6968			2 (1.2)
13	Pr (Proserpine)	501.144			1

NOTES. 1. Relative error δ % defines the accuracy of the equality $\Omega_i^O \cong \omega_i^O$ (δ) in the sense of (1.12).

2. Harmonic ω_i^O is chosen as the nearest integer comprising eigen divisors.

3. The symbol * marks the accuracy for the series **P** relative to T_{Ju} .

The relative frequency $\Omega_{ij} = T_i / T_j$, $T_i > T_j$, of periods T_i , T_j defines the period of object j as harmonic with "number" Ω_{ij} relative to the period of object i in ideal case, when Ω_{ij} is an integer; call this situation a synchronism of period T_j and harmonic Ω_{ij} of period T_i .

We know that absence of mathematically exact synchronism does not yet mean absence of its physical manifestation, but presumes that the synchronism between periods the more pronounced, the lesser the deviation of actual value of $\omega_{ij} = T_i / T_j$ from some integer frequency Ω_{ij} . In compliance with this approach [5], three main periods: T_{Ju} , T_{Ur} and T_{SS} were revealed, the harmonics of which come to a good agreement with the periods of remaining objects. At this, as the value T_{SS} presents the fundamental period for the Solar System as the whole, some lesser ones fulfill the same role for the inner planets. This allows us to reveal the following enclosed planetary series ($J \subset U \subset P$)

$$\begin{aligned} J &= \{ \text{Ju, Ma, Ea, Ve, Me} \}, \\ U &= \{ \text{Ur, Sa, Ju, Ma, Ea, Ve, Me} \}, \\ P &= \{ \text{Pr, PL, Ne, Ur, Sa, Ju, Ma, Ea, Ve, Me} \}, \end{aligned} \quad (2.3)$$

where the series of Jupiter, Uranus and Proserpine are denoted **J**, **U**, and **P**, respectively. For example, as it is follows from Table 2.3, the series **J** comprises all the inner objects with the following harmonics (they are given in brackets, **I** – corresponds to the main period of the series):

$$J = \{ Ju (1), SA (1) AB (3), Ma (6), Ea (12), Ve (20), Me (50), SR (174) \}.$$

Providing some objects with two harmonics in a single planetary series is explained by different rounding of relative frequency ω to an integer Ω : though we do not know the error δ specifying the limits for the synchronism to be effective, the integer harmonics filling the interval of periods from $\Omega(I - \delta)$ to $\Omega(I + \delta)$ can be considered as potentially equivalent, other things being equal, until some of them will be found more effective due to a special consideration.

By taking account of importance of the structures defined by these main periods, call them planetary series. Namely, a planetary series **Q** is a sequence of objects and their periods (or harmonics), where the root object **Q** presents the largest (root) period T_Q , while the fundamental periods of the remaining objects coincide with harmonics of this root period.

At this, due to the principle PS, we may suppose that since the root planet **Pr** presents the greatest period, it specifies the “basic” planetary influence being further “detailed” by the root **Ur** and, in its turn, the latter is detailed by **Ju**. As a result, each planet is influenced by one to three root planets as well as by complementary unisons relative to common factors with other planets and Sun.

Meanwhile, the more precise correlation between harmonics exists, the more (factor PS2i) powerful interaction could take place. In details, these ideas are verbalized below.

With respect to the definition of the main Solar System's period T_{SS} , its harmonics must be close to the planetary ones. At the same time, integration of all these periods into the planetary series augments the importance of the root planets. Therefore, by taking account of multiplicative nature of harmonics we may estimate this main root period as geometrical mean of the known root planet periods being multiplied by integers that define the factors of their harmonics within the main series; namely,

$$T_{Pr} = \sqrt{(\omega_{Ju}^{Pr} \cdot T_{Ju}) \cdot (\omega_{Ur}^{Pr} \cdot T_{Ur})} = \sqrt{(42 \cdot 11.86223) \cdot (6 \cdot 84.01529)} = 501.14408.$$

Pay attention, that arithmetic mean for these two products gives a close estimate 501.14408.

Analysis of Table 2.3 allows us to draw out the following conclusions (exceptions are discussed in [5]).

(1) The considered periods, to within an accuracy of 1-2%, are distributed over the three planetary series **J**, **U**, **P**, whereas the factors of these periods being common to all series are presented in the series **P** with the least error.

(2) The period T_{SS} is the minimal main period for Pluto, Neptune and other planets since its basic harmonics coincide with their fundamental periods. Therefore, whether the hypothetical planet Proserpine exists,

or not, the quantity T_{SS} remains to be actual in the Solar-planetary interaction as it presents the fundamental period for all planets.

(3) The system of planetary series \mathbf{J} , \mathbf{U} , \mathbf{P} describes the Solar-planetary synchronism on a level of harmonic relations with the accuracy which, by order of magnitude, corresponds to the source data accuracy δ^* , δ^{**} being primarily defined by Solar parameters.

(4) *In a differential form*, we come to a **sequentially enclosed planetary series** $\mathbf{J} \subset \mathbf{U} \subset \mathbf{P}$: the planetary periods form three series \mathbf{J} (Mercury to Jupiter), \mathbf{U} (Mercury to Uranus) and \mathbf{P} (Mercury to Proserpine), that satisfy the *Rule of multiplicativity and additivity* of harmonics (viz. factors k):

- harmonic of a planet in the external series equals to the product of its internal series harmonic and the internal series root planet (Ju, Ur, or Pr) harmonic taken from the external series: $\omega_i^{(n+1)} = \omega_i^{(n)} \cdot \omega_{R_n}^{(n+1)}$;

- planet harmonic multiples at the external series comprise those in the internal series and the internal series root planet multiples taken from the external series: $c_i^{(n+1)} = c_i^{(n)} \cup \omega_{R_n}^{(n+1)}$, where :

- harmonics of object i in the internal and external series, respectively; $n = 1, 2, 3$ relates to \mathbf{J} , \mathbf{U} , \mathbf{P} ;

$\omega_{R_n}^{(n+1)}$ - harmonic of the root R_n of the series n in the external series with number $(n+1)$;

$\omega_{R_n}^{(n)}$ equals to 1 and specifies the main period of the n -th series;

$c_i^{(n)}$ - set of harmonic multiples of object i in the series n .

(5) *In an integral form*, we come to a **Golden section algebraic structure of mean periods**. Let $\omega(Q)$, $\Gamma(Q)$ ($Q \in \{J, U, P\}$), denote the arithmetic and geometric mean harmonic for the series Q , and Q_α denote the series Q being replenished with the object(s) SR , SA , and/or AB . Then, with an average error $\delta_\omega \approx 2.5\%$ all arithmetic and geometric mean harmonics of series \mathbf{J} , \mathbf{U} , \mathbf{P} and their replenishments coincide with the terms of united series \mathbf{z} (1.11) of Part 1. Namely:

- replenishing of any series $Q \in \{J, U, P\}$ with the element SR increases its mean $\omega(Q)$ by Φ^2 times, thus shifting the value $\omega(Q_{SR})$ by 2 terms in the series \mathbf{z} ;

- in case of $\Gamma(Q)$, the replenished mean is increased by Φ times and shifted in \mathbf{z} by 1 term.

For all elements and series, the replenishment diagram for the arithmetic means takes the form [5]:

$$\begin{array}{ccc}
 \omega(Q) = z_k & \xrightarrow{\Phi^2} & z_{k+4} = \omega(Q, SR) \\
 \downarrow \Phi & & \downarrow \Phi \\
 \omega(Q, SA) = z_{k-1} & \xrightarrow{\Phi^2} & z_{k+3} = \omega(Q, SR, SA) \\
 \omega(Q, AB) = z_{k-1} & & z_{k+3} = \omega(Q, SR, SA, AB) \\
 & & z_{k+3} = \omega(Q, SR, AB)
 \end{array} \tag{2.4}$$

Fig. 2.1.. Algebraic diagram of the Golden section structure of mean periods

The values z_k are for series \mathbf{J} , \mathbf{U} , \mathbf{P} , respectively, z_{14} , z_{21} , z_{27} (See (1.11) of Part 1)

(6) Close Solar-stellar correlation is also seen in synchronism between the Solar cycles and hypernova Eta Carinae, that is established through the average Solar cycle length T_o (Part 4)

(7) A new found planet 2003 UB313 (nicknamed **Xena**) is the farthest-known object in the solar system, orbiting the Sun once every $T_X = 557$ (556.5673) years. Its sheer size in relation to the nine known planets means that it can be classified as a planet. Estimates of its diameter now range from 2,390 km to 5,000 km or more [http://mysite.wanadoo-members.co.uk/blobrana/database/2003UB313.htm]. Though its period does not exactly fit the basic Solar system period T_{Pr} , since $T_X \cong T_{Pr} (\delta = 11\%)$, it is close to it and, what

is important, comes to a very close Auric synchronism with the Jovian period: $T_X \cong \nu_8 \cdot T_{Ju}$ ($\delta = 0.2\%$), where $\nu_8 = 47 \approx \Phi^8$.

2.3.2. Solar System periods in the light of Φ -harmonics

For convenience of count of time, the **critical periods** of *ATS*, that is the terms of the series Γ and Γ^* are specified in the conventional Earthy time units (viz. in tropical year and its partitions) and designations. Thus, the record 7 yr, 1d, 3h, 2m, 3s denotes 7 years, 1 day, 3 hours, 2 minutes, 3 seconds. At this, if we take the Earthy period (Tropical year) T_{Ea} for the unity ($1 = \Phi^0$) of the series Γ , we obtain the sequence of periods $T_i = \Phi^i$ ($i = \dots, -2, -1, 0, 1, 2, \dots$) which are presented in Table 2.4, column 2, for i from -5 to 14. Then, Φ^1 defines 1.618... yr, viz. 1 year and 7.5 months, whereas $\Phi^{-1} = \varphi = 0.618 \dots$ defines 0.618 yr, viz. 7.5 months, etc.

At this, the average 11-year Solar cycle period T_o fits the term Φ^5 , that is

$$T_o = 11.07 \text{ yr} = \Phi^5 \cdot \Phi^{-5} \cdot 11.07 \text{ yr} = \Phi^5 \cdot T_{Ea} \cdot 0.9983 \approx \Phi^5 \cdot T_{Ea} \quad (0.17\%), \quad (2.5)$$

Note that the series Γ, Γ^* engender asymptotically the united series z comprising the series u and v . Within a negligible error *this means that the Fibonacci numbers (1.10) also fit the Auric Time/period Scale*. To this end, it is interesting that the average number of Solar days (viz. t_o) in Heliomagnetic ($2T_o$) or Solar (T_o) year equals, respectively, to

$$2T_o / t_o \approx \Phi^{12} \approx 322, \quad T_o / t_o \approx 161,$$

that could be taken as 12 phases of development of the Solar day in a complete, 22-year, SA cycle. The same analogy might be considered for any period $T_k = \Phi^k$ ($t_k = \varphi^k$) of the Auric series; e.g., for the Earth ($T_{Ea} = \varphi^5 \cdot T_o$) the Solar year is 5 phases of development of the Earthy year; the Saturn's year is two phases of development of Heliomagnetic year, etc. In detail, this concept is developed in Part 3.

In parallel with this basic element of ATS, consider its basic replenishment – the series Γ_2 , the terms $T_i^* = 2\Phi^i$ ($t_i^* = 2\varphi^i$) of which are given in column 5 (here and below, all references relate to Table 2.4, if not specified otherwise), and their correlatives – the Fibonacci series v and u (cols. 3 and 6). Note that this series should be considered almost as important as the series Γ since these two series include the basic periods of both 11-year ($T_o, 2T_o$) and current (τ_o, t_o) Solar cycles.

In order to simplify designations and use positive powers, designate the ATS terms (in years) as follows

$$D_j = \Phi^j, \quad (j = 0, 1, 2, \dots); \quad (2.6)$$

$$d_i = \varphi^i, \quad \varphi^i = 1/\Phi^i, \quad (i = 0, 1, 2, \dots). \quad (2.7)$$

Then, 1 Earthy year is the period $\varphi^0 = \Phi^0 = 1$ yr, whereas the period d_1 makes

$$d_1 = \varphi^1 = 0.6180339 \text{ yr} = 0.6180339 \cdot 365.25 \text{ d} = 225.7431 \text{ d} = 225 \text{ d } 17 \text{ h } 50 \text{ m } 3 \text{ s}. \quad (2.8)$$

whereas the critical periods d_i^*, D_i^* of the Heliomagnetic series Γ^* which correspond to the points (2.6), (2.7) are specified as follows

$$d_i^* = 2d_i, \quad (i = 0, 1, 2, \dots), \quad (2.9)$$

$$D_i^* = 2D_i, \quad (i = 0, 1, 2, \dots). \quad (2.10)$$

For convenience of analysis of this Table:

- those terms of the basic series Γ , which present values being lesser than a year, are also given in days; the respective Fibonacci numbers are given in brackets in column 3;
- the planetary and basic Solar periods and harmonics being relevant to the ATS values are presented in columns 4, 7;
- the Table is divided onto bands containing the periods of physically comparable lengths.

Table 2.4. Synchronism between the periods of series Γ , Γ_2 and their basic correlatives

i	Period $T_i = \Phi^i$ in series Γ , l (unity) = T_{Ea} , (in Tropical years)	Correlatives		Period $T_i^* = 2 \cdot \Phi^i$ in series Γ_2 , (in Tropical years)	Correlatives	
		Series v , v_i	Period design.		Series u , u_{i+3}	Period design.
.
.
.
... -36	Infra-band $T < 1s$; Physical and chemical phenomena					
-35...-13	Micro-band $1s < T < 1 \text{ day}$; daily rhythms					
-12 ...-6	Mini-band $1 \text{ day} < T < t_o \approx 1 \text{ month}$; weakly rhythms τ_o t_o					
	Midi-band $t_o \approx 1 \text{ month} < T < T_o \approx 11 \text{ years}$; cycles of social, economic and bio systems					
-5	0.0902 (=33d)	($u_9=34$)		0.1803		
-4	0.1459 (=53d)	($u_{10}=55$)		0.2918		
-3	0.2361 (=86d)	($u_{11}=89$)	T_{Me}	0.4721		
-2	0.3820 (=140d)	($u_{12}=144$)		0.7639	1	
-1	0.6180 (=226d)	($u_{13}=233$)	$T_{Ve}, T_{Ma}/3$	1.2361	1	
0	1.0000(=365d)	1 ($u_{14}=377$)	T_{Ea}	2.0000	2	$T_{Ju}/6$
1	1.6180	1		3.2361	3	
2	2.6180	3		5.2361	5	
3	4.2361	4	T_{AB}	8.4721	8	
4	6.8541	7		13.7082	13	$T_{Ur}/6$
5	11.0901	11	T_o	22.1803	21	$2 T_o$
	Socio-band $T_o \approx 11 \text{ yr} < T < u_{11} \approx 89 \text{ yr}$; long-termed social, economic and bio cycles					
6	17.9443	18		35.8885	34	
7	29.0344	29	T_{Sa}	58.0689	55	$T_{Ne}/3$
8	46.9787	47		93.9574	89	
9	76.0131	76	T_{Halley}	152.026	144	
	Ethno-band $u_{11} \approx 89 \text{ yr} < T < 1000 \text{ yr} = 2T_{Pr}$ Centurial cycles of large systems					
10	122.992	123	$T_{Pl/2}$	245.984	233	T_{Pl}
11	199.005	199	$\tau = 200 \text{ yr}$	398.010	377	$\tau = 400 \text{ yr}$
12	321.997	322		643.993	610	
13	521.001	521	T_{Pr}	1042.00	987	$\tau = 1000 \text{ yr}$
	Hyper-band $1000 \text{ yr} = 2T_{Pr} < T$ Millennia; Geological and other supercycles					
14	842.998	843		1686.00	1597	
.
.
.

Note. The terms of series Γ^* and u approximately correlate (1.9) so that $2\Phi^n \approx 1.056 \cdot u_{n+3}$.

General analysis of Table 2.4 allows us to conclude the following.

1. All the objects of Table 2.3, including the comet Halley, or their main harmonics being specified by their place in the planetary series (e.g. 2 and 3 for Mars in the series *J*; or 6 for Uranus in series *P*; 7 for Jupiter in *U* and 42 in *P*) coincide with the terms of Auric series Γ or Γ_2 with an average error of 0.9 %. In this sense the ATS describes the Solar-planetary synchronism with the use of both natural and Φ – harmonics.

2. As far as $\Phi^5 \approx 11.09$ (viz. $\Phi^5 \cong T_o$ (0.2%)) it becomes clear, that if the value T_o is accepted for the time unity instead of the Earthy year, then, within the accepted accuracy, the Earthy year and all these periods decrease their absolute values by φ^5 times, but remain within the ATS, that is continue to take the terms of Γ or Γ_2 . This allows us to suggest that the average length of the Solar cycle T_o should be considered as the true time unity of the Solar system. The more so because both of the Solar rotation periods fit these series: $\tau_o = 12.55(d) = 0.0344 \cong \varphi^7$, $t_o = 25.1(d) = 0.0687 \cong 2 \cdot \varphi^7$ (0.3%) and quite exactly correlate with T_o : $\tau_o \cong \varphi^{12} T_o$, (0.06%).

3. Φ -harmonics retain exclusive stability in contrast to natural ones. Thus, within the specified comparison error δ_* , the increase in ratio of $k = T_a / T_b$ results in a situation when harmonical resonance $T_a = kT_b$ takes place at a number of harmonics: $T_a = k_i \cdot T_b, (i = 1, 2, \dots, n)$; e.g. for the fundamental Solar System Auric period $T_P = 520$ (yr) and $T_{SR} = 0.0344$ (yr), at $\delta_* = 1\%$ we obtain, that $k = 520 / 0.0344 = 15116$, $k_1 = k - k\delta_* \approx 14965$, $k_2 = k + k\delta_* \approx 15267$. This mean, that the period T_{SR} might be corresponded with $N = k_2 - k_1 = 303$ harmonics of T_P . For Φ -harmonics such spreading of resonance is impossible; for the above periods we obtain that $k = 15116$ fits $\Phi^{20} = 15127$ within the comparison accuracy of $\delta = 0.07\%$, whereas $\Phi^{19} \approx 9349$, $\Phi^{21} \approx 24476$.

This stability allows us to consider the ATS terms as the equally exact unities of time, since the equality $\Phi^n = u_n \Phi + u_{n-1}$, where u_i are the Fibonacci numbers, allows us to reveal a synchronism between the given period and Φ^n -harmonic of any order n , for any time unity.

4. Due to its physical influence and Golden section position (among the planetary periods) in Γ , the basic Solar cycle period T_o may be considered as occupying the heart of this structure; the more so since it comes to close natural and Φ -harmonical synchronism with the main Solar system period, as well as with the Solar rotation period and, with an error of $\delta_o = 0.08\%$, presents the harmonic of the only known, nearby and the most powerful hypernova Eta Carinae (See Part 4).

Besides, it unites all the series $\Gamma_1, \Gamma_2, \Gamma_3, \dots$ by their units $T_o, 2T_o, 3T_o, \dots$, etc. This way, these Auric series can equally be called the Solar series.

5. By taking account of physical actuality of the 22-year SA cycle and allocation of sunspots at the meridian of the Sun on its opposite side, we may conclude that the series Γ_2 containing the periods $t_o, 2 \cdot T_o$ is almost as actual as Γ .

These conclusions allow us to put forward the following suggestions.

1. **The period T_o and the Auric series (centered to it)** – first of all the series Γ and Γ_2 – **define the kernel of the SPS in the narrow sense**. As the planetary series with their planetary harmonics and factors are integrated in the series $\Gamma_1, \Gamma_2, \Gamma_3, \dots$, **we may suggest, that the Auric series Γ and Γ_2 specify with their terms the global scale of Unisons/Resonances, or synchronistic periods for the Terrestrial phenomena**.
2. Relatively close correspondence of maximal planetary period T_{SS} , which defines the principal frequency for harmonic series, with the Auric series Γ may be estimated **as if the function of the Proserpine is to synchronize the rhythms of the Solar System with the influence of the External Space**, or Extra-Solar-System, through the Auric and planetary series. This close fitness of the period T_{SS} to both types of series gives a complementary support in searching of hypothetical **planet Proserpine** and allows **to estimate its period as $T_{SS} = 510.9 \pm 9.5$ yr**.
3. Periods being less than τ_o , as we may suppose, present insignificant influence on planetary interaction, but not on the contrary. As variations in SA present noticeable response, at least – on the level of electromagnetism, **the periods τ_o, t_o may be regarded as regulators of intrasystem (viz. intraplanetary) processes**, which synchronously transfer Solar-planetary influence, basically, through the Auric series.
4. The Jupiter's period does not directly (i.e. with the accepted accuracy) fit any Auric series Γ_k at small (viz. significant) value of k , but within the accuracy of 6.6% it coincides with T_o . Though this error is few times greater than the allowable one, we may consider this to be **a protection against an excessive resonance** (that otherwise would take place at low error) in the system of near periods T_o, T_{Ju} . From this viewpoint **these two periods might be considered as the “Internal System Generator”** of influence being Auric with respect to Sun, and harmonic – relative to Jupiter.
5. For subsequent study and verification of the ATS present the obtained results as the following

2.3.3. ATS Hypothesis

(ATS H1) The Auric (Time/) Period Scale (ATS) being specified, first of all, by the series Γ and Γ_2 (Γ^* , for short) reflects the scale of periods of basic phenomena in Nature and society over the numerically visible and steady range of time intervals, whereas manifestation of each phenomenon is developed locally, in harmonic time (being stable over a restricted number of harmonics) correlated with the basic period of this definite phenomenon.

(ATS H2) The Auric Time (/Period) Scale (ATS), in compliance with the multiplicative structure of the series Γ and in contrast to conventional considering of historical periods of equal duration, specifies the duration of successive historical (or evolutionary) cycles, for the basic phenomena, in the exponential scale Γ , viz. Φ^k , whereas some discrete processes may develop in its natural approximation, in the series Γ^* , viz. $2\Phi^k$.

2.4. Verification of the ATS Hypothesis

on the basis of its synchronism with the terrestrial periods

Apart from the considered Solar-Planetary Synchronism in a narrow sense, which relates the planetary periods through the ATS, within the accepted accuracy of $\delta_* = 1\%$ the basic periods of a large amount of phenomena in Nature and society also coincide with the terms of series Γ , or Γ^* , as well as with the associate Fibonacci series u and v . This generalization of the revealed synchronism onto **Terrestrial periods** presents SPS in a broad sense. However, in contrast to the planetary periods, in this case we have to allow for the accuracy of natural and social phenomena periods, since the periods of the most part of physical, biological and social phenomena being related with planetary revolutions and SA cycles are generally presented in bibliography by point or interval value without estimation of error. As well, we must remember that the periods of phenomena may fluctuate since they are correlated with the Synodic periods, not Side-real ones that were considered above. For example, the sunspot presents maximal influence over the Earth when it passes the central Solar meridian, and this is defined by the synodic period.

2.4.1. The Main Bands of Auric Periods

As far as the Auric Time Scale allows us to bring into correlation the phenomena with periods differing by many orders, consider the following time bands which cover more or less homogeneous time units, the limits of which are defined by the ATS terms (they were also used in Table 2.4)

Table 2.5. Bands of Auric Time/Period Scale Periods Relative to time Unity T_{Ea}

Design.	Band name	Band values (yr)	Band values (T_{min}, T_{max})	Brief description
B1	Infra	"0", ..., $\varphi^{37}, \varphi^{36}$	$T < 1s$ ("0", 1s)	Fractions of sec.; physical and chemical phenomena
B2	Micro	$\varphi^{35}, \dots, \varphi^{13}$	$1s < T < t_{Ea}$ (1s, 1d)	Hr., min., sec. Daily biorhythms
B3	Mini	$\varphi^{12}, \dots, \varphi^6$	$t_{Ea} < T < t_o$ (1d, 33d)	Days; monthly rhythms
B4	Midi	$\varphi^5, \dots, \varphi^0, \Phi^1, \dots, \Phi^5$	$t_o < T < T_o$ (0.1 yr, 11 yr)	Months and years; Current cycles of social and bio-systems
B5	Socio	$\Phi^5, \dots, \Phi^9, u_{11}$	$T_o < T < u_{11}$ (11 yr, 89 yr)	Decades; long-termed social, political and economic cycles; Bio-rhythms of large systems
B6	Ethno	$\Phi^{10}, \dots, \Phi^{13}$	$u_{11} < T < 2T_{SS}$ (89 yr, 1000 yr)	Centuries; centurial cycles of large systems
B7	Hyper	Φ^{14}, \dots, ∞	$T > 2T_{SS}$ (1000 yr, " ∞ ")	Millenniums; climatic, geological and other supercycles

Notes. Numerical value of the power Φ^k (or φ^k) gives the period duration in the Earthy years. In order to get them in the Solar year (T_o) unit, multiply all values by φ^5 . The values of powers of φ^k defining fractions of the year are presented in days, minutes, seconds (d, m, s), where $t_{Ea} = 1d$; $t_o = 1$ Solar day.

2.4.1.1. Infra band B1 periods (in decreasing order) in years t_i and seconds t'_i are as follows

$$t_i = \varphi^i, \quad (i = 36, 37, \dots) \text{ yr};$$

$$t'_i = t_i \times (365.26 \times 24 \times 60 \times 60) \approx 1.5295 \times \varphi^{i-35} \text{ sec}, \quad (i = 36, 37, \dots).$$

For example, $t_{37} = \varphi^{-37} = 1.8512 \times 10^{-8} \text{ yr}$, or $t'_{37} = \varphi^{-37} = 1.5295 \times \varphi^{37-35} = 0.5842 \text{ sec}$.

Though this band is far away from the periods considered in the SPS, it must be noted [4] that: "(1) experimental and theoretical studies have shown that maximal stability and strength of nuclear shells is reached when the golden section wave multiples are laid in the basis of their structure; (2) taking account of broad range of the golden section manifestations (from nuclear nucleons to Metagalaxy, inclusively), it might be stated that golden section wave multiples are the universal basis for constructing the most stable dynamic systems at all levels".

2.4.1.2. Micro band B2 periods are as follows

$$t_i = \varphi^i, \quad (i = 13, \dots, 35) \text{ yr};$$

Due to the importance of this band for many applications, its terms are presented in Table 2.6.

Table 2.6. Periods of Mini and Micro bands (in days, hours, min., sec.)

Band B3		Band B2					
i	t_i (days)	i	t_i (hr)	i	t_i (min)	i	t_i (sec)
6	20.36	13	16.83	19	56.26	28	44.41
7	12.58	14	10.40	20	34.77	29	27.45
8	7.78	15	6.43	21	21.49	30	16.96
9	4.81	16	3.97	22	13.28	31	10.48
10	2.97	17	2.45	23	8.21	32	6.48
11	1.84	18	1.52	24	5.07	33	4.00
12	1.13			25	3.14	34	2.48
(13)	0.70			26	1.94	35	1.53
				27	1.20	36	0.95

Note. Pay attention to the distribution of the ATS terms: above each unity of time the values form the sequences being close to Fibonacci series. This fact may be important in processing the experimental data.

2.4.1.3. Mini band B3 covers the periods from 1 day to 1 month, viz. from the Earth's to Solar day (See Table 2.6.); in this paragraph the periods are given in days. At this, in many cases use of synodic periods might be more adequate and, especially, for the Sunspots. In compliance with the sunspot latitude distribution (Table 2.1) the Solar day t_o varies in the range of (26.9 – 28.7) days, while its half-period – in the range (13.5 – 14.4) days. This is the first band containing the considered SPS terms, viz. t_o and τ_o . It must be noted that their correlation with many meteorological and biological rhythms is established within a high degree of reliability [2, 4]. For example, with the frequency of thunderstorms 13 and 26-27.5, and Aurora Borealis 25.9.

NOTE. Below, if required, the Auric terms being related with the numerical values of physical phenomena periods are given in brackets by their designation; e.g. 3.6 (t_{11}^*) denotes that the period of 3.6 days is corresponded by the Auric period $t_{11}^* = 2 \cdot t_{11} = 3.64$ days.

In this relation it is worth to mention that magnetic storms occur in 1.2 - 2.1 days (t_{12} , t_{12}^*) before earthquakes, Solar cycle exerts influence [4] onto physiological systems of different complexity with periods 26.0 ± 5 (t_o); 19 ± 1 (t_6); 13.5 ± 1 (t_7), 9.1 ± 0.8 (t_9^*), 6.9 ± 0.7 (t_8 , t_{10}^*); 3.6 ± 0.2 (t_{11}^*), etc.

2.4.1.4. Midi band B4 covers the periods from 1 month to 11 years, viz. from the Solar day t_o to Solar year T_o . Some periods included in this band (See Table 2.4) or close to them were frequently discovered and rejected as the subperiods of the 11-year Solar cycle. This may be caused either by resonance with planetary periods and/or by the fact the ATS terms show in this band a thickening (as in the case with B2, B3 bands) in the area from 1 to 11 years which hampers discriminating the periods. Relatively small number of physical phenomena with periods of up to 1 year could probably be explained by domination of natural yearly change of seasons, since the most economical and biosystems adjust to it. Nevertheless, it is seen here as well, that periods t_3 , and t_3^* associated with T_{Me} define quarterly and half-quarterly rhythms, t_5 - monthly rhythms, while t_2 and t_1 associated with T_{Me} - the rhythms of the yearly Golden Section being considered, e.g. in [10].

Consider the correspondence between the ATS terms and some known bio-, geo- and socio-periods [2, 4]. For convenience, the periods are given below in years (unless otherwise specified).

- * Geomagnetic activity: 182.5 days ≈ 0.5 yr (t_3^* , T_{Me});
- * Criminogenic periods: 1.1 (T_o , t_1^*), 1.2 (t_1^* , T_{Ve}^*); 1.9 (T_o^* , T_{Ea}^*), 2.6 (T_2), 8.5 (T_3^* , T_{AB}^*);
- * Volcanic, seismic activity: 3.2 (T_1^*), 5.8 (T_2^*), 11.2 (T_5);
- * Secondary periods of SA and relative ones: 3 (T_1^* , T_2), 4.38 (T_3), 4.8 (T_2^*), 8.36 (T_3^*), 9.26 (T_3^*), 13 (T_4^*), 13.5 (T_4^*);
- * Shorter meteorological cycles: 2 (T_o^* , T_{Ea}^*), 3 (T_1^*), 5 (T_2^*), 8 (T_3^* , T_{AB}^*), 11 (T_o , T_5), 33 ($3T_o$);
- * Vegetation cycles of trees: 5-6 (T_2^*), 10-13 (T_o , T_5);
- * Fishery catch cycles, head of livestock, coming of birds: 2.6 (T_2), 5.3 (T_2^*), 11 (T_o , T_5);
- * Economic cycles (Kitchin, La Combe, at al.): 3-3.5 (T_1^*), 5 (T_2^*), 8-9 (T_3^* , T_{AB}^*), economic crises: 7-11 (T_4 , T_3^* , T_{AB}^* , T_5 , T_o).

2.4.1.5. Socio band B5: just the name of this band indicates the correspondence between its values and actual social processes periods. It differs from B6, but relatively: here, within the scope of 11-90 year periods, the phenomena take more local manifestation than in B6, viz. they are connected with the current cycles of reforms and innovations in a greater degree than with global change in social order as in B6.

It is important for further discussion that from this band the asymptotic convergence of the Auric periods to Fibonacci series become actual; namely, within the accepted accuracy the difference between the Auric periods T_i , T_i^* and respective terms v_i of the series \mathbf{v} and Fibonacci numbers u_{i+3} , becomes practically insignificant. This gives rise to these series as those ones which define the cardinal periods in different spheres of the Terrestrial phenomena.

To begin with, consider the 11-year Solar cycle period T_o and its basic multiples associated with the longer Solar cycles and adjacent phenomena which are in rounding to integers take the values 11, 22, 33, 55, 89, 100 years. These values of kT_o , ($k = 1, 2, 3, 5, 8, 9$), define the central terms (viz. unities) of the harmonic replenishments of the main Solar series Γ and, hence, are important (but not in equal measure) from the viewpoint of Auric synchronism.

Thus, the first three of them, Γ , Γ_2 , Γ_3 , comprise the fundamental planetary revolution periods and their harmonics; this acknowledges the significance of 11, 22 and 33-year periods. The former two are considered above and are well known. The 33-year period is associated with industrial crises, meteo cycles, vegetation cycles of trees, etc. The fourth series, Γ_4 , corresponding to the unity period of 44 years, does not contain planetary periods and maybe due to this it shows no important physical or social phenomena. The periods $6T_o = 66$ yr and $7T_o = 77$ years are mentioned at times.

The periods kT_o at $k = 5, 8$ coincide with the important terms of the main Auric scale; this might be the cause why they are well-pronounced on the level of physical phenomena.

The nine-fold period, $9T_o \approx 100$ yr, specifies the unity of the series Γ_9 which completes the sequence of the Auric series containing the fundamental planetary periods within the accuracy specified; namely - the period of Neptune.

Consider, now, the ATS terms and respective phenomena periods for the Socio band (See Table 2.4).

- * $T_6 \approx 18$, $T_5^* \approx 22$: $u_8 = 21$; SA subperiod 18; industrial crises 16-24; Kuznets economical cycles - 20.
 - * $T_7 \approx 29$: by coinciding with the period of Saturn through which it is associated with periods T_7^* (as half-period), T_8^* etc., it defines an actual small cycle of structural changes (while T_7^* defines a medium cycle, and T_8^* - the larger one). As well, it is corresponded with 30-year volcanic activity cycle.
 - * $T_6^* \approx 36$, $u_9 = 34$: closely correlates with period $3T_o$ and the number $u_9 = 34$. This group of periods is associated with industrial crises 33, meteorological cycles 33, vegetation cycles of trees 32-35, as well as SA subcycles 35, 35.8 and some social phenomena (Kvasha).
 - * $T_8 \approx 47$: Correlates with industrial crisis cycles: 48; economic cycles (Kondratijev) 44-55.
 - * $T_7^* \approx 58$ - is double Saturn's period. Correlates with $u_{10} = 55$ and SA subperiods: 55, 55.5, 60. Within a social and political life, the 60-year cycle is actual [Kvasha et al.], e.g. it makes the basis of the 60-year Eastern Calendar.
- This period is especially pronounced in economy where it is called Large Waves, K-waves, Kondratijev's waves, or 50-60-year waves; Kondratijev had himself estimated their duration as 45-55 yr (viz. conjunction of T_8 and T_7^*); at this, he indicated the 55-year period as the main wave and separated the 33-year period. Other estimations are $48-55 \pm 5$, 50-60 yr.
- * $T_9 \approx 76$ is corresponded by SA subperiods of 67-68 (Wolf) and 72. As well, this is the revolution period of the most popular comet Halley being known from the ancient times; from then, its transits were in close correlation with different natural calamities.
 - * $T_8^* \approx 94$ is corresponded with the number $u_{11} = 89$ presenting an actual Auric term, thereby these periods could be considered as defining the interval value (89, 94) with especially significant limit points. Indeed, it is frequently mentioned in literature as so called "century-long" Solar cycle which is understood, however, not as the period of 100 yr $\approx 9 \cdot T_o$, but a period of order of 80-90 or 90 yr. Other estimates exist as well; e.g. 89.4 and other cycles being close to it. In studying of SA it is almost the single period, except of T_o and $2T_o$, the existence of which is not called in question.

From the viewpoint of harmonic and Auric unisons, the period T_8^* presents a critical term for a number of planetary periods, where the period of Saturn is probably the most actual one since its triple period $T_{3Sa} = 3T_{Sa} = 88.37$ yr not only satisfies to the following actual relations $T_{3Sa} = u_{11}$ (0.7%), $T_{3Sa} = 8T_o$ (0.2%), $T_{3Sa} = T_8^*$ (6%), but through its periods T_{Sa} , $2T_{Sa}$, $3T_{Sa}$ the Saturn, so to say, synchronizes the series $\Gamma_1 - \Gamma_3$ via the terms T_7 , T_7^* , and T_8^* ; at this, it can be considered as defining the series Γ_3 synchronization focus at point $T_{3Sa} \cong \Phi^3 \cdot (3T_o)$ (1.6%), where fundamental periods or actual har-

monics of Pluto, Neptune, Uranus, Jupiter, and Mars come together; with the remaining planets the Saturn is synchronized in the series I .

Ethno and **Hyper** bands are specially considered in the next section, with respect to a system of all well-established periods pertaining to these diapasons.

2.4.2. ATS vs. the System of Most Reliable Solar and Terrestrial Cycles

Even more obvious confirmation of consistency of ATS may be obtained through comparing of ATS vs. the system of numerically validated periods protruding from Socio- to Hyper-band, which include Solar, geological and other supercycles. To this end, as well as in the sense of accuracy, the research of T. Niroma [25] provides us with such spectrum of cycles. Consider a synopsis of this work that is structured in compliance with this goal; it includes all well-acknowledged periods being specified in that work and respective notes; the comments being added by author of this work are given explicitly.

Comment 1. The terms of ATS series Γ , Γ^* , u presented in Table 2.7 are given by their integer values; e.g. the term Φ^7 is noted as (ref. 29); they may be found in Tables 1.1, 2.4. All numerical values present the years. *All cycles being grounded in [25] are considered with the exception of some secondary ones.*

2.4.2.1. The Gleissberg cycle. A well-known cycle of about 78 (or 80) yr bears this name. The limits for it are 72 to 83 yr according to the Schöve rules. The Gleissberg upper limit of 83 yr makes 7 Jovian years and is associated with its perihelion-seeking cycles. Another approach assumes that a change takes place in the Sun to a new mode: the Gleissberg cycle has reached its minimum (71 yr) and now there will be a reversal to longer and lower cycles.

More exact estimate for this cycle is 78.8 ± 3.3 yr. Therefore, the ATS term $\Phi^9 = 76$ is close to the average Gleissberg length $78.8 \cong \Phi^9$ (3.5%) and fits the interval estimate (75.5, 82.1).

Comment 2. In an attempt to reveal harmonics of this cycle, one returns to the ATS terms, as the following conclusions show.

The Gleissberg cycle has no obvious sub-cycles (other than the seven basic Solar ones), but some researchers imply that the 200-year cycle consists of two parts of 100 years, which oscillate between 80 and 120 years (ref. 76, 123) and is intertwined with the Gleissberg cycle.

T. Cole got *two supercycles* on the both sides of the Gleissberg cycle: 59 yr (ref. 58), 88 yr (ref. 89). He considers them to present the amplitude variations with periods 88 (ref. 89) and 59 (ref. 58) yr (previously described as the 80-yr cycle) [34], being caused by amplitude modulation of the solar cycle by a period of 11.9 ± 0.3 yr.

The Gleissberg cycle is associated with 200-year cycle and a set of Elatina cycles

2.4.2.2. 200-year cycle (ref. 199). This is other supercycle, apart from Gleissberg, that is most often referred to in the present-day data. Zhukov and Muzalevskii have run several autocorrelation analyses based on the Schöve series of data. The longest of them, from 214 BC to 1947 AD, has the highest spectral density at 200.4 yr. P. Brockwell and R. Davis have derived an autoregressive minimum AIC model for the Wolf numbers between 1770 and 1869 and got a value for the WN (white noise) as being 202.6 yr. Houtermans, Suess, and Munk (Effect of Industrial Fuel Combustion on the Carbon-14 Level) have found a 200 yr cycle. Neftel, Oeschger, and Suess (Secular Non-random Variations of Cosmogenic Carbon-14) have in their 6000-yr long study found a 202 yr cycle. H. E. Suess has considered a 203 yr cycle as the most significant supercycle in eight millennia of Bristlecone history. M. Stuiver has found a radiocarbon cycle of 202 yr since 700 AD. As well, an estimate 196 yr is grounded.

Comment 3. This close distribution of estimates allows us to conclude that $\Phi^{11} = 199$ gives very close (up to 1%) approximation for this cycle.

2.4.2.3. Elatina cycles. In 1982 a 680 million years old Precambrian formation in Elatina, Australia, was drilled to get cores of a rhythmic lamination. G. E. Williams interprets these laminations as being caused by the activity variation of the Sun. As a result, several sets of cycle were detected. A set of three

shortest supercycles 45, 52.5, and 63 yr in the Elatina study is considered below. The next set of three *supercycles* have a duration of 314, 157 and 79 yr.

Any 310/314 yr cycle (ref. 322) is hardly ever mentioned. This is not surprising. First of all, our more or less accurate data covers 250 yr (since 1749), and the definitively less accurate data 380 yr (since 1610). Secondly, the cycles of 78.5/155/310 yr are primarily length cycles and only secondarily intensity cycles, which make it difficult to observe them in auroral numbers. Thirdly, the *lengths* of the cycles in this set are *greatly variable*, being exact only from a synchpoint to another synchpoint.

The 155/157 yr cycle (ref. 152) was *observed by Schove*, but otherwise there are very *few results*, that can be interpreted as being influenced by this supercycle.

The third supercycle in this Elatina main supercycle set is the 78.5 year (79 'year') cycle (ref. 76 – See *Gleissberg cycle*). It is the *only one* in the set that is *well-known* in the present-day data.

Note also that Williams has a long fork of 60 yr (ref. 58) in which his 300-year cycle (ref. 322) oscillates.

Similar cycles appear in other spheres. Thus, the oscillations of 100/200/400 yr are also considered (refs. 94, 199, 398), in parallel with weather cycles 120/60/30 yr (refs. 123, 55/58, and 29). Besides, with an autocorrelation analysis, three more peaks appeared at 21.7 yr (*viz.* 22.2), 120.3 yr (*viz.* 123), and 178.6 yr (*viz.* 199).

2.4.2.4. Various short supercycles. The 200-year and *Gleissberg* supercycles are the most important short-range supercycles. But there are other *short supercycles* (by definition below 250 years), which are not so regular and not so apparent. They make the smoothed curves look chaos-like, but in fact that's only because *they are not divisible by each other and overlap* (and thus compromise) each other.

Comment 4. Pay attention on this stressing on absence of harmonics.

Let's look also on these cycles

44 yr (ref. 47), 50-51 yr (ref. 55), 91 yr (ref. 89), 120 yr (ref. 123);

The three shortest supercycles in the Elatina study are:

44-45 yr (ref. 47), 52-52.5 yr (ref. 55), 62-63 yr (ref. 58).

With spectrum analysis a 26-28 yr (ref. 29) weather cycle in the northern hemisphere is obtained, as well as a 60-year (ref. 58) pattern since about the middle of the 19th century.

Zhukov-Muzalevskii got in their analysis of the years 214 BC to 1947 two cycles of 42.5, 43.1 (ref. 35.9, 47), 58.4 yr (ref. 58).

Stuiver has a 46 yr cycle (ref. 47).

2.4.2.5. Supercycles from 250 years to a hypercycle of 2289 years. The Yunnan group, that estimated the 200 yr cycle to be in the limits of 165 to 210 yr, has found another cycle in the limits of 240 to 270 yr (ref. 246) and a series of cycles within a wide range of 260, 270, 286. These values, together with the Cole cycle of 280 years give credence to the idea, that this cycle is a *combination* of the 200-year cycle and the Gleissberg cycle or about 200-202 plus 78 yr (ref. 199+76=175).

Cole got from his analysis also *the double* of his 280 years, or 560 yr (ref. 521). Schove has estimated, that the interval between intense maxima is 554 yr. The Kiral analysis shows the supercycles of 261 (ref. 246), 308 (ref. 322), 415 (ref. 398), and 569 yr (ref. 610).

The Neftel-Suess value is 955 yr (ref. 987) cycle.

If we look at the auroral or weather data, a cycle in the order of about 1000 yr (somewhere between 1020 and 1070 yr) is however *more evident* than a 560 yr cycle. Cole has a 1050-year cycle. Zhukov-

Muzalevskii have in their 2150-year data a **1072-year** cycle. One solar-based climate change may have a period of about **1050** yr. Together with the data of G. L. Siscoe, a supercycle of **1020-1030** years in average length is rather apparent.

Comment 5. Notice, that the ATS value of **1042** makes the mean of this cycle.

J. R. Bray, in cyclic temperature oscillation, has a cycle of **1325** yr (ref. **1364**) years.

The Neftel-Suess analysis gives **the largest cycle length: 2289** yr (ref. **2207**). It's a rare cycle because of its length and still **rarer in its accuracy** in that magnitude.

2.4.2.6. Other hypercycles [4]. Study of changes in eccentricity, inclination and precession of the Earth's orbit, as well of associate processes has led M. Milankovich to periods of **90 – 100** thousand years (t.y.) (ref. $\phi^{24} = 103682$ and $2\phi^{22} = 79206$ with average **91444**), **40** t.y. (ref. $\phi^{22} = 39603$), and **19, 23** t.y. (ref. $2\phi^{19} = 18698$ and $\phi^{21} = 24476$ with average **21587**).

What is more, it is **namely the ATS** that **describes** those **irrational harmonics** which appear in the **natural phenomena**. To this end (as well as in the sense of accuracy), special interest presents the report presented by Bobova and Dergachiov [4], where the frequency spectrum of ^{14}C carbon content in wood cuts is shown with a per-decade accuracy for a sample covering 4.5 millennia.

It reveals the periods of ≈ 2200 (ref. $\phi^{16} = 2207$), ≈ 1100 (ref. $2\phi^{13} = 1042$), ≈ 400 (ref. $2\phi^{11} = 398$), ≈ 200 (ref. $\phi^{11} = 199$), and shows presence of possible basic periods of ≈ 3600 (ref. $\phi^{17} = 3571$), ≈ 500 (ref. $\phi^{13} = 521$), and ≈ 200 yr (ref. $\phi^{11} = 199$), as well as harmonics of the first of them. A stress is made for the resonant range of 450-550 and 200 yr which are specified as the critical points in spectrogram, and the period of ≈ 3780 (ref. $\phi^{17} = 3571$) which is considered as the "pitch".

In particular, they conclude that: "... Should the frequency in these points be not an overtone of some other peculiar point, the periods corresponding to these frequencies could be fundamental, e.g. the **values about 500 (a) and 200 (a)**. In this case, the periodical spectral peculiarities of the radiocarbon spectrum **testify to presence of natural oscillators in the Sun-Earth system**".

This study of correlations may be continued, but we must stop somewhere, as showing of subsequent correlations of this kind may hardly add principally new evidences. Only thorough analysis of accuracy of the revealed periods of phenomena may cast light on this synchronism; but this is a prerogative, first of all, of the application analysis.

Meanwhile, in this analysis one must take account of the **Jovian period** that may, at least on a level of synchronism, modulate other periods [3, 25]. Besides, we must remember that sporadic events may cause change in the level of Solar activity; among them, **supernovae and comets** present the basic factor of influence. Though the former ones are quite rare, they are very powerful (See Part 4). The comets are more frequent, but seldom of them may present a significant influence. But these rare guests can manifest themselves in an efficient way due to their high electric charge and great speed [40], as a statistical verification acknowledges this for Sun-comet-Earth alignments [41, 42, Part 9].

2.4.2.7. Table of most reliable cycles in Solar and terrestrial cycles. Consider now, how the most reliable and quite accurately evaluated periods of greater length being found in Solar and terrestrial cycles correlate with the ATS terms. To this end, the concluded [25] set of well-acknowledged periods provides us with such spectrum of cycles (only six ATS periods of 48 that cover the range of 1 to 2207 years are not met in this spectrum; this may have a clear explanation: they are large enough to be revealed in the existent short-prehistory samples).

All these values are given in Table 2.7 (cols.1, 3); they are obtained in studying cosmogenic Carbon-14, aurorae, geological laminations, and other millennia-long samples. Besides, some duplicating values are given with asterisk, if they are specially marked in other sources, as well as periods exceeding the value

2289 yr which were revealed in analysis of precession of Earth orbit and other effects [4, 22, 29, 33]. In parallel, cols. 2, 4 contain the ATS-term correlates.

Table 2.7. Most reliable periods in Solar and Terrestrial cycles vs. the respective Auric series terms

Period	ATS term	Period	ATS term
43- 45	47	305-314	322
51- 52	55	415-425, 400*	398
57- 59	58	554-569*, 500*	521
63- 67	123/2	600	610
78.8 ± 3.3	76	955*	987
85- 90, 89.4*	89	1020-1070*, 1100*	1042
104-105 (?)	94, 123	1325*	1364
143-148	144	2289*, 2200*	2207
154-157	152	3600* , 3780*	3571
177-227	199	19 000*	18698
260-280, 256*	246	23 000*	24476
		40 000*	39603

This Table provides us with systematic and evident confirmation of consistency of ATS in the capacity of a discrete scale of basic periods for Solar cycles and its correlatives. In particular, we may conclude the following.

1. An attempt to harmonically correlate the revealed Solar and Terrestrial cycles has evidently failed, even with treating of summation of periods. On the contrary, we see that each actual period quite accurately fits some term of ATS. Though this synchronism with Φ -harmonics is inexplicable from the viewpoint of the conventional resonance theory, as a matter of fact we can state that ATS structures and synchronizes the major part of the basic periods in Nature and society. And this holds true not only for the Solar cycles, but, as a comparative analysis shows, for a significant part of basic phenomena in biology, botany, zoology, meteorology, physics of Earth, economy, history, criminalistics, etc. – up to seismic and geological cycles.
2. Variations in Solar cycle lengths, planetary modulation and other effects result in fuzziness of Solar cycle harmonics and Terrestrial periods. Nevertheless, we see, especially for the supercycles, that with a high accuracy the revealed actual periods "go" just by the ATS "steps", and the longer the cycle, the higher the accuracy of this synchronism.
3. In considering of some periods as presenting a sum of other periods the author follows the "Fibonacci" concept of the ATS. Therefore, as in the case with the synchronism of Solar/planetary cycles, which, by themselves, within the accepted accuracy of $\delta_* = 1\%$ present an intricate discrete algebraic structure, we, once again, encounter here a fractality in a form of discrete algebraic structure of periods which "determine" the major part of the periods in Nature and society, even though this time the error of correspondence makes several percents. However, this increase in error may present natural consequence of changing-over to the "secondary" events, where the of Sun-Jupiter modulating effects [3, 25] may "fuzzy" the exact cycle lengths.

2.4.3. ATS as a clock cycle of brain waves

Weiss H. and Weiss V. pay special attention to use of powers of Golden section and value 2Φ Hz for describing harmonics and other features of EEG. The following extracts from [14] give us a synopsis that is required for our consideration (italics supplied).

"The principle of information coding by the brain seems to be based on the golden mean. Since decades psychologists have claimed memory span to be the missing link between psychometric intelligence and cognition. By applying Bose-Einstein-statistics to learning experiments, Pascual-Leone obtained a fit between predicted and tested span. *Multiplying span by mental speed (bits processed per unit time) and using the entropy formula for bosons, we obtain the same result. If we understand span as the quantum number n of a harmonic oscillator, we obtain this result from the EEG. The metric of brain waves can always be understood as a superposition of n harmonics times 2Φ* , where half of the fundamental is the golden mean Φ as the point of resonance. ... From this Liberson had drawn the conclusion that *all significant channels in EEG could be n multiples of one fundamental frequency of about 3.3 Hz*. According to his empirical data the number of these multiples (harmonics) is nine as the maximum of memory span (see Table 1: here –Table 2.8, cols. 1 – 3). Assuming these numbers one to nine to be quanta of action (as Pascual-Leone did), we again obtain a relationship between the classical formulae of quantum statistics and empirical results of both EEG and psychometric research."

Show that much more exact approximation of EEG harmonics can be obtained, if one uses for the fundamental frequency the respective term of the series Γ instead of arbitrary value $2\Phi \approx 3.24$ Hz.

As far as the term $\Phi^0 = 1$ is taken in Γ for a year, then, in seconds, the ATS term φ^{38} makes

$$\varphi^{38} \text{ yr} = 365.24 \times 24 \times 60 \times 60 \times \varphi^{38} \text{ s.}$$

For obtaining the value of φ^{38} we may raise φ to a power 38, or, with use of Table 2.1, find it as follows

$$\varphi^{38} = \frac{1}{\Phi^{38}} = \frac{1}{\Phi^{20} \times \Phi^{18}} = \frac{1}{15127.00 \times 5778.00}.$$

By combining these two expressions we obtain that the term φ^{38} , in seconds, makes

$$\varphi^{38} \text{ yr} = \frac{365.24 \times 24 \times 60 \times 60}{15127.00 \times 5778.00} = 0.36104533... \approx 0.36105 \text{ s.}$$

(Note, that the ATS term being nearest to 1 s is $\varphi^{36} \text{ yr} \approx 0.94523 \text{ s}$). As far as ATS defines periods, the value being inverse to $\varphi^{38} \text{ s}$ gives the frequency η_{38} Hz, corresponding to this period

$$\eta_{38} = 1 / \varphi^{38} (= \Phi^{38}) \text{ Hz} = 1 / 0.36105 = 2.7696... \approx 2.77 \text{ Hz.}$$

Therefore, although the value η_{38} does not "resemble" digits of the Golden section, it comes from it as a term of series Γ , but in Hz units, and sets up the direct correlation with the Earth year and Solar cycle.

Table 2.8. Memory span (corresponding to the number of EEG harmonic), frequency of EEG harmonics and error of approximation of the latter ones by candidates 2Φ and η_{38} for the fundamental frequency

Memory span, n	EEG Harmonic	Original approximant $2\Phi \times n$, ($2\Phi \approx 3.24$)		Proposed ATS approximant $\eta_{38} \times n$, ($\eta_{38} \approx 2.77$)	
$n \times 1 \text{ s}$	$f \text{ (Hz)}$	$f_n = 2\Phi \times n$	Error $\Delta_n = f_n - f$	$f_n^* = \eta_{38} \times n$	Error $\Delta_n^* = f_n^* - f$
1	2	3	4	5	6
9	29	29.12	0.12	24.93	-4.07
8	23	25.88	2.89	22.16	-0.84
7	21	22.65	1.65	19.39	-1.61
6	17	19.42	2.42	16.62	-0.38
5	13	16.18	3.18	13.85	0.85
4	10	12.94	2.94	11.08	1.08
3	6.5	9.71	3.21	8.31	1.81

2	5	6.47	1.47	5.54	0.54
1	-				

Elucidate now, what of values: $2\Phi \approx 3.24$ or $\eta_{38} = 2.77$ makes *significantly* better approximation for the basic EEG harmonics. For this, repeat the first columns of Table 1 of [14] in Table 2.8 (cols. 1 and 2), calculate the respective approximation values (cols. 3, 5 of Table 2.8), their errors (cols. 4, 6), and consider the distribution of these values (Figs. 2.2, 2.3).

By using the entries of Table 2.8 we can conclude the following.

A. The variances for approximants f_n , f_n^* make respectively

$$V_n = 1/8 \sum_{n=2,9} (\Delta_n)^2 = 6.02, \quad V_n^* = 1/8 \sum_{n=2,9} (\Delta_n^*)^2 = 3.18,$$

with F-ratio $F = 1.89$. However, as it is seen from the chart, the last frequency, 29, significantly exceeds general trend. If we find variances without this value, we obtain

$$V'_n = 1/7 \sum_{n=2,8} (\Delta_n)^2 = 6.88, \quad V_n'^* = 1/7 \sum_{n=2,9} (\Delta_n^*)^2 = 1.27$$

with significant F-ratio $F' = 5.41$ (for the critical value of 3.8 at 5% confidence level).

B. The coefficient for **linear regression** of f on memory span n makes $b = 2.92$ for all 8 observations, and $b' = 2.796$ without $f_9 = 29$. From this point of view the proposed value $\eta_{38} = 2.77$ for the fundamental period gives much more exact approximation for the source data

$$|2\Phi - b|/b \approx 11\%, \text{ and } |\eta_{38} - b|/b \approx 5\%,$$

while more exact regression (without $f_9 = 29$, See Fig. 2.3) gives even more contrasting result

$$|2\Phi - b'|/b' \approx 16\%, \text{ and } |\eta_{38} - b'|/b' \approx 1\%.$$

C. Visual analysis of distributions of frequencies f_n , f_n^* gives more evidences for selection of the latter one. Indeed, as it follows from Fig. 2.3, all values of f_n^* (empty circles) are closer to f (filled circles), than the values of f_n (boxes), except for $f_9 = 29$. In Fig. 2.3 the regression line for all observations except of $f_9 = 29$ goes almost exactly through the values f_n^* .

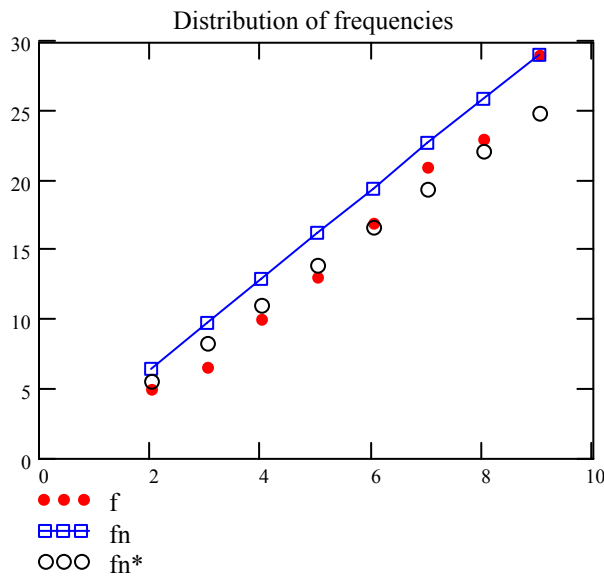


Fig. 2.2. Distribution of frequencies f , f_n , f_n^* along the memory span n (abscissa).

It is seen that all intermediate values of $f_n = 2\Phi \times n$ (they follow the given line) lie above the empirical values f , whereas the values $f_n^* = \eta_{38} \times n$ are close to f .

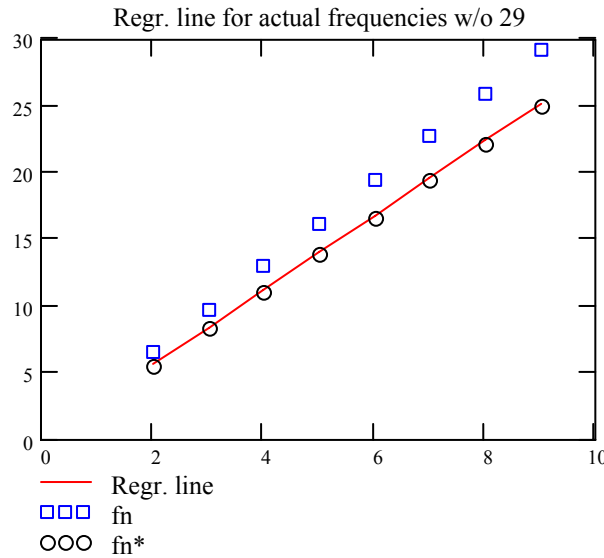


Fig. 2.3. Linear regression line for empirical data f (without the last value of 29).

In this case the regression line goes through the ATS-engendered values $f_n^* = \eta_{38} \times n$ (in circles) almost exactly, whereas the values of $f_n = 2\Phi \times n$ (boxed) diverge from this regression line.

Though a nonlinearity of frequency f as a function of n is observed at $f_9 = 29$, from all comparisons undertaken it follows unambiguously that the proposed frequency $\eta_{38} = 2.77$ fits the empirical data with several times lesser error than 2Φ does.

Therefore, as the frequency $\eta_{38} = 2.77$ Hz approximates the empirical brain frequency distribution with significantly greater accuracy than the originally proposed value 2Φ , the former can be taken, instead of the latter one, for the fundamental frequency of brain waves. The more so that it is engendered by the ATS term ($\eta_{38} = 1/\varphi^{38}$) which interconnects the periods of so diverse phenomena in nature and society.

Resume of Sec. 2.4.

To within an error being not greater than those deviations which specify the distribution of the respective estimates, the terms of ATS series coincide with all basic periods being revealed in Solar cycles and associate terrestrial processes, including those ones which does not present harmonic to the average 11-year cycle duration T_o . On the other hand, only six ATS periods (viz. 233, 377, 644, 843, 1597, 1686) of 48 ones that cover the range of 1 to 2207 years are not met in [25]. However, absence of these values among the detected periods may have a clear explanation: they are large enough to be revealed in the existent short-prehistory samples. For this reason we may assume that the first value contributes to significant widening of the above interval estimates for 200 yr periods, the values 377, 644 fit the tolerances for 400 and 600 yr periods, whereas the periods being relevant to the remaining values are not yet revealed. The more so that **all periods, up to hypercycles**, being obtained in analysis of both orbital parameters of the Earth and 40 millennia series of radiocarbon data **fit** the ATS terms.

This leaves us very little hope to await that all these coincidences covering the periods from years to several dozens of millennia, apart from a series of phenomena with periods from 1 s to greater ones, are random for such a great interval of the observed values for relatively small number of ATS terms, and thus gives us a **conclusive proof in the trustworthiness** of the ATS Hypothesis relative to the periods.

Therefore, within the accuracy of 1%, almost all considered periods being associated with cosmogenious, geophysical, Solar activity, social, meteorological and other phenomena in the range of daily to geological rhythms (viz. from hours to hundreds of million years) not only coincide with the terms of the series Γ and

Γ^* , but with only 42 pairs of ATS terms or values being inverse to them, which are engendered by number 2 and integer powers of the Golden Section number Φ .

2.5. Verification of the ATS relying on Mythology

The Heavenly Bodies and their Earthy Images

Though some person consider Theosophy and Mythology to be devoid of consistency pertaining just to natural science, the author, while not aiming to convince them in the opposite, supposes it to be useful to draw analogies between some algebraic peculiarities of the Solar-Planetary Synchronism model and these ancient concepts in order to make the picture complete.

In Theosophy [9], the Solar System is understood as a vital-mechanical organic entity, or a hierarchical system where the Sun and planets interact with respect to definite laws. At this, the 11-year SA cycle defines the rhythm of this interaction being accompanied by radiating and receiving of psycho-magnetic vital energy throughout the Solar System.

It is known also, that the most religious, philosophical, and scientific concepts reflect how the humanity percepts the Space. At least, the harmonics and factors, the Earthy rotation period specifies, give the values $12 = 3 \times 4$ (within the Jupiter's series), 7 (within the Uranian series), 6 (within the main series with period T_{SS}), and 5 (the Earthy position within the Auric series Γ relative to the Sun), which form the basis for count of time and angle. At the same time, these numbers are engendered by the initial terms of the Fibonacci series (See Table 1), that is, finally, by the ATS.

More than that, these numbers, together with the 7th term ($u_7 = 13$) of the Fibonacci series, form the basis of the Mayan Calendar which has no analogs (See Sec. 12) in the world. *So, all these numbers are not random in our life as they are especially actual for the Earth, because they define its fundamental resonances in the Solar System.*

Therefore, should this numerical basis define not only count of time and angle, but the religious feasts (Christmas, Easter, and other ones being more or less directly associated with these periods and their phases – solstice, equinox, etc.), it would be naturally to expect the pagan Mythology to reflect definite cosmogonical concepts as well, the more so the pagan's astronomy, as it was shown above, in some cases was not less exact than the modern (or last century) one.

Last, but not least, it is known that the planets had not been named by chance.

That is why it is even more interesting to retrace the analogy between the properties the planets can manifest with respect to their position within the planetary and Auric series, and those functions the Mythology prescribes to Olympic gods or their Roman doubles, while using the per-name correspondence. At this, in order to keep the fidelity of comparisons, the concepts “influence” and “control” are used for the gods' functions as for planetary periods, viz. in compliance with the principle UR.

Proserpine (Gr. – Persephone, wife of Hades, or Aides; Eg. – Isis, wife of Osiris), the wife of Pluto. By the will of the highest Olympic gods (viz. with respect to the Cosmic Law), half of a year she spends in the underground kingdom of Pluto, and during this time the Nature has a rest (“dies”), and half a year she makes the Earth fertile, thereby symbolizing both the longest, viz. yearly, cycle in the Nature among those being evident to a farmer, and the female principles of engendering and recurrence of life, as well as constructing and correcting of civilization considered as living organism on the basis of treating the elements within a singular system which she reconstructs without destroying.

As we can see, this Mythological characteristic fully corresponds to that part which the planet with the period T_{SS} have to play: by specifying the fundamental harmonical period of the Solar System and fitting the main Auric series F , to conduct the external Cosmos influence with the aim to transfer its engendering

power into the Solar System in compliance with the intra-Solar-System rhythm. The rest of the planets perceive this influence (being apprehended and modulated by the Proserpine) in compliance with the correspondence between their orbital periods and Proserpine's harmonics.

Pluto, the husband of Proserpine, the sovereign of the other world, or underground kingdom, or miracle abyss where he stores the secret and countless reserves to which a direct access is absent; thereby he symbolizes the processes of profound transformation (life and death, transmutation of elements, etc.) and all the powers of the Earth's energies (from minerals to volcanoes). If Proserpine perceives, then, Pluto, by symbolizing the male origin, governs and conducts the Highest Law by directing the highest, titanic power at his own discretion onto solving the cardinal problems.

The planet Pluto being provided with system harmonic and basic factor 2 (viz. octave, or harmonic similarity) defines by this the polarization, i.e. the same transformation of influences. And its fundamental period fits the second Auric series, while the first harmonic $T_{Pl} / 2$ – the first series Γ , as if it commutates the basic Auric and Planetary series for distributing the Space energies through them like the sovereign of the bowels of the Earth, thereby coming forward as the Solar System Energetic Center. The versatile SPS-connection of these two planets corresponds fully to conjugal ties of their mythological doubles.

Neptune. (Gr. – Poseidon), a Pluto's brother, the sovereign of the sea depth; he presents the Chaos comprising the whole world in its indivisibility, and the rhythmical harmony of the Chaos converted to the Cosmos. The world originates from Chaos and returns to it. The influence conducted by Neptune is vague, unsteady, full of fog. Like this, the planet Neptune in some sense [46] does not belong to the Solar System. Its period corresponding to harmonic 3 of the planetary series of T_{SS} conducts a time-expanding influence; Auric correlatives of Neptune are indirect and implicit (since its period, with the accuracy accepted, fits just the remote series Γ_9) as the influence assigned it by Mythology; as though by oceanic spaces it masks the influence of Pluto and Proserpine, planets and conjugal couple.

Uranus, the “Sovereign of the Heaven” who restrains the Chaos, the engender of the gods and their activities, the planetary analog of the Sun [46]

The planet Uranus starts a new planetary series within the enveloping series of Proserpine where its harmonic is 6. Here, its factor (viz. symbol) equals to 1 and its revolution period becomes the main. So, by its harmonics, the Uranus transfers to this series the outcoming influence, but at smaller harmonics (relative to the series of P), and, hence, more efficiently but with a touch of its own influence. In this relation this planet is similar to Uranus-Heaven who engendered Titans and other creatures being full in variety, though these experiments had tired his wife and mother Ge (or Gaia). Parameters of this planet are as unusual, as the activity of the Uranus-Heaven. For instance, the period of this planet is located somewhere “above”, in the series Γ_3 , from where it governs the Uranian planetary series by “dividing the power” with the Saturn.

Titan **Kronos** (Gr. Chronos, all-embracing time) had seized the power (viz. the rhythm!) of his father Uranus by overthrowing him and his law in a brutal way (i.e. the Saturn's period roughly corresponds to Uranus rhythm). As his later double, **Saturnus**, he symbolizes earth, substance (time and space) being opposed to the heaven (idea), viz. the basic laws and their internal structure (e.g. recurrence of time) which predetermine the material processes of developing of life. In other words, he symbolizes efficacy that is obtained via the persistence and diligence, memory and storing through repetition; he is the symbol of the world-wide necessity, finite rigid judge: he “restricts” his father's “madness”, but in a cruel way; being feared to be overthrown he eats his children.

A resembling influence could be found in the planet **Saturn**'s period which is the first after the Pluto's one that fits the auric unisons, thus specifying an actual infra-system focus through which the SA cycles and planetary periods are synchronized. And the battle of Kronos against Uranus finds its reflection in that the

Saturn's period "tries" to brake the law of the Uranian series harmonic rhythms by a discrepancy between its powerful auric unisons and rough correspondence to Uranus series with its period (that is with harmonic 3 of the period T_{Ur} , which defines three main phases of cyclic development); for the actuality of this battle, see also [56, Part 8].

Zeus (Jupiter) in terrible and persistent struggle overthrows his father, Kronos. Zeus, "The Bright Heaven", restores the hierarchy of power and the law of his grandfather, Uranus (remember, that the planet Jupiter originates new planetary series which is synchronous with the Uranus series relative to factor 7 corresponding to the world of ideas). He takes the stand of the main transmitter of the Space influence to Olympic gods and human beings (viz. internal planets – Mars, Earth, Venus), thus symbolizing the harmony of the Space Law on the last step of creating the world (viz. cycles). In compliance with his Olympic double, Zeus, who stirs a man's vitality and creativity, the planet Jupiter controls (e.g. gravitationally) the rest of the planets by virtue of vicinity of its first harmonics to their fundamental periods.

Mars (Ares) is as willful as his double's planetary period in the sense of not fitting the unisons (viz. the Order!), whereas its very close Auric unison with the Saturn's period, $T_{Ma} / 3 = \varphi^8 \cdot T_{Sa}$ (0.01%) might be understood as a restraining influence of the latter which requires setting of dynamic synchronism.

Ge (Earth) had engendered Uranus-Heaven and he married her. Since then, she becomes the dwelling place of the supreme gods (viz. farthest planets, starting with the Jupiter) and the battlefield where they struggle for the power (viz. where their harmonics interact), but **not a passive observer** since she is obliged to intervene in these interactions (viz. to come in resonance with their harmonics). Here, as well, we find the correspondence with the SPS model: most of measures accepted in our life fully correspond to the Earth's factors (e.g. 5, 6, 7, 12, and their multiples), the more so for the precise correlation with the Uranian series. Besides, the Earth, apart from Mercury, shows the most precise harmonic synchronism with the farthest planets and, in contrast to the Mercury, at the mutual factors, as if the Earth presents the Solar System influence crossroads (that is responds to the influence of the supreme gods).

Mercury (Gr. – Hermes) and **Venus** (Gr. – Aphrodite) did not play a governing part at Olympus (viz. on the Earth). And this situation presents a good correspondence to the planetary relations, since the Venus and Mercury periods are even less than the Earth's one. However, their influence is manifested in other things.

Venus is the symbol of harmony. Its planetary period is defined by the Golden Section relative to the Earthy year (with an error of $\delta = 0.46\%$) and fits the main Auric series T exactly in the middle between τ_o and T_o .

Mercury is the god's messenger; and the great values (and, thus, fuzziness) of the respective planetary harmonics in any series are quite adequate to the frequency of changes and instability in behavior and influence being attributed to Hermes-Mercury.

By virtue of their influence and significance, **Apollon**, the god of Sunlight, harmony, philosophy, mathematics and predictions, as well as radiant god **Sun-Helios** are completely adequate to that part the Solar activity cycle and Solar rotation periods play in the Solar-planetary synchronism.

2.6. ATS in Music of Spheres

Apparently, it will not be mistaken to say that from the ancient times the music presents an integral part of any culture, and in any social system it serves for definite cult goals. While not paying attention to the rhythms which promote falling into brutal trance, consider that aspect of music which had excited the best minds of humanity. Since Pythagoras, music was considered as philosophy too; as well, he saw it as a reflection of the world in the light of number and rhythm. Take these ideas as the keystone for the further discussion.

Platonic understanding of music and space relations was based on the concept of “Harmony of Spheres” which brings the music, as scale and rhythm, into correlation with the Space in compliance with the idea that music gives the sound (or vibration) analogue of the planetary relations described by numbers, while the musical instruments reflect the heterogeneity of the Space that cause the vibrations. Consequently, the concept of “Music of Spheres” has come into existence, though nobody has specified exactly the idea about the structure of its scale and rhythms. For example, even such men of great intellect as Kepler and Euler were unsuccessful in describing the exact scale of fifths and octaves; as to phonation, one can easily note that whereas those rhythms and melodies which are accepted to present harmony between the people in one country, at the same time might be rejected as cacophony in another one, and vice versa.

Therefore, in order to conduct a correlation with the SPS via the Auric Time/Period Scale, make more exact the basic concepts of such phenomenon as music from the viewpoint of frequency and period.

(M1) From the times of Pythagoras, an “ideal” scale was attempted to be constructed by considering harmonics, viz. those frequencies whose ratios are close to ratios of small natural numbers (e.g. 1:2, 2:3, etc.).

At this, irrational ratio (e.g. $\sqrt{2}$) was considered as inharmonious. As a result, such basic sound intervals as fifth and octave were defined which cover the frequency bands with maximal to minimal frequency ratios equal to $q=1.5$ and $Q=2$, respectively.

(M2) Selection or constructing of an instrument defines the timbre, viz. the frequency spectrum corresponding to the fundamental frequency of the respective tone (or note), or instrument as a whole.

(M3) If the scale and timbre specify, in some way, the stationary frequency characteristics, the music itself is understood as the unity of the rhythm, melody and harmony, which specify sounding in dynamics, thus allowing to realize different combinations of rhythms.

Side by side with harmonic relations, the Golden section manifest itself not only in physical phenomena, but in the masterpieces of art and esotery (pyramids, etc.). The Golden section is not only pleasant for an eye, but, probably, this is why it is pleasant that expresses (in static) the basic laws of the Nature which define the rhythms of motion and development, whereas it does this more efficiently than harmonic relations. Therefore, we may suppose that behind the assimilating of sculpture and architecture to “hardened music” it probably stands the ancient idea of the Music of Spheres which in structural and dynamic relation reflects the Golden section not in less degree than the planetary series do. Hence, should the Hypothesis on the ATS be true, the Auric series (in common with the planetary ones) have to be reflected in the sound scale too.

As it is known, the piano is tuned so that the frequencies of the tones (viz. the Scale steps) of the same name (e.g. notes *do*) in adjacent octaves differ but exactly by factor $Q=2$. At this, the octave itself (or, more precisely, the frequencies) is divided by 12 equal intervals so that the ratio of the adjacent tones equals to $w=2^{1/12}$. Consequently, the frequencies of the sequential tones form the geometric progression with denominator w (remember, that the Auric series F form the progression with denominator Φ). For example, if the frequency of the tone *do* of the first octave is equal to f , we obtain the scale

$$\begin{array}{cccccccccccccc}
 C_1 & C_{sh} & D & D_{sh} & E & F & G_{fl} & G & G_{sh} & A & B_{fl} & B & C_2 \dots \\
 (do_1) & & & & & & & & & & & & (do_2) \\
 f=fw^0 & fw^1 & fw^2 & fw^3 & fw^4 & fw^5 & fw^6 & fw^7 & fw^8 & fw^9 & fw^{10} & fw^{11} & fw^{12}=2f
 \end{array}$$

In this conventional European scale, for the notes with the same name the exact octave is obtained; e.g. for $C_2 - C_1$ and $D_2 - D_1$ we get, respectively

$$(f \cdot w^{12}) / f = w^{12} = (2^{1/12})^{12} = 2,$$

$$(f \cdot w^{14}) / (f \cdot w^2) = w^{12} = (2^{1/12})^{12} = 2.$$

Since we are interested in the ratio of frequencies, for simplicity (as for the Auric series) we can let $f=1$. However, the exact fifth cannot be realized in this scale since the ratio being mostly close to $q=3/2=1.5$ yields

$$w^7 = 2^{7/12} = 1.498 \approx 1.5 \text{ within the accuracy of } 0.13\%, \quad (\text{e.g. } C - G)$$

Hence, in order to bring this scale in relation to the Golden section, we are required, firstly, to find a tone being nearest to $\Phi = 1.618...$ by frequency; but in this case the accuracy is even lower than for a fifth:

(G)	$w^7 = 1.498... \approx \Phi$ (7.42 %)
(G _{sharp})	$w^8 = 1.587... \approx \Phi$ (1.89 %)
(A)	$w^9 = 1.682... \approx \Phi$ (3.94 %)
(B _{flat})	$w^{10} = 1.78... \approx \Phi$ (10.1 %)

Therefore, the tone corresponding to the frequency Φ lies between G_{sharp} and A, whereas the pure fifth is significantly closer to Φ -interval than octave, but even more accurately Φ -interval coincides with the increased fifth, viz. $C - G_{\text{sharp}}$ (with error 1.89 %).

The obtained relations allow to conclude the following.

1. As in the case with harmonics in the SPS, the conventional European music scale does not provide exact unison for a number of basic harmonics (fifth, third, etc.); however, this is not perceived by ear.
2. Within a conventional pitch, **the pentatonic** is the most exact (relative to frequency band) analog of the Auric scale. At this, though the increased fifth is more exact in reflecting Φ -interval than the pure fifth, the latter presents, in addition, the important harmonic interval.
3. By the structure of its scale, the pentatonic being used in the Eastern music stands nearer to Auric series than the European octave-based system.

Though the authors are not the musicians, they venture to develop the below conclusions by proceeding from general considerations relative to the rhythm and unison. Let we have a possibility to tune an instrument in the required way, or to use an electronic synthesizer. Then, in compliance with the above considerations one may implement the following concepts with the aim to create an SPS-instrument and SPS-music which, probably, could bring us nearer to understanding of the essence of the Music of Spheres.

(M1*) Re-tuning the scale.

In order to approximate the pure or increased fifth to Φ -interval it is required to refuse the “exact” octave. For example, if the same tuning error is remained for the fifth, but for another frequency $f_q = 1.502$, the error for the octave and increased fifth are

($C_1 - C_2$)	$2.00846 \approx Q = 2$ (0.4 %),
($C - G_{\text{sharp}}$)	$1.5919 \approx \Phi$ (1.6 %).

If, otherwise, G_{sharp} is approached to Φ within the accuracy of 1%, then

(fifth)	$1.5102 \approx q = 1.5$ (0.7 %),
(octave)	$2.0274 \approx Q = 2$ (2.7 %),
($C - G_{\text{sharp}}$)	$1.6019 \approx \Phi$ (1 %).

(M2*) Selecting the timbre. Since the timbre is defined by overtones, a natural SPS-analogy suggests itself: to specify the overtones with the planetary series harmonics; for instance, by the Uranus series:

$$R_{\text{Uranus}} = 1, 3, 7, 8^*, 20^*, 42 \text{ or } 45, 84, \dots,$$

where the SA and asteroid harmonics are marked by asterisk. Simultaneous use of all these series (viz. **U**, **J**, and **P**) allows to create a kind of three-register organ with Aurically tempered pitch.

(M3*) As to compiling music, we may also permit that whether it is used an SPS-instrument, or other one, the respective rhythm and melodies are expected to reflect the rhythms of the planetary and Auric series

(e.g. Φ -rhythm, or pentatonic), including the R_3 , R_4 synodic rhythms. However, this is already the sphere of creation for composers and performers.

2.7. Conclusions

1. Use of the Golden section $\Phi = 1.618...$ in power series $\Gamma = \{\dots, \Phi^{-3}, \Phi^{-2}, \Phi^{-1}, \Phi^0 = 1, \Phi^1, \Phi^2, \dots\}$ and its natural replenishment $\Gamma^* = \{\dots, 2 \cdot \Phi^{-3}, 2 \cdot \Phi^{-2}, 2 \cdot \Phi^{-1}, 2 \cdot \Phi^0 = 2, 2 \cdot \Phi^1, 2 \cdot \Phi^2, \dots\}$, together with the associate Fibonacci series $u = 1, 1, 2, 3, 5, 8, \dots$, series $v = 1, 3, 4, 7, 11, 18, \dots$, which give a natural presentation of series Γ and Γ^* , with the unity being equal to the average 11-year Solar cycle length $T_o = 11.07$ yr has allowed us, within the threshold error comparison analysis, to reveal a discrete algebraic structure of values – Auric Time Scale (ATS), which coincide with the bulk of well-established natural and social phenomena periods, including the planetary ones, that range from seconds (brain waves) to dozens of millennia (geological cycles).
2. With a few exceptions, the relative error of all these correlations that form a system does not exceed the threshold error of $\delta_* = 1\%$ pertaining to the least exact but the most significant Solar periods, which present a sufficient accuracy for the most part of applications.
3. The discrete nature of ATS, the range of periods it covers and the accuracy of correlations between its terms and the periods being considered in applications and differing by dozens of orders testify to the truthfulness of effectuality of the Auric Time/Period Scale and thus allow us to consider this scale as the searched structure that "quantifies" time over the whole spectrum of the known periods presenting a large number of basic cycles in Space, Nature and society.

3. Auric Time Scale as a Structure of Evolutional Time

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3.1. Introduction

This Part is devoted to study and verification of the ATS Hypothesis (See 2.3.3) relative to Evolutional (Historical) Time; like ATS describes a wide spectrum of fundamental periods in nature and society, the finite part of the same Auric Scale (1.9), in contrast to conventional consideration of fixed length cycles, describes the "*evolutional*" time as the sequence of periods of decreasing duration so that the major events occur within the vicinities of the *separation epochs* between the successive intervals of lesser and lesser length. In this sense, the "historical" cycles could be considered as "compressed". Due to the essence of this statement, it is obvious that verification technique must differ from that which was used for testing the ATS Hypothesis relative to periods (Part 2). For this reason, in order to verify this Hypothesis, a synchronism was established between the proposed separation epochs and the most prominent events in Nature and society for the available data covering the last 13 millennia.

3.2. General Approach to Verification of the Hypothesis on ATS Relative to Evolutional Time

The second assumption of the Hypothesis on Auric Time Scale states that *the Auric Time (/Period) Scale*, in compliance with the multiplicative structure of the series Γ and in contrast to conventional consideration of historical periods of equal duration, *specifies* the duration of *successive historical (or evolutional) cycles* for the basic phenomena in the exponential scale Γ . In other words, the series Γ specifies exponential (relative to structure of the series Γ), or evolutional (relative to considering time as a sequence of events) time as a system of successive cycles which develop by similarity. From a numerical point of view, this implies that the duration of each successive cycle is decreased with respect to the preceding one in the Golden Section $\Phi = 1.6180339\dots$, or with factor 2 (viz. octave) which specifies the least integer present harmonic similarity, in addition to natural one being specified by Φ .

It is obvious, that the best way to verify this assumption is to test it by using those statistical data that describe the evolution of the humanity. However, we are provided with neither qualitative concept, nor numerical data that could be used for such testing. Indeed, though the "explosive" trends in demography, information supply and some other spheres of life definitely conform this thesis, the respective one-two century statistics is absolutely insufficient for obtaining generalizations over the millennia.

So, *we have to specify a concept for such testing*. For this, by making use of the historical evidence and geophysical data that cover a period of several millennia, for verification of this structure we shall seek for a synchronism between the separating epochs (viz. years) of the successive Auric cycles and the major events in Nature and society; these reference data are presented by a series of the greatest cosmogeneous and geophysical phenomena having been dated by the physicists and archeologists, a demographical statistics for China, which covers unprecedentedly large time interval of 2000 years, and a system of well-dated historical events being especially important for the evolution of the mankind.

In contrast to concept of period, any type of existing historical time system orders the events; for this, in addition to setting of *unvaried time unit* provided for specifying the inter-event duration, some *origin* is to be selected. The Gregorian calendar is an example, where the birthday of Christ is taken for the origin, whereas the average tropical year is taken for count of time intervals; for convenience this calendar is taken below for dating the events. Almost each known calendar, as a historical time count system, uses the

same unit – the Solar year, but as the latter does not contain an integer number of Solar days, a lot of problems arise in correcting the dates (e.g. taking account of leap-years) and correlating different calendars due to rounding of the tropical year to integer number of days. To this end, the only exception presents the **Mayan Calendar**, where namely the exact count of days makes the essence of the calendar.

From this point of view, the ATS is not conceptually a conventional calendar, as it presents a sequence of decreasing periods

$$..., D_0 \cdot \Phi^k, \dots, D_0 \cdot \Phi^2, D_0 \cdot \Phi^1, D_0, D_0 \cdot \varphi^1, D_0 \cdot \varphi^2, \dots, D_0 \cdot \varphi^k, \dots$$

being specified by the series Γ and basic time interval D_0 , where the origin might be set up by fastening of some separation epoch to a definite date t_0 . This selection of the values D_0 , t_0 adjusts the ATS to unique exponential time count scale with the respective separation epochs.

For specifying the reference point, we consider the structure of Auric cycles specified by the **Mayan Calendar** which is unique in world due to its accuracy in count of days; besides, its origin is defined quite definitely and far in the past, and its date of expiring is significant for our days.

Hence, if we adjust the ATS so that the separation epochs t_i , ($i = 0, \pm 1, \pm 2, \dots$), coincide with the greatest events in Nature and society, we will have grounds to testify the existence of exponential, or evolutionary time. The more so if this synchronism would correspond, both qualitatively and numerically, to other independent concepts including the Theosophical ones (Part 6).

Finally, we may expect that it is namely the Auric Time Scale which may give some answer to the vital question as to possibility and terms of abrupt world-wide changes, as such instantaneous (relative to the history of humanity) perturbations might be appropriate just to exponential structure of the series Γ , but in the least degree correspond to the conventional concept of linear time development (or time count).

Though we do not seek for the “physical” explanation for the discovered close distribution of the basic phenomena in Nature and society over the highly uneven ATS separation epochs, namely this synchronism definitely shows that on the level of possible events the forthcoming half a decade may present us a lot of global surprises (See Parts 8, 9).

In order to avoid confusion, the dates and duration of time periods are specified in conventional Gregorian calendar and tropical years and days (d). For short, the Golden section powers are rounded to integers.

3.3. ATS: the benchmarks of evolutionary time

3.3.1. Auric properties of the Mayan Calendar

The miraculous Mayan Calendar (MC) still continues to astonish us with the hidden facets of its numerical structure (apart from astronomical and other ones) being closely connected with a series of evolutionary concepts [30, diagnosis2012.co.uk/, mcuniverse.com/Mayan_Links.1341.0.html]. In addition to its integer cycles, it also grounds on the Auric Time/Period Scale. To this end, the following properties of this calendar present importance for the below considerations.

* The basic cycles of the MC are engendered by the initial terms of the Fibonacci numbers of the basic $u = 2, 3, 5, 8, 13, \dots$ and adjoint $v = 3, 4, 7, 11, 18, \dots$ series by their products and fractals (e.g. 20, 260, 360, etc.).

Not only all Mayan time units are engendered by Fibonacci numbers 2, 5, 13, 18 and their products and fractals (e.g. 2, 20, 200) which give an integer presentation of the irrational Golden Section number and specify the heart of the Mayan numerology – the binary progression 1, 2, 4, 8, 16, 32, 64, ... and the Tzolkin matrix consisting of 260 elements – 13 numbers versus 20 symbols. One more Fibonacci number, 7, is engendered by Tzolkin itself. The Mayans' system of count was positional and used zero before the Europe was acquainted with it. In other words, the basic cycles of the MC are engendered by the initial terms of the Fibonacci numbers of the basic u and adjoint v series by their products and fractals (e.g. 20, 260, 360, etc.).

It is interesting to note also, that this system directly corresponds to the *former British* partition of the *pound*: 12 pence in a shilling, 20 shillings in a pound; the concepts of long dozen (13) and guinea (21) are not arrived at random, as these numbers also fit the Fibonacci numbers.

This system also integrates the basic Earth's harmonics, that is 12 – in the series of Jupiter, 7 – in Uranian one, and - that engendering 18 (6x3) – in the series of Proserpine.

* The peculiarity of the MC consists in exact counting of days in units of Tzolkin ($C = 260$), Tun ($S = 360$), and their fractals and products; it is namely this feature that makes the basis of count of time in the MC. At this, the ratio of these basic cycles makes the value $360/260 = 36/26 = 18/13 \approx 1.385$ being equal to the difference 2- $\varphi = 1 + \varphi^2 \approx 1.382$ of the basic evolutionary factors (2 and φ) of the Mayan Calendar to within an error of 0.1% (!) which could be neglected while comparing a relation of two such small integers with an irrational number φ .

* The complete period N_M (in days) of the Mayan Calendar, or Great Cycle, comprises 13 Baktuns of 144000 kins (viz. days) each:

$$N_M = 13 \times 144\,000 = 1\,872\,000 \text{ (days)}. \quad (3.1)$$

As the average number of days in a tropical year equals $N_0 = 365.2422$, the duration of period N_M makes

$$T_M = N_M / N_0 = 5125.3661 \text{ yr}, \quad (3.2)$$

or 5125 complete years and 134 days. Note, that these numbers also present the periods belonging to the ATS, viz. $N_M = \Phi^{30}$ and $T_M = u_{18}^* = 5168$ within the accuracy of 0.6 % and 0.8 %, resp.

* The extensive astronomical and mathematical knowledge of Maya gives evidence that Maya were absolutely far from being ignorant in *astronomy*, and this intricate system of count was intended for the purposes other than simple dating. In addition to its main (exoteric) structure based on Tzolkin (260) and Tun (360) cycles, we may see that the internal (or esoteric) evolutionary structure of the Mayan Calendar is

based not only on the Venus cycles [31]; almost exactly the periods T_M and T_{Ur} satisfy the equations $T_M = 61 T_{Ur}$ ($\delta = 0.006\%$), $T_M = 2 \Phi^{10} T_{Ur}$ ($\delta = 0.8\%$); besides, the period T_M presents the 10-fractal of the average basic period T_{SS} of the Solar System, $T_M = 10 T_{SS}$ ($\delta = 0.1\%$), or $T_M \approx 10 \cdot 2^9 \approx 10 \cdot \Phi^{13}$.

* The MC is closely connected [30] with the exponential scale 2^k , and, through it, with the 64-element genetic code and I Ching (Book of Changes).

* Expiring of the Mayan Calendar is associated [30, alignment2012.com, diagnosis2012.co.uk/] with evolutionary rise/shift in the human consciousness, which is supposed to be caused by synchronization of all forms of the Earthy life. The culmination of this synchronization that would be engendered by cosmogeneous factor of influence at the end of the MC is expected to be preceded by substantial changes which would take place throughout the world during a relatively short interval being comparable with one generation (about 19 years, with respect to Maya). That is why knowing of the last Gregorian date of this Calendar might be considered as quite actual; the more so that astrological and some other considerations support this concept [56, Parts 8, 9].

* Correlation between the Mayan Calendar and the existing calendar systems was found on the basis of historical, astronomical, and archaeological investigations. It is described by a Julian Day number corresponding to the Mayan zero date of the Great Cycle (Note, that *Julian Day* system resembles the Mayan Calendar in a sense that it presents a simple count of each day that starts at the fixed date – January 1, 4713 BC by Julian calendar). Nearly all researchers now agree that the Maya inscriptions show that the zero date of the Mayan Calendar began on Julian day **584283**: this value has come to be known as the Goodman-Martinez-Thompson, or **584283** correlation, though other correlations exist as well; for example – a 584285 correlation of Lounsbury.

Once we have a Julian day correlation we can easily present any Mayan date in a modern calendar system – e.g. in Gregorian or Julian calendar (GC or JC, respectively; note that JC, or Old Style, and Julian Day count are different systems). Thus, the Julian day 584283 corresponds to **Gregorian date of August 11, 3114 BC GC**, and to **Julian date of 6 Sep 3114 BC JC** [onereed.com/articles/calendar.html, resonateview.org, halexandria.org, etc.].

Note. An *erroneous dating 3113 BC* for the zero date of the Mayan Calendar exists [30]; it may be caused by incorrect transfer from the AD to the BC years, and vice versa, when 1 AD follows after 1 BC, without the "0" year.

This way, **the End of the Mayan Calendar**, viz. the precise date in the modern Gregorian calendar when the Long Count will again reach 13.0.0.0.0, is defined by the Julian day number **2 456 283** presenting the sum of **584283** correlation and Great Cycle duration $N_M = 1\,872\,000$, which corresponds to

December 21, 2012 AD GC.

* It is important to note that each Julian day starts at Greenwich noon. As far as the longitude of Maya region is around 90°W, the Sunrise on August 11, 3114 BC GC took place approximately at GMT noon; as far as this region is close to Equator, each other Sunrise was, in average, also close to respective Greenwich noon. Therefore, as far as each day in Mayan calendar bears definite esoteric and forecasting meaning, and it is in a general tradition to consider a Sunrise as the start of the day, the accepted correlation between the Mayan Calendar and Julian days provides us with a correct instrument for using of Mayan mantic, at least for this region.

* Last not least is the fact [30] that though Maya separated the period of their calendar onto cycles of equal duration, **they stated** that **evolution would develop with acceleration**, as the *Secret Doctrine* states [46, Part 6].

3.3.2. The Basic Auric Separation Epochs of the Mayan Calendar

With due respect to the mathematical peculiarities of Mayan Calendar (MC), as well as deep astronomical knowledge being specific to their culture, for the reference time points the starting and termination dates of the MC were taken, viz. the years of **3114 BC** and **2012 AD**. For the same reason, for the number of separation epochs and Auric periods the basic Mayan numbers (12, 13, 14) and factors (2, 3) are used, which also repeat the Fibonacci and basic Earth's harmonic numbers.

These epochs are obtained as follows. Fix up the ATS reference point (origin) to the starting of the Mayan calendar by using the *algebraic* scale of Gregorian years (ay)

$$\tau_M = -3112.392 \text{ (ay)}. \quad (3.3)$$

Note that 1 (ay) = January 1 of the 1 AD; 1.5 (ay) = 1 (ay) + 0.5 (ay) = January 1 of the 1 AD + 0.5 (year) = July 1 of the 1 AD; 0 (ay) = January 1 of the 1 BC; etc. Then, January 1, 3114 BC makes -3113 (ay), whereas August 11, 3114 BC, viz. the origin of the MC, makes $\tau_M = -3113 + 222/365 = -3112.392$ (ay).

Respectively, the End of the Great cycle, viz. December 21, 2012 makes

$$\tau_E = 2012 + 355/366 = 2012.970 \text{ (ay)}. \quad (3.4)$$

and, thus, duration of the Great cycle equals to

$$T_M = \tau_E - \tau_M = 5125.362 \text{ (ay, or tropical years)}.$$

For obtaining the Auric separation epochs for the Mayan Calendar that lie between the terminating ones (3.3), (3.4), consider a progressive partitioning of the period T_M onto m Auric cycles. The duration of each of these evolutionary cycles

$$\varphi^0 \tau_m = \tau_m, \quad \varphi^1 \tau_m, \quad \varphi^2 \tau_m, \dots, \quad \varphi^{m-1} \tau_m; \quad (\varphi = 1/\Phi = 0.618\dots) \quad (3.5)$$

decreases with respect to the preceding one by the factor of φ . Here, τ_m is the duration of the first of them, which is defined by the normalizing equation

$$\tau_m = T_M / \sum_{i=1}^m \varphi^{i-1}. \quad (3.6)$$

For the given origin τ_M , the succession of the periods satisfying (3.5), (3.6) specifies the algebraic Gregorian years

$$\tau_M, \tau_M + \tau_m, \tau_M + \tau_m + \varphi^1 \tau_m, \tau_M + \tau_m + \varphi^1 \tau_m + \varphi^2 \tau_m, \dots \quad (3.7)$$

of beginning of cycles, that are called the (*Auric*) *separation epochs* of the intra-calendar system of cycles. For convenience of use, they are transformed from algebraic to conventional Gregorian calendar and, for the purpose of this work, are rounded to integers.

Thus for $m = 1$ we obtain one cycle with duration being equal to T_M and two separation epochs determined by 3114 BC and 2012 AD, that is the Mayan Calendar as a single cycle. With regard to number 3 as a general factor of development in time, consider the case $m = 2$ that defines two cycles (the first pair of columns in Table 3.1 with *three Auric epochs*, one of which (**55 AD**) being the internal separation epoch. For the same reason, consider the case $m = 3$, that defines *three cycles* (the second pair of columns in Table 3.1) with two internal separation epochs (viz. **551 BC** and **1034 AD**).

Besides, by taking instead of Φ the factor 2 being not less actual for the MC and ATS, we obtain *three epochs* that defines two cycles (the third pair of columns in Table 3.1) with exactly the same (**551 BC**) internal separation epoch.

Table 3.1. The Intermediate ($m=2,3$) Auric Separation Epochs for the Evolutional Cycles of the MC

Number of intra-calendar cycles (m) and factor of decrease of duration of cycles (k)						Design. of the epoch
$m = 2, \ k = \Phi$		$m=3, \ k = \Phi$		$m = 2, \ k = 2$		
Epoch No.	Epoch	Epoch No.	Epoch	Epoch No.	Epoch	
0	3114 BC.	0	3114 BC	0	3114 BC	X Y Z
1	56 AD	1	551 BC	1	551 BC	
		2	1034 AD			
2	2012 AD	3	2012 AD	2	2012 AD	

If we divide the period of the Mayan Calendar onto the **11** periods, which decrease in the Golden section towards the epoch of termination, and replenish them with *two more epochs*, which precede the year **3114 BC** by respective increasing of the first Auric period of MC, we will obtain the **12** (or **14**) *basic separation epochs* (Table 3.2) of the MC, or **11** (or **13**) evolutionary periods that cover **5125** years (or **13** millennia, resp.) which correspond to the basic numbers of this calendar.

Table3.2. The Basic Auric Separation Epochs for the Evolutional Cycles of the Mayan Calendar

11 449 BC	6298 BC	3114 BC	1146 BC	71 AD	823 AD	1287 AD
1574 AD	1752 AD	1861 AD	1929 AD	1971 AD	1997 AD	2012 AD

For comparison, in the below analysis (Table 3.7) of the basic Auric Separation Epochs of the Mayan Calendar the intermediate epochs **56 AD**, **551 BC**, **1034 AD** (Table 3.1) are also considered .

3.4. Population of China as Indicator of World Trends

3.4.1. China Census Data

Among other surprising things, China presents the census data (Table 3.3) which *cover the unprecedented period of 2000 years*. For analytical studying, these data must be smoothed by some curve. For this, an approximation $p = 1/(0.0393 - 0.0000193y)$ is given in [37], which, for convenience, can be presented as follows

$$P = \frac{a}{c - y}, \quad a = 51813, \quad c = 2036.27, \quad (3.8)$$

where y is the Gregorian year, and P – population in millions of people (m). Since the general census of population is now generally taken in the beginning of the year, assume that for each year the data in Table 3.3 is given for the January 1st. Then, the origin, viz. $y = 0$, corresponds to January 1, 1AD, whereas the year $y = -1$ corresponds to January 1, 2 BC, etc.

Table 3.3. General Censuses for China Over 2000 Years [37] N_i

No	Year of census	Census data N_i (m)	Model (3.8) P_i , (m)	No.	Year of census	Census data N_i (m)	Model (3.8) P_i , (m)
1	2	71	25	19	1974	908.60	832
2	88	43	27	20	1980	987.05	921
3	156	62	28	21	1981	1000.72	937
4	606	54	36	22	1985	1048.00	1011
5	705	37	39	23	1987	1080.00	1052
6	1014	60	51	24	1989	1112.00	1096
7	1103	123	56	25	1990	1133.68	1120
8	1393	61	81	26	1992		1170
9	1600	150	119	27	1994		1226
10	1700	150	154	28	1996		1287
11	1750	200	181	29	1998		1354
12	1751	207	182	30	2000		1429
13	1800	323	219	31	2005		1657
14	1850	430	278	32	2010		1972
15	1953	582	622	33	2015		2436
16	1964	650	717	34	2020		3185
17	1966	700	737	35	2025		4598
18	1969	806	770	36	2030		8264

The principal property of the function (3.8) is the break near point c , viz. at the epoch of 2036.27 which makes the year of 2036 plus 0.27 of a year, or April 7, 2036 AD (that is $0.27 \cdot 12$ months = 3 months and 7 days). Though this “exact” date has no real meaning since the function (3.8) is just an approximation, it shows, however, that when the argument y approaches the year 2036, the respective value of function $P = P(y)$ grows to infinity. At this, in contrast to the quickly growing function $Q = e^y$, which is frequently used as an exemplary model for “explosive” processes in Nature and society, the function $P(y)$ comes to infinity on a bounded segment $Y = [2036; 2037]$, whereas the function $Q = e^y$, – on the infinite segment.

In other words, the growth of the exponent $Q = e^y$ (not speaking about polynomials and linear functions) is always limited on a bounded segment, while for any large value P_* there exists such a value y belonging to Y , that $P(y) > P_*$.

The above comments are required for the reader to understand that *physical realization of the process described by (3.8) is absolutely impossible within some close vicinity of the point c* . Therefore, it is necessary firstly to estimate the mathematical adequacy of the model (3.8) for the given source data; after then, it would be possible to estimate the year of bifurcation.

From the physical point of view, selection of China is also stipulated by some significant circumstances pertaining to this region. Thus, *China* (or, more precisely, the kernel of its historical territory) *presents especial interest as a world-wide indicator of cosmogeneous factors of influence* being exerted to the Earth due to the very location of this country, and that is why *the population of China could be considered as the indicator of definite world-wide trends*. This hypothesis has been put forward and rather definitely testified in [37]; in brief, the arguments are as follows.

By diffracting on the globe, the electromagnetic Solar radiation gives a series of maxima, the frequency of the first of which coincides with the alpha rhythm of the brain. At this, high mountain ridges play the part of condenser of diffraction wave, that forms a “geographical” maximum, or additional source of energy. Really, namely here, at both sides of Himalayas, we see the most inhabited areas in the world. As well, might be due to this factor the energy (prana?) accumulating exercises are widely developed namely in these regions.

Moreover, by taking account that the Earth is a ferro-nickel planet, or in some way a magnet, we get one more factor of interaction between the natural (seismic, etc.), and social and biological phenomena, the more actual now, the avalanche growth of population (and, hence, interacting energies) follows the hyperbolic trend (3.8). This leaves no other alternative for the society then seeking for harmony with the environment and itself.

3.4.2. Functional Model of Population of China

It is clear, that due to the influence of different natural factors (varying of territory, earthquakes, wars, etc.) the demographic data presented in Table 3.3 should be considered as such that are spread about some actual trend, but do not follow it exactly. Hence, in order to describe this trend numerically, we may present population as a function of year, which reflects the actual trend, but, inevitably, with an error pertaining to the source data.

From mathematical point of view, solving of this problem requires, firstly, to select a class of functions (viz. exponent, polynomial, etc.) being most appropriate for such approximation, and, secondly, to estimate the parameters which uniquely specify the appropriate function within the chosen class (e.g. parameters a and c for hyperbolic function of type (3.8)).

The first of these two tasks is generally not a mathematical problem, as the same data might be approximated by function being taken from different classes, but with the same accuracy. In other words, though selection of the class of approximating function predetermines the algebraic form of the result, this form does not present the result by itself, but the numerical response (within the area of the source data, or in its close vicinity) to the argument y ; and this response has to be the same, within an error specified by the source data, for approximations φ, f being taken from different functional classes $\{\varphi\}, \{f\}$. In this case the approximation is called stable and the functions φ, f are considered to be equally accurate approximations of the source data.

Therefore, as far as we are interested in revealing stable trends and numerical extrapolation in close vicinity of the source data, it would make no difference, what algebraic class for approximation is used, should this approximation be stable and provide the required accuracy.

The second task provides a routine mathematical problem that might be solved with the use of the Method of Least Squares (MLS); it allows us to find such numerical values for parameters of the function of the given class that minimize the standard deviation (SD) σ_f which specifies the error for the considered problems; in other words, it describes the dispersion of the actual data against the smoothing function:

$$\sigma_f^2 = \frac{1}{n-1} \sum_{i=1}^n (N_i - f(y_i))^2, \quad (3.9)$$

where n – is the number of censuses, N_i – the *actual* population of China in the year y_i , and $f(y_i)$ – the “*model*” population being obtained as the value of the approximating function f for the same year y_i ; $i = 1, 2, \dots, n$. For example, given a functional class $p = a/(c - y)$ and census data (Table 3.3), the solution to this problem will be presented [37] by the values a and c specified in (3.8).

Consider now those *main qualitative and numerical trends* which are specified by hyperbolic approximation (3.8), where (m) denotes millions of people.

(A1) The standard deviation is $\sigma = 54$ (m). This means that within the approximation interval of 2 AD to 1990 AD the average deviation of function (3.8) from the census data values N_i (Table 3.3) makes ± 54 (m), and this value of SD cannot be significantly decreased by selecting other values for the parameters a and c , because they are chosen as such values that minimize the deviation (3.9).

(A2) The equation (3.8) defines that each successive doubling of population takes place over the two times less time interval, and vice versa: beginning with the date $c = 2036.27$, each successive (in the depth of centuries) decrease in population with the factor 2 takes place over the twice time interval. At this, instead of factor 2 any positive number, e.g. $\Phi = 1.6180339 \dots$ might be taken.

(A3) If we consider k phases of decreasing of population, each of them with the factor n , the total discrepancy of approximation would decrease by n^k times. This mean, that for the given data the accuracy of any approximation is determined mainly by the accuracy at the area of the last decades; but namely for this area the most exact and numerous data are given. In other words, “The future defines the past”.

(A4) At the first stage, from 2 AD to the XVIII century, the population varied up and down relative to average value $N_{AV} = 63.875$ (m). From a viewpoint of approximation, it is a normal situation, as the SD makes 54 (m) and at this stage the period of doubling of population exceeds significantly the periods of natural factors of influence (e.g. fall of the Dynasty Min in 1644, and blooming of the Dynasty Cing that resulted in strengthening of autonomy). In general, this stage presents the phase of relative *stationary*, where the actual population is described by (3.8) just by an order of value.

(A5) Within the period of XVII-XVIII to the middle of the XX century, we see a non-stop growth of population which visually might be estimated as *linear*; within an accuracy of 30-40% the actual data at this stage are described by (3.8), which reflects the influence of both natural factors, and annexation of Tibet.

(A6) With much more precision, from 10% to 1% (at SD about 5%), the equation (3.8) reflects the population at present stage (from fifties to our days). And what is more, the following trends are seen at this stage, which had never been registered before:

(A7) doubling of population, firstly in the history, has taken place over a period (from 1950 to 1990) being comparable with the duration of an average human life; viz. those, who was born after 1950, would survive (in average, or at least) one doubling of population;

(A8) near the year of 1950, it is clearly seen an inflection point in the census histogram, which specifies the origin of demographic “explosion” (might be due to growth of income which now makes 7% a year, and in spite of attempts to control the fertility). Besides,

(A9) actual growth of population, starting with 1969, even exceeds the values specified by hyperbolic (!) approximation (See Table 3.3).

(A10) Though the current Governmental policy has slightly changed this trend, it rejects neither the two-millennia tendency, nor the absolute trend before the point of bifurcation.

Therefore, as the actual growth of population of China now approaches the hyperbolic function with the accuracy exceeding 1%, long before the year of 2036 there should inevitably take place a bifurcation point T^ , as otherwise the population of this country would have grown to infinity in a period of 30 – 40 years.*

Thus, by paying attention to exclusive actuality of this conclusion, analyze the stability and accuracy of model (3.8) by comparing it with the hyperbolic function of general view, as due to (A3) and (A9) no other functional class would provide adequate growth as hyperbola does.

As it was shown, the equation (3.8) approximates the demographic data with sufficient accuracy of 1% at the stage (A6), but practically inadequate at the stage (A4) where the error exceeds 200%. In order to obtain more adequate approximation for all stages, consider the generalized class of hyperbolas

$$f = d + \frac{e}{c' - y}, \quad (3.10)$$

that differ from (3.8) in the term d which describes the background level there, where the value of the second, hyperbolic, term is small. At this, for studying the stability of approximation (3.10), optimal values of parameters d, e are given in Table 3.4 for the series of years c' which provide minimal error (3.9), viz. standard deviation σ . The results presented in Table 3.4 allow to conclude the following:

- (i) approximation (3.10) yields sufficiently (by 17%) lesser error of 46 (m) against the value of 54 (m) pertaining to (3.8);
- (ii) all sets of parameters $\{e, d\}$ for the given interval of years $\{c'\} = \{2032 - 2040\}$, or $c' = 2036 \pm (2)$, provide practically homogeneous standard deviation σ and low error for all stages.

Table 3.4. Optimal Parameters for the Generalized Hyperbola (3.10)

c'	d (millions of people)	e	σ (millions of people)
2032	38.4	47111	46.6
2034	34.2	49211	46.3
2035	32.1	50260	46.2
2036.3	29.5	51594	46.2
2037	28.0	52362	46.3
2038	26.1	53412	46.4
2040	22.2	55516	46.8

Hence, approximation (3.10) is sufficiently stable and gives almost the same average value for c' as that in (3.8). Therefore, for uniformity with (3.8), the average parameter c' for (3.10) might be assigned the same value $c = 2036.27$, since the correction 0.27 does not attribute to the error of approximation.

3.4.3. Bifurcation Points as the Limits of Demographic Trends

In compliance with the Hypothesis on the evolutionary time, if the ATS defines the sequence of periods with the Aurically decreasing duration, they have to converge to some time point where definite social (and/or natural) phenomena may drastically change the situation in the world. That is why we call it the point of bifurcation T^* . However, as the situation may develop by steps, we would seek for this point as a set of bifurcation points being distributed at a short time interval.

This approach generalizes the Mayan concept of development of humanity, which implies that such bifurcation point does not denotes the end of the world, but rather the end of some supercycle which, in its turn, might also present a cycle within some greater structure of cycles, etc.

As far as both the Mayan and some other bifurcation points are either known, or could be obtained (as below, by demographic trends), establishing of synchronism between the candidates for the bifurcation points, Auric structure of Mayan Calendar and major world events in Nature and society might be considered as explicit evidence for the Hypothesis on the ATS.

Consider the candidates for the Bifurcation Points. We may take it for granted that the bound of adaptivity of population to qualitative and quantitative changes in the conditions of life is reached when doubling of population takes place during an interval of replacement of one generation, viz. over a period of about $T_G = 20$ years, or $I_G = 20 \pm 3$ years. The dates of starting and completion of this period denote T_{GS}^* , T_{GC}^* , and call the former the *implicit bifurcation point*.

Indeed, the above doubling may take place only when the growth of population would noticeably approach the hyperbolic trend, and, in this case, it would be hardly possible to imagine for the country to withstand such demographic explosion, as in compliance with (A2) the following doubling would take two times lesser period (viz. 10 years), etc. The more so we are considering such a great country as China.

With respect to (3.8), the year T_{GS}^* is defined as follows

$$T_{GS}^* = c - 2 \Delta, \quad (3.11)$$

where Δ is the accepted period of doubling of population. Then, the average and interval estimations for the period of doubling of population of China during the replacement of one generation make

$$\begin{aligned} T_{GS}^* &= 1996, \quad T_{GC}^* = 2016, \quad \text{for } \Delta = 20; \\ I_{GS}^* &= (1990 - 2002), \quad I_{GC}^* = (2013 - 2019). \end{aligned}$$

(A11) Hence, if the *first (implicit) bifurcation point* was passed in the middle of fifties (A7) and marked the transfer to evident hyperbolic growth of population, and the *second (implicit) bifurcation point* was passed approximately in 1996 (A10), we may suggest that the forthcoming (*third*) *bifurcation point* engendered by demographic trend would explicitly demonstrate itself, in average, in 2016, or in 2013- 2019.

The obtained estimates are supported by the following independent conclusions:

(A12) As it is shown in [56], the beginning of the Age of Capricorn, which is defined by orientation of the Earthy axis, Solar apex and other factors, is estimated as the date not exceeding the year of 2001 AD, that is literally by our days: and *this is namely the Age of Capricorn that comes and carries contraction*, and not the Age of Aquarius.

(A13) Note that the forthcoming Solar activity maximum is to take place in the vicinity of 2012. To this end, that epoch may struck us with new global event, as it was at the preceding two maxima – in 1991 (the coup d'etat in the former USSR, Fig. 1.1. of Part 1) and 2001 (the September 11 Attack, Fig. 1.2. of Part 1). However, the next time we may expect even more dramatic development of the events, because more factors of influence are vigorously [41, 75] put into effect from the very beginning of development of the last Solar cycles.

Preliminary Analysis of Evolutional Cycles. Consider stability of models (3.8), (3.10) with respect to their correspondence to the main trends. For this, synchronism is studied between the cycles in which the population grows with the factor m , $\{m = 2, \text{ or } \Phi\}$, and some natural phenomena.

In order to obtain a sequence of cycles, consider the origin by taking for the reference point the average $N_{AV} = 63.875$ (m) of the actual population at the stationary stage (A4). After then, with the use of (3.8)

calculate the years (See Table 3.8) that correspond to those levels of population which increase with factor m , $\{m = 2, \text{ or } \Phi\}$, that is

$$P_0 = m^0 \cdot N_{AV} = N_{AV}, \quad P_1 = m^1 \cdot N_{AV}, \quad P_2 = m^2 \cdot N_{AV}, \quad \dots; \quad (y_k = c - a / P_k; k = 1, 2, \dots).$$

Table 3.5. Doubling and Auric increase of Population for the Reference Point Complying to the Stage of Stationary (Years are determined with respect to (3.8))

Order of increase: $m = 2$			Order of increase: $m = \Phi$		
Cycle No. k	Population, $P_k = 2^k N_{AV}, (m)$	Year y_k defined by P_k via (3.8)	Cycle No. k	Population, $P_k = \Phi^k N_{AV}, (m)$	Year y_k defined by P_k via (3.8)
0	63.875	Stage (A4)	0	63.875	Stage (A4)
1	127.75	1630	1	103.35	1535
2	255.5	1833	2	167.23	1726
3	511.0	1934	3	270.58	1844
4	1022.0	1985	4	437.81	1918
5	2044.0	2011	5	708.38	1963
6	4088.0	2023	6	1146.19	1991
7	8176.0	2029	7	1854.57	2008
			8	3000.76	2019

(A14) Analysis of Table 3.5 shows that:

- (i) In the middle of the XIX century takes place a simultaneous completion of the second doubling (1833) and third auric (1844) cycles, which is reflected in abrupt growth of population (See Table 3.3), and synchronism with the epoch (1861) of the global Auric cycles (Table 3.7); besides,
- (ii) Almost simultaneous completion of the fifth doubling (2011) and seventh Auric (2008) cycles approaches the date of expiring of the Mayan Calendar, after which the population of China is to double in 12 years.

By taking account of the above results, conduct the same analysis for the model (3.10), but consider for the reference point the origin of the Mayan Calendar (viz. 3114 BC). Note, that due to relatively high value of the parameter d , the number of cycles in this case is lesser. From the other hand, use of Table 3.4 allows us to estimate the error for the separation epochs. The obtained results are presented in Table 3.6, where $N_{OM} = 40$ (m) is the population relative to (3.10) being averaged with respect to Table 3.4.

Table 3.6. Doubling and Auric increase of Population for the Reference Point Complying to the Origin of the Mayan Calendar (Years are determined with respect to (3.10))

Cycle No., k	Order of increase: $m=2$	Order of increase: $m = \Phi$
	Year defined by population $N_{OM} \cdot 2^k$ via the (3.10)	Year defined by population $N_{OM} \cdot \Phi^k$ via the (3.10)
0	Origin of the Mayan Calendar, 3114 BC	Origin of the Mayan Calendar, 3114 BC
1	1004 \pm 107	552 \pm 138
2	1638 \pm 46	1346 \pm 80
3	1857 \pm 21	1665 \pm 43
4	1951 \pm 9	1824 \pm 25
5	1995 \pm 3	1911 \pm 14
6	2015 \pm 1	1961 \pm 8
7		1990 \pm 4
8		2008 \pm 1.7
9		2019 \pm 0.2

(A15) analysis of Table 3.6 shows that:

- (i) within the last century, the separation epochs for the Auric scales practically coincide with those of Table 3.5, which is especially actual with respect to (A3);

(ii) relative to doubling of population, Table 3.6 yields the same *critical epochs (1951, 1995, 2015)* as were revealed in (A10).

Therefore, we may conclude that the approximations (3.8) and (3.10) are equally stable with respect to Auric cycles. This allows us to use the former, as more simple, in further analysis; definite discrepancy is caused by difference in origins and explained below.

The Basic synchronistic Table

In order to verify the hypothesis on significance of the concept of evolutionary time, in Table 3.7 it is considered the *synchronism between*:

- *the basic Auric Separation Epochs* ($k = -2, -1, 0, 1, \dots, 11$ of Table 3.2) being obtained in compliance with (3.5) - (3.7) for the Evolutional Cycles (Aurically compressed periods) of the Mayan Calendar which cover the last 13 millennia (2 of which precede the MC). They are presented in col. 4); for comparison, *the intermediate epochs* of Table 3.1 are also given;

- and the epochs of the phenomena *in Nature and society* presenting *the events of worldwide importance* in the following spheres:

- Global natural cataclysms and Space phenomena;
- Coming of Great Teachers of humanity, as well as outstanding philosophers and scientists;
- Originating of calendars (as Time/Space systems);
- Crucial events in the worldwide religious/philosophical systems and States;
- Demographic trends (in population of China, as a cosmogeneous indicator of world trends).

For the latter sphere, with the use of the model (3.8) (viz. independently of the Auric epochs of the MC) the "demographic" epochs are calculated as follows. By using the population for the date τ_M , $P_M = 10.06$ (m), which is presented in Table 3.7 (col.2, 0-cycle line), as the Auric epochs calculate the population $P_k = P_M \cdot \Phi^k$ (col. 2 in Table 3.7) for demographic cycles ($k = 1, 2, \dots$), and, after then, with the use of (3.8) obtain the "model" epochs Y_k (col. 3) corresponding to these values P_k .

Table 3.7. Separation Epochs of the Auric Cycles for the Mayan Calendar and their Synchronism with Global Geocosmic Phenomena, Demographic Trends, and Evolution of Consciousness

k – the separation epoch and cycle number ($k = -1, -2$ – the epochs and cycles which precede the MC)			
	P_k – Population of China to the epoch number k , $P_k = P_M \cdot \Phi^k$ (millions of people)		
		Y_k – the Gregorian year that is defined by the population P_k via (3.8), viz. $Y_k = c - a / P_k$	
			t_k – separation epochs (3.7) of Auric cycles of the Mayan Calendar
k	P_k	Y_k	t_k
-2	3.84	11 445 BC	11 449 BC
Epoch of <i>termination</i> of the <i>last glacial era</i> (XII-th millennium BC)			
Flash of <i>Supernova; Geomagnetic inversion</i> (second to the last)			
Intensification of <i>earthquakes and volcanic</i> activity (XIII – XI millennia BC)			
<i>Change in surface of the Central Asia</i> (XI-th millennium BC)			
"Robert Bauval demonstrates that <i>the three pyramids of Gizeh</i> are the same in relative size and orienta-			

tion to the stars in the belt of the constellation **Orion**. ... Bauval derived his time code is by finding out when the physical pyramid layout of Gizeh was directly lined up with the heavens. There is only one time per Precession cycle that the celestial Orion could line up with the terrestrial Orion, and that was around **11,450 BC**. Amazingly, Edgar Cayce's readings said that the pyramid was built from **11,490 to 11,390 BC**". [<http://ascension2000.com/Shift-of-the-Ages/shift20.htm>].

k	P_k	Y_k	t_k
-1	6.22	6296 BC	6298 BC
<p>Flash of Supernova</p> <p>Geomagnetic inversion (next to the last)</p> <p>Growth of concentration of precipitated uranium (VIII – VII millennia BC)</p> <p>Birth of Zoroaster (6194 BC – by Aristotle)</p> <p>Epoch of ruin of Atlantis (by Platon)</p> <p>Epoch of “Creation of the World” (by Augustine et al.)</p>			
0	10.06	3114 BC	3114 BC
<p>The last geomagnetic inversion (3.2 – 2.9 millennia BC)</p> <p>Total Solar eclipse at vernal equinox (3306 BC)</p> <p>Beginning of the Kali Yuga (about 3100 BC)</p> <p>Beginning of the Mayan Calendar (3113 BC)</p> <p>Emergence of Sumarian civilization and Babylon (about 3000 BC): in those times they were provided with the star ascending tables and (at least, since 2500 BC) they used the Solar-Moon calendar</p> <p>Up to the epoch of 3000 BC (since 4000 BC), the heliacal rise of <i>Sirius in Memphis</i> was the “exact” calendar for flood of Nile</p> <p>Krishna, his era and record of the legend – over 3000 BC</p> <p>Vyasa, founder of Vedanta (about 3100)</p> <p>Fu-Si (about 2852 BC) and his heirs had found and expanded the Chinese Empire up to the Eastern Sea, ordered the <i>calendar</i> that was later being further improved during the centuries; as well, he discovered the <i>trigrams</i> that were further developed (See below) to I Ching in the Age of Confucius</p> <p>Yudistir (died in 3101 BC) – founder of the Indrapresht, on the ruin of which Delhi was built in the XVII-th century (See Akbar, below)</p> <p>After a series of wars, the first Pharaoh's dynasty over the Upper and Lower Egypt is established around 3000 BC.</p>			
1	16.28	1147 BC	1146 BC
<p>Significant intensification of the tectonic activity coincides with growth of concentration of precipitated uranium (about 1200 BC)</p> <p>The <i>Golden section of the Mayan Calendar</i> (from the end to the beginning), 1155 BC</p> <p>Fall of Troy (1194 BC)</p> <p>End of the age of creating of the Mahabharata (1500 – 1200 BC)</p> <p>Discovering of Tibet and China by the Europeans</p>			

Beginning of the **Iron Age** (1200 – 1180 BC)

Ramszes II (1314 – 1200 BC) establishes the **Calendar** of “lucky/unlucky” days

k	P_k	Y_k	t_k
X			551 BC

Coming of the Great Pleiad of the Initiate Adepts and thinkers:

Gautama Buddha (621 – 544 BC)

Historical **Maitreya** (V-th century BC), Mahatma, successor of Gautama Buddha

Zoroaster (VI-th century BC)

Pythagoras (570 – 496, or 582 – 507 BC), Initiate, the most known of the mystic philosophers

Platon (427 – 347 BC), Initiate, the greatest European *philosopher* of the before-Christian Age; he reflected the Ideas of Vedanta and Pythagorean concepts

Herodotus (birth about 484 BC), the most exact of the *historians*, the founder of the European historical science

Anaxagor (about 500 – 428 BC), famous Ionian philosopher; one of those who firstly disclosed the secret Pythagorean concepts

Anaximandr (610 – 546 BC), the first who put forward the concept of evolution of the human beings

Lao-tzu (VI-th century BC)

Confucius (551- 479 BC)

Destruction of the **Jerusalem's Temple**, **Babylonean Capturing** (588 BC);

Final **fall of the Babylon** (539 BC) being one of the richest countries and the hearth of science and culture

Greece makes the Eleusics (viz. initiations) the source of profits (520 BC)

The Phoenician expedition had firstly gone around Africa (in the middle of th VI-th century BC) and was surprised by the anti-clock-wise movement of the Sun

Iran established a Zoroastrian calendar of Egypt type (VI – V centuries BC)

Solon (640 – 560 BC) established (in 593 BC) the first regular Solar-Moon *Greek* calendar which was edited by *Meton* in 432 BC

Phales of Miletus (625 – 547 BC), the first in Europe being known by *name* who predicted the Solar eclipse

Creating of **I Ching** (VI-th century BC) – the **book #1** in the Chinese history and *culture*, which is closely associated with the binary structure ($2^6=64$) of the *Mayan Tzolkin*

Starting from here, all the years relate to Anno Domini			
k	P_k	Y_k	t_k
(Y) 2	26.35	70 AD	(56) 71 AD
<p>Engendering of the CHRISTIANITY; first persecutions of the Christians</p> <p>Apostle Paul</p> <p>Buddhism in China (65); great Chinese movement to the West</p> <p>World wide Hebrew massacres (65)</p> <p>Destruction of the Jerusalem's Temple (70)</p> <p>Eruption of Vesuvius (79)</p> <p>Migration of Huns; Starting of the Great transmigration of peoples in Eurasia</p> <p>The age of Sak (78) – beginning of count of days in the national Indian calendar being officially accepted in 1957</p> <p>Apollonius of Tian (Birth in the beginning of the 1st century AD, lived for about 100 years), Initiate, earnest devotee of Pythagoras, the most famous historical personality of the “<i>Age (viz. century) of Miracles</i>”</p> <p>Simon Magus (1st century) – the second, after Apollonius famous Gnostic and magician who was called “The Great God’s Might”</p> <p>Claudius Ptolemaeus (end of the 1st century – middle of the 2nd century) – the creator of <i>Almagestum</i> and geocentric system which were used in astronomy until <i>Copernicus</i>, and the author of the <i>Tetrabiblos</i>, the outstanding role of which in astrology is not exhausted until our days</p> <p>Termination of Pharaoh's dynasty (around 32 BC) and distribution of worship of Osiris upon Nero (54 – 68 AD) in Roman Empire.</p>			
3	42.63	821	823
<p>Earthquakes in Iran in 856 (200 000 victims) and in 893 (150 000 victims)</p> <p>The miraculous DISAPPEARANCE OF THE PEOPLE OF MAYA (830)</p> <p>Beginning of the <i>Kiev's Rus</i> (See below)</p> <p>Abdullah Al Mamun, son of the Caliph of Baghdad, forced the first historically recorded penetration into the GREAT PYRAMID in AD 820.</p>			
(942) Z			(942) 1034
<p>Flash of Supernova (1054)</p> <p>Birth of the historical Quetzalkoatl (Kukulcan) (947)</p> <p>Igor's (<i>Kiev's</i> famous duke) campaign against <i>Byzantium</i> (944),</p> <p>Baptism of Kiev's Rus (988)</p> <p>Starting of <i>Indian and Himalayan</i> campaigns of Mahmud (1001 – 1013)</p> <p><i>Tibet-China</i> war (1015)</p> <p>Mongolia establishes the calendar relevant to Chinese analogue (1027)</p>			

k	P_k	Y_k	t_k
4	68.98	1285	1287
<p>Earthquakes in Asia Minor in 1268 (60 000 victims) and in China in 1290 (100 000 victims)</p> <p>Dissemination of Zen-Buddhism in Japan (XIII-th century)</p> <p>Invasion of Mongols in China, Japan, Java, Punjab (1276 – 1293)</p> <p>Foundation of the Parliament in England (1265); Origin of the Ottoman Empire (1288), Moscow (1276) and Lithuanian (1293) Princedoms</p> <p>Proscription of <i>Hebrews</i> from England, <i>Christians</i> from Palestine (1290 – 1291)</p> <p>Decay of new <i>Maya</i></p> <p>The Great Pyramid was once covered by 115,000 highly polished facing stones weighing approximately 10 tons each. Unfortunately, the majority of these had been shaken loose in a massive <u>earthquake</u> in 1301 AD, and were carted off by the natives for use in buildings in Cairo.</p>			
5	111.60	1572	1574
<p><i>The most terrible</i> (as to victims – 830 000) earthquake on record in the world, China, 1556</p> <p>Dreadful epidemic of plague in Europe (1563) at great conjunction of Mars, Jupiter and Saturn</p> <p>Flashes of Supernovas: in 1572 (Tycho Brahe) and in 1604 (Kepler)</p> <p><i>Europe</i>: beginning of Renaissance, development of capitalism, <i>Reformation</i> and dissemination of Christianity over the world, establishing of world-wide empires, great geographical discoveries of 15 - 16 centuries</p> <p><i>Asia</i>: flourishing of the Mogul empire of the emperor Akbar (1542 – 1605) being called “the Solomon of India”</p> <p>Flourishing and reformation of <i>Moscow</i> and Lithuanian Princedoms into kingdoms (1547, 1572, respectively); subjugating of <i>Siberia</i> by Ermak (1582)</p> <p>Massacre in Vassi (1560), uprising of Huguenots in France (1567), <i>Massacre of St. Bartholomew</i> (1572), Religious riots in <i>Japan</i> (1571), <i>London’s</i> punishment (1588)</p> <p>Dissemination of heliocentric world outlook: Copernicus (1473 - 1543), Tycho Brahe (1546 - 1601), Giordano Bruno (1548 - 1600), Galileo (1564 – 1642), Kepler (1571 – 1630)</p>			
(1717)			(1717)
<p>A series of most destructive earthquakes: Caucasus, 1667 (80 000 victims); Italy, 1693 (60 000); Iran, 1727 (77 000)</p> <p>Storm of Potala (1717); Manchurian Dynasty subordinates the Tibet (1720)</p> <p>Reformation of Russia into an Empire (1718 – 1721), the first general census</p> <p>Discovery of the Easter Island and its monuments (1722) – the only remains of Lemuria</p> <p>Creation of <i>physical and mathematical foundation for the sciences</i>: Newton (1643 – 1727), G.W. Leibnitz (1646 – 1716) et al.</p>			

k	P_k	Y_k	t_k
6	180.58	1749	1752
<p>A series of most destructive earthquakes, tsunamis and typhoons: India, 1737 (300 000 victims); Portugal, 1755 (70 000); Italy, 1783 (50 000)</p> <p>Starting of industrial revolution and flourishing of the <i>materialistic science</i>, disappearing of feudalism in Europe and forming of colonial empires</p> <p>Beginning of raids of Ahmed-Durran to <i>India</i>, riots in <i>Mongolia</i> and <i>China</i> (1747), intestine wars in <i>Java</i> Island (1750). Seven Year's war, British-French wars in America, India; taking of Pandishery by British troops (1750 – 1763)</p> <p>Discovery of Uranus (1781)</p>			
7	292.18	1859	1861
<p>Beginning of the age of triumph of materialism, pragmatic ideology and science</p> <p>Helen Blavatsky (1831 – 1889) – publication of the Secrete Doctrine</p> <p>Abolition of serfdom in <i>Russian Empire</i> (1861), the last serfage on the 1/6 part of the land</p> <p>Wars, revolutions, riots in many places on the ideological and religious grounds (1845 – 1875)</p> <p>Theoretical prediction and discovery of Neptune (1846)</p>			
(1900)			(1900)
<p>The epoch of beginning of the last evolutionary cycle (1901 – 2013, viz. <i>the XX-th century</i>) within the 7-phase Auric structure of the Mayan Calendar, which defines the period of continuous and accelerating reorganization of the world as a unitary system, both in material and ideological spheres</p> <p>The period of the most destructive earthquakes (See below)</p> <p>“<i>The twentieth century has laid up for the humanity very strange events, and it may even happen for this century to be the last one</i>” [49]</p>			
8	472.76	1927	1929
<p>The age of Pluto – that is of nuclear power, world wars and world-wide cataclysms in both material sphere and consciousness</p> <p>Discovery of the planet Pluto (1930):</p> <p style="padding-left: 40px;">in this cycle is directly accompanied by the <i>reaction of the Pluto the Sovereign of the underground kingdom</i>: during the period of 1920 to 1935 there took place 5 of 21 the most destructive earthquakes over the 1140 years of registration that seized about 650 000 lives, the world-wide economical crisis, the world war that took away about 50 000 000 people, ideological <i>split of the world community onto two systems with nuclear weapon threatening</i></p>			

k	P_k	Y_k	t_k
9	764.95	1969	1971
<p>Earthquakes: <i>Peru</i>, 1970 (66 000 victims), <i>China</i>, 1976 (from 255 000 to 655 000); <i>Iran</i>, 1990 (50 000)</p> <p>The age of collapse of consciousness, as inability to adapt to the consequences of frontal breach into unprecedented spheres of knowledge and technology, which makes the man the hostage of his achievements. Firstly, this is <i>global computerization</i> and <i>informatization</i> of life; <i>exploration of the Space</i> (flights to other planets, space stations, <i>militarization of the space</i>). Then, <i>ecological</i> and <i>technological crisis</i>: exponential growth of knowledge and technologies exceeds the human ability to monitor the consequences; epidemics in developed countries (AIDS, etc.)</p> <p>Dissemination of the <i>Eastern philosophy</i> to the <i>West</i>, and <i>Western logic</i> and <i>technology</i> – to the <i>East</i></p> <p>[1987] Flash of Supernova SN1987A in 1987 (See Para.12.3)</p> <p>Intensification of technological, natural and ideological cataclysms: <i>Chernobyl</i> Catastrophe, problems with utilization of chemical and nuclear <i>wastes</i>, heating of the atmosphere, seismic/volcanic drift of the Pacific platform, growth of ozone holes, etc.</p> <p><i>Ruin of the communist world.</i> Continuous political and armed world-wide <i>confrontation</i> on the ideological and religious bases</p>			
10	1237.71	1994	1997
<p>Establishing of <i>new world</i> order presenting <i>misbalance</i> on the background of demographic “explosion” and global (natural, social, and technological [41, 56, 75]) cataclysms.</p> <p>These are accompanied by the cometary effects (Part 9) and coming of the Earth to a unique Space alignment (Part 8) synchronous with the surges of Solar activity</p> <p>In particular, the <i>unprecedented</i> (since WWII) <i>military action in Europe</i> begins <i>exactly at the comet Hale-Bopp Time Focus on March 24th</i>, 1999, that was previously manifested by military conflicts and riots in Albany (1997) and Kosovo (1998)</p>			
11	2002.66	2010	2012 (Dec 21)
THE END OF THE MAYAN CALENDAR			

NOTES.

1. P_M – population of China obtained (3.8) to the epoch $\tau_M = -3112.392$, viz. **August 11, 3114 BC** GC. This equation defines that each successive increase in population by Φ times *may take place* over the Φ times less time interval, starting with the epoch x with the first interval duration t , *just if* the equation $t\Phi^2 = c - x$ takes place. What is **astonishing** is that it actually holds with the chosen separation epochs!
2. **In brackets** (e.g. **(1900)**) some separation epochs are given for the 7-phase system {3114BC, 1087BC, 168AD, 943AD, 1421AD, 1717AD, 1900AD, 2012AD}. They are actual since the number 7 is as actual in count of Time, as the number 3. Note, that 12 is the harmonic of Earth in the series of Jupiter, and 7 – is the Earthy factor in the series of Uranus (as well as a basic factor in Tzolkin, together with 13 presenting the number of Auric cycles in Table 3.7).
3. The year **1987** given in brackets **[1987]** denotes the epoch of Returning of Quetzalcoatl (Kukulcan).
4. By the evidence of Aristotle, Apuleius et al. [76] it follows that there were several prophets with the name **Zoroaster**. The age of the first of them is related to 6194 BC, whereas the last of them (about 600 BC) is considered to be a teacher of Pythagoras.
5. The Earthquakes specified in this Table relate [32] to 21 of the most destructive ones. In aggregate, they are considered below.

3.4 The correlations for the current epoch

Thus with respect to the ATS-approach and esoteric concept of Maya [30] and Eastern Esotery [46] the considered synchronism support the idea that the evolution presents an accelerating process which, in some ways, is initiated by cosmogeneous factors of influence and covers both informational and material spheres of life, among which the informational factor is considered as a dominating idea that implies emergence of new ideas and knowledge (from the first in the history disclosing of Theosophy to scientific penetration in the depths of the matter) and, together with the geophysical factors, is reflected in material sphere and social phenomena. To this end, it presents an interest to consider some of these correlations at greater length.

3.6.1. Cosmogeneous and Global Geophysical Phenomena

The synchronism between the Auric epochs of the Mayan Calendar and epochs of intense manifestations of factors of geophysical and cosmogeneous nature shows itself, first of all, on the scale of phenomena of global level, which corresponds to the esoteric concept of Maya.

Millennial Geocosmic rhythms. The 12 –14 millennium rhythm is considered to be quite actual [77]. In particular, it is associated with the Deluge, which is considered to denote the transfer from the Wurm glacial era to warm Holocene. In compliance with geophysical data it might be supposed [77] that soon enough (about 2000 AD) this cycle may manifest its obstinacy once again: according to some estimates the nearest more or less intense and inauspicious influence the Space could exert on the Earth might take place about the year of 1999. It is obvious that this rhythm is *completely synchronized with the Auric Separation epochs of the Mayan Calendar* with numbers –2 (*11 449 BC*), –1 (*6298 BC*), and 0 (*3114 BC*, the beginning of the MC) when the **last three geomagnetic inversions** took place [78].

The influence the terrestrial magnetic field exerts onto the processes developing on the Earth is very significant. This field not only protects the biosphere by deflecting the very high energy particles to the Poles; almost all extremal atmospheric phenomena, as well as volcanic and seismic activity are synchronized with disturbances of the geomagnetic field. Therefore, variation of average geomagnetic field strength as a function of time presents an important factor for studying the synchronism. Within the scope of archeomagnetism, studying of this dependence is based on measuring of thermoremanent magnetization of the firing samples (e.g. burnt bricks, pottery).

Thus, the geophysicists E. Telie and S. Burlatskey [78] were studying those firing samples that had been dated by the archeological data. This allowed them to reveal how the geomagnetic field strength depends on time for the last six millenniums. So, from our days to the depth of time the geomagnetic field is smoothly growing up to about the beginning of the AD when it was approximately 1.5 times greater than now. After then, it decreases up to the IV-th millennium BC (viz. to the epoch of the beginning of the MC) when the geomagnetic field strength was two times less than now; by going even farther, the strength of this field starts to increase once again, though the obtained data are not sufficient for making an exact estimation.

Therefore, **the variations of the geomagnetic field are closely correlated with the Mayan Calendar** *the starting and termination of which are corresponded by minima* (viz. minimal protection of life), *whereas in the middle of this Calendar* (viz. around the epochs 551 BC and 55, 71 AD) *we observe the maximal strength of this protective geomagnetic field of our planet.*

Flashes of Supernovas, by exerting colossal influence onto the Space processes, are quite actual for this study, the more so that *all of them which has been registered in our Galaxy are synchronous with the Auric epochs of the Mayan Calendar* (See Table 3.7), viz. the separation epochs –2, –1, Z, 5, and 10.

Outburst of Supernova generates enormous energy (See Part 4) which exerts profound influence upon surrounding star systems; its luminous emittance becomes comparable with that of the entire galaxy in which this flash takes place. More than 300 explosions of Supernovas were photographically observed in other galaxies, but ***only three of them (in 1054 AD, 1572 AD, and 1604 AD, Table 3.7) were registered in our Galaxy*** which in some cases were seen even by naked eye as objects being brighter than Venus.

The Supernova registered in 1054 by Chinese and Japanese astronomers was seen even in the day time. After then, at this place the Crab Nebula had developed. It was also followed by very long period of high Solar activity – up to the epoch of about 1300 AD (*viz. to the Auric epoch #4, 1287 AD*). At this, the content of radioactive isotope ^{14}C in the natural samples was at the highest level (about 10% above the norm) from 1100 AD to 1250 AD. Besides, this period was marked by the global rise in temperature, that was further called *the medieval climatic optimum*.

The last two flashes of Supernovas in 1572 and in 1604 (they were observed by Tycho Brahe and Kepler, and called by their names) were followed by a centennial decrease in Solar activity (so called Maunder's minimum); a small ice-age fell on the Earth. In Russia it was the Time of Trouble (up to 1605); apart from political confusion, for three years it was a period of extremely cold weather with Summer snowfalls, the "Great Pestilence" when the people ate the grass and bark. At this, the difference in global air temperature between the medieval climatic optimum and small ice-age period was about 1°C only!

"A seldom person had seriously responded to the Cosmic event that had occurred on the February 23rd, 1987 at 2:53 UT, whereas this event will probably go down to history" [38].

At that moment, the Canadian astronomer Shelton who was working in Chili, had registered the **flash of Supernova in the Magellanic Clouds being the satellite of our Galaxy**. This Supernova was assigned the name **SN1987A**. Registration of the respective splash of gravitational radiation shows that its magnitude was extremely high. As a result, a vigorous energy flux had struck the Sun and planets, and it was powerful enough to influence even the Solar processes.

Thus, at the beginning of the 1987 the Sun was calm, whereas even in two days after this flash the sunspots had aroused on the surface of the Sun, and, since then, the number of sunspots had begun to steadily grow until the 11-year Solar activity maximum took place in 1989 – 1991, after the shortest inter-maxima period over the 150 years [38].

At this, a series of fierce natural cataclysms took place in that year: unprecedented drought and forest fires in USA and China in Summer and powerful floods in China in Autumn; the Nile had burst its banks and flooded Khartum. The Spring floods on the Rhine and Danube had exceeded all the levels on the record. The tropical thunderstorms and showers were continuing over the European part of the USSR for a month. In Autumn, $\frac{3}{4}$ of the Bangladesh territory was flooded, 30 millions of people were left homeless, the epidemic of cholera had flared up. The typhoon "Gilbert" did damage to the Caribbean Region for about \$10 milliards. All these are apart from the unprecedented natural calamities in Nicaragua, Indonesia, and other regions [38].

Besides, the flash of Supernova stimulates, in particular, such processes as rising of the average atmospheric temperature which, in compliance with the World Meteorological Organization, could attain the values of 1.3°C in 2000 and 3°-4°C in 2050. To this end, the greenhouse effect and flash of Supernova act in unison.

The amount of energy the Earth absorbs out of the energy flux engendered by a flash of Supernova is two – three times greater the energy emitted by the greatest earthquakes and is near to the power of tectonic processes in the Earth [38]. That is why the flash of Supernova SN1987A was able to change the seismic and tectonic course of events, *viz.* to initiate a number of drastic earthquakes, floods, and other calamities, as well as to shift their epicenters.

Indeed, with the end of eighties the scientists mention uncommonness of enormous earthquakes in Armenia, shift of Caucasus seismic region to North, activation (flowing of lava to the surface, increase in emit-

tence of gases, rise in temperature of mineral sources) of *Elbrus* – the highest mountain in Europe and the volcano that was sleeping for five millenniums (*viz. since the beginning of the Mayan Calendar*), the crater of which is closed by a dangerous 8 kilometers³ glacial plug.

As well, these are mentioned the dangerous 6 points on Richter earthquakes in central Volga and other regions that were not related to such dangerous zones. A similar situation takes place in Ukraine (the last noticeable earthquake was in 1999) where the exploded nuclear reactor sarcophagus is disposed near the operating unit of the Chernobyl atomic power plant (for this, see also the SULD effect, below).

Analysis of sidereal factors (for more details, See **Part 8**) shows that one can relate to a Sidereal Zodiac associated with some star or constellation with great doubt. The developed structure of the Solar System Zodiac (SZ) [56] is free from such rigid fixing, and its parameters are accurate to within the uncertainty of our knowledge relative to the distribution of matter in the Galaxy. However, the existing data are sufficient to provide a qualitative stability of the SZ model, as well as to estimate the moment of ingress of its origin (*viz.* 0° Aries of the SZ) to the Tropical Z's Capricorn (and vice versa, of the TVP - to the SSZ's Capricorn) as the Spring Equinox of 1999. With account of the precision of the source data, this event takes place within the period of July 1991 - March 2006.

Indeed, a series of observations cause us to conclude that the global reorganization and transformation of the Earth's physical and evolutionary qualities are taking place now, before our very eyes. They are caused both by the direct outer Space influence ("donation" of interstellar Space energy [73] and by intra-Solar-System interaction and energy redistribution through the miraculously synchronized Solar activity surges, comets and explicit planetary electrical interactions [56]. To this end, special interest presents the super giant Eta Carinae's resonance with the Solar activity cycles [56, Part 4]; note, that a Sumerian record of a 'new star' in **3000 B.C.** is also attributable to Eta Carinae (Naeye) [35].

From the other hand, archeology, physics and esotery give evidence that half a Platonic year ago (*viz.* about 13 000 years before present), when the TZ's opposite Solstice point (0° Cancer) was passing the origin of the SZ, a series of huge natural phenomena took place, and it had to be so should the SZ present the Aura for the Solar system with the specified cardinal points.

As far as these conclusions correspond to the concept of World transformation around the End of the Mayan Calendar, we may suppose that this inflow of energies will manifest itself physically in the coming years not less significantly than during the previous decades of approaching to this opening of the Heavenly Gates.

The comet Hale-Bopp (for more details, See **Part 9**). The statistical analysis [41, 75] allows us to consider this comet to be the next, after the flash of Supernova, link in the chain of cosmogeneous factors of influence that struck the Earth. Thus, the predicted manifestations of its factors of influence, *viz.* unprecedented floods, conflagrations, clusters of air crashes, as well as political, economical and social cataclysms, were developing in 1997 in close synchronism with the time and geographical focuses of influence being basically specified by the comet's conjunctions with Sun and eclipses, *viz. by calendar dates*.

With respect to the physical nature of this comet [40] it is not surprising, that with the high degree of confidence these dates were marked by the same (almost literally) manifestations in the next year (*viz.* 1998), on so on as well. But what is more, *in 1998 these focuses were synchronous with the splashes of the Solar activity*; since this situation might be considered random, but with the vanishing probability of 10^{-12} , we come to the conclusion that ***this time the Sun itself has turned its face to the Earth.***

Further on, we may see that the development of the predicted [79] ***battle between the Saturn and Uranus*** seemingly comes to resonance with the comet Hale-Bopp's Focuses. Indeed, apart from the current orientation of the Solar System [56] which supports this thesis, the Saturn's ingress to Taurus (during its way to squaring the Uranus) and high level of Solar activity have initiated these Focuses in March 1999 once again. In particular, one of them, *T5 (viz. March 24)*, was specified by the Moon eclipse conjunction with the comet Hale-Bopp's culmination at the Saturn's meridian and manifested itself (apart from other events [41, 75]) by riots in *Albania* (1997) and *Kosovo* (1998). This year, it was marked by the extraordinary *bombardment of Yugoslavia* (March 24, 1999).

Last but not least are the miraculous coincidence of the critical points of the trajectory of this comet with those of its followers (Part 9) which leaves the least chances for the hypothesis of randomness of all these correlations.

Eclipses. Such a seldom phenomenon as total Solar eclipse at vernal equinox that will happen in 2015, had also taken place [78] in 3306 BC and 5966 BC when, as in the epoch of XIII-XI millennium BC, had occurred the last three inversions of the geomagnetic fields which were accompanied by the flashes of Supernovas. As well, the Auric epochs are closely correlated with both the termination of the last ice-age, and the epoch of increase of tectonic activity and fall-out of uranium.

3.6.2. The Synchronism Between the Most Destructive Earthquakes on record

And the Auric Epochs of the Mayan Calendar

The Most Destructive Earthquakes on record. The seismic activity can be estimated by an energetic equivalent and by the number of victims. Since the sufficient world-wide statistics relevant to the former criterion does not exceed several decades, consider the latter one, the more so it reflects the influence the seismicity exerts onto the human beings in the most degree and is provided for a period of about 1200 years.

Besides, it adequately reflects the total damage caused by all types of natural calamities, as in compliance with the data of American scientists [39] the victims caused by the earthquakes, at least for the period of 1947 to 1970, make about 16% of all those who had fallen a victim to natural calamities (floods, eruptions of volcanoes, etc.) the historical data for which are also insufficient.

The earthquakes being referenced in Table 3.7 belong to those $N = 21$ that caused the *greatest number of victims* (more than 50 000 each) in the world [32] since the year of **856 AD**.

Table 3.8. The Most Destructive (Relative to Victims) Earthquakes on Record in the World [32]

Year of earthquake, Country	Nearest Auric epoch of the Mayan Calendar	Victims (thousands)	Deviation Δ (in years) of the year of earthquake from the nearest epoch of the Mayan Calendar	
			Δ_{21} (by 21 quakes)	Δ_{17} (by 17 quakes)
1556, China	1574	830	18	18
1737, India	1752	300	15	15
1976, China	1971	255	5	5
1138, Syria	1287	230	149	-
1927, China	1929	200	2	2
856, Iran	823	200	33	33
1920, China	1929	200	9	9
893, Iran	823	150	70	-
1923, Japan	1929	143	6	6
1908, Italy	1929	70-100	21	21
1290, China	1287	100	3	3
1667, Caucasus	1752	80	85	-
1727, Iran	1752	77	25	25
1755, Portugal	1752	70	3	3
1932, China	1929	70	3	3
1970, Peru	1971	66	1	1
1268, Asia Minor	1287	60	19	19
1693, Italy	1752	60	59	-
1935, Pakistan	1929	30-60	6	6
1783, Italy	1752	50	31	31
1990, Iran	1997	50	7	7
In all – 21 quakes,				

9 of them – in XX-th century	Average:	$\Delta_{21} = 27.14$	$\Delta_{17} = 12.18$
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For the time interval of 1140 years, an analysis of *synchronism* between the **21 earthquakes** presented in Table 3.8 and seven *Auric epochs* of the Mayan Calendar *results* in the following.

It is only the earthquake of 1138 which deflects from the nearest Auric epoch at a significant value of 149 years, whereas the earthquakes of 893, 1667, and 1693 – at a meaningful intervals of 70, 85, and 59 years, respectively.

In total, the average deviation (col. 4) for all pairs yields the value $\Delta_{21} = 27.14$ (years). Meanwhile, if we exclude the above mentioned four observation, for the remaining $n = 17$ pairs (col. 5) this average makes $\Delta_{17} = 12.18$ (years). If we suggest the earthquakes to be not correlated with the Auric epochs, they are to be, in average, uniformly distributed over the observation interval $\Delta T = 1998 - 856 = 1142$ (years); in this case the average deviation have to be equal to $\delta_{21} = 74$ (years). The latter value three times exceeds the actual deviation $\Delta_{21} \approx 27$ (years). We will obtain even more striking result, should the above specified 17 earthquakes be considered: for the suggestion of absence of synchronism the average deflection makes $\delta_{17} = 70$ yr against the actual average being equal to $\Delta_{17} = 12$ yr.

This three- or five-fold decrease in deflection undoubtedly testifies to clustering of the most destructive earthquakes around the 7 Auric epochs of the Mayan Calendar over the period of 1142 years.

By considering the respective time intervals, estimate the probability P_{21} (P_{17}) of randomness of this clustering for $m=21$ ($m=17$) earthquakes:

$$P_{21} = [(2 \cdot \Delta_{21}) \cdot 7 / \Delta T]^{21} = [(2 \cdot 27.14) \cdot 7 / 1142]^{21} = 10^{-10}$$

$$P_{17} = [(2 \cdot \Delta_{17}) \cdot 7 / \Delta T]^{17} = [(2 \cdot 12.18) \cdot 7 / 1142]^{17} = 10^{-14}$$

Therefore, the analysis of correlation between the **21 most destructive** (relative to number of victims) *earthquakes on record in the world* [32] over the period of over **1200 years** and *the seven Auric epochs of the Mayan Calendar* undoubtedly testifies that they are *synchronous*, since *the vanishingly small probabilities of randomness of this synchronism* are not greater than $10^{-10} - 10^{-14}$, or 10^{-12} in average.

It is also important to note, that the 3rd before the last separation epoch (around 1928 AD), apart from other events, is marked by **5 of 21** the most destructive earthquakes [32] over the 1140 years of registration.

The same result yields considering of the world statistics [32] for the earthquakes with the number of victims exceeding 10 000 people that took place **in the XX-th century**. With respect to [41, 56, 75], *these estimations allow to suppose an intensification of natural cataclysms in the forthcoming 12 – 20 years; at least, no evidence are present for them to decrease.*

Newly discovered sources of seismic danger. Instability of geophysical equilibrium is manifested not only on the level of explicit seismic or volcanic activity. The Earth's crust is not so stable as it was thought before. Apart from well known earthquakes (viz. high frequency oscillations that last seconds or minutes) and very slow epeirogeneous centurial movements, there were discovered in the eighties [77, 80] the vertical movements of the Earth's crust regions with the radii of tens to hundreds kilometers, which last from tens of minutes to several days. These movements were called the Short-lived Under-crust Local Disturbances (SULD). In most cases they are accompanied by meteorological anomalies, earthquakes and followed by natural and technological catastrophes. The amplitude of SULD varies from tens of millimeters to meters. On completion of a SULD, the soil comes to the same level so that repeated leveling does not show anything; they manifest themselves by vertical movements and horizontal waves; thus, on the ocean surface they form giant hills and hollows which are clearly seen from the spacecraft.

It is essential that the SULDs are not registered by conventional seismographs and may take place in the regions, which are not related to the seismic zones. Besides, use of heliometry (viz. study of release of helium from the Earth's crust) shows that a platform of the Earth's crust resembles not a solid shell, but rather a split block of ice which is "breathing". That is why 4 of the last 5 most powerful earthquakes took place [77] within the platforms. As well, heliometry acknowledges an old opinion of the geographers that the river may appear not everywhere, but always there where the tectonic allows. Therefore, the rivers flow along the fractures appropriate to their scale (e.g. the Moscow River flows along the crossing of two continental fractures).

However, the SULD is not taken account for while building the bridges, weirs, atomic power stations, trunk pipelines, etc. [77], though the analysis of a number of technogeneous catastrophes of eighties shows that their true cause was namely the SULD. In particular, with respect to the report (1999) of Russian seismologists, ***the low-level seismic activity should be considered the main cause of the Chernobil catastrophe in 1986.***

Therefore, *the recently discovered phenomenon of SULD*, the influence of which is growing [18], *is to be considered as outstanding, but hidden factor of danger* that may cause a series of technogeneous catastrophes, the more so they may take place in not-seismic regions, and this phenomenon is neither commonly acknowledged, nor studied.

Therefore, close synchronism between the Auric epochs of the Mayan Calendar and epochs of geological and Space phenomena, as well as actual development of Geocosmic trends allow to conclude that the termination of the Mayan Calendar may really become the culmination of the series of natural cataclysms, which would signify the beginning of the New Age and might be likened to those ones that took place on the boundary of Paleolith and Mesolith.

Climate. At all events, steadiness of the nous-sphaira is not so high as this was adopted to think; a recent analysis of the Greenland glaciers shows [63] that finishing of the last ice-age (about 12 thousand years backwards) was marked by cardinal change in the climate of the Earth, since an average temperature had raised by 10° Centigrade in 20 years! These data support the suggestion that melting of the Greenland glaciers may cause turning of the Gulf Stream.

3.6.3. The Synchronism between the Epochs of Origination of the World Doctrines and Auric Epochs of the Mayan Calendar

With respect to extrapolation of the Mayan Calendar onto two Auric cycles in the depth of times, this Calendar covers (in a broad sense) the period of XII millennium BC to our days; for definitude, call it *the basic period*.

In compliance with the existing archeological data, results of comparative studying of astronomical, ethnographical and other sources we may assume that before the basic period there were developed civilizations in South America (at least, for 70 millenniums as analysis of guano shows), in India (as the age of Rig-Veda is estimated [81] by several tens of millenniums), in Egypt. The remaining civilizations, as we may take it, originated in the basic period.

By having the least claim on creating a model of the Universal history, pay attention to the epochs of originating of new knowledge and Teachings which have absolute world-wide importance for developing of the basic period civilizations. These are, first of all, the religious and/or philosophical systems and calendars integrating the time/space concepts, as well as the critical events and trends in their development.

To this end, it follows from the Table 3.7 that both for the ancient civilizations, and for those which originated in the basic period the close synchronism takes place between the Auric epochs of the Mayan Calendar from the one hand, and the epochs of origination or destruction of new cultures and empires, coming of Great Teachers of humanity whose Doctrines had changed the world, as well as appearance of Great Books and calendar systems remaining alive until our days.

* *On the personal level*, this relates, first of all, to **Krishna, Vyasa, Zoroaster, Gautama Buddha, Fu-Si, Lao-tzu, Confucius, Pythagoras, Platon, et alii**, until engendering of **Christianity** and disappearing of the people of **Maya**, critical events in the history of Egypt and Great Pyramid.

* *On the level of calendars*, this relates practically to all civilizations, viz. **China, India, Iran, Babylon, Egypt, Maya**, etc.

Therefore, by structuring the Mayan Calendar the Auric Time Scale specifies several epochs, which are common for evolutionary rhythms for the basic world religious and/or philosophical systems, regardless of time they have originated. In some way ***this gives us one more evidence for the Theosophical concept stating [46] the singular esoteric root of all these systems.***

But what stands behind this puzzling synchronism, and why that almost unknown Mayan culture was chosen for specifying the mystery of Time? These questions become even more mysterious due to the below considerations.

The Mayan civilization is the unique system of knowledge that integrates the concepts of both linear and exponential Time [30]. It is almost unknown to the modern civilization, as after the Spanish “censorship” has reduced its written heritage to three or four manuscripts, there remain only the chronicles which are engraved in the stone. That civilization is not appraised now very high as it did not know neither a wheel, nor an iron. However, the Maya had developed the Calendar the mathematical and esoteric depths of which were not completely revealed until now (for instance, the modern astronomy adopted, in fact, the Mayan idea to count days in the Julian Day count). And now, we have sufficient evidence for the Mayan concept stating that the history is the exponential process which in some way is determined by exchange of information [30] (viz. origination and propagation of new knowledge); mathematically speaking, we may express this idea as follows

$$(the\ amount\ of\ new\ knowledge) \times (time\ of\ obtaining\ this\ knowledge) = constant.$$

Through the evolutionary cycles of decreasing duration, this paradoxical formula naturally leads us to some point of bifurcation (or transformation) where the humanity becomes unable to further withstand the acceleration any more.

This esoteric Doctrine of Maya presuming existence of hyper-cycles in development of the Earth’s humanity, in general, expresses the same idea the Secret Doctrine specifies (See **Part 6**), that the Galactic Center (Chunab-ku, relating to Maya) presents the Supreme Wisdom and Hierarchical and Hieratic Governor which exerts the cyclic influence to its subject, the Solar System.

This way, we may consider the Mayan Calendar as a structure that in a definite sense describes the historical hyper-cycle we are living in, whereas the end of this Calendar denotes the termination of this hyper-cycle when the Earth will pass the Ray of Galactic Synchronization which would cause the Evolutional Rise and Advance in Consciousness. And what is more, this concept to the full extent corresponds to the current orientation of the Solar System to the Galactic Center [56, Part 8].

However, as these are cycles within the hyper-cycle, which converge to the end of the Mayan Calendar, they do not develop instantly, but in the Auric progression. In this sense, ***the flash of Supernova SN1987A in 1987 is naturally to be considered as the fulfillment of the personified Mayan prediction on returning of Quetzalcoatl (Kukulcan) in 1987 in the form of action of Cosmogeneous factor of influence, which overshadows the humanity on the threshold of the Galactic Ray*** (there exist the grounds [56] to suppose the Synchronization itself to be caused by one more Supernova).

Indeed, the correspondence between the *personal* and *impersonal* factors is explicitly discussed in **Theosophy** [51], “... in the Lamaist Hierarchy there are five living, or incarnated, Buddhas as well, and the Principal of them is the Dalay Lama. Above him is only the “Supreme Wisdom” – the abstract principle emanating five Buddhas, including Buddha Maitreya – the tenth Envoy being expected on the Earth (who is the last [in the respective cycle] Buddhisattva or Vishnu in the image of Kalki Avatar). However, this will be the same United Wisdom and it will incarnate into the humanity as a whole, but not in a separately chosen personality. But do not a word about this secret for the present.”

Last, not least, are the *Theosophical* (**Part 6**) and *Egypt artefact* (**Part 7**) *evidences* which support the considered concept of the accelerating evolution in the Eastern manuscripts and Great Pyramid form and dimensions – in *explicit statements* and *numbers*! But these are already the other stories.

3.7. Conclusions

1. In the long run, this is Table 3.7 that concentrates the basic results of this work which shows, both quantitatively and qualitatively, that the Auric partitioning of the Mayan calendar covering the period of five millennia, as well as its Aurical extension onto the period of over 13 millennia, specifies the separation epochs that are synchronous with the significant part of the most crucial events in the history of this Planet and mankind; in particular, with such that:

- global events and trends in Nature (all known geomagnetic inversions, most destructive earthquakes, historically known Supernova flashes, etc.);
- epochs of coming of the Greatest Reformers of humanity, philosophers and scientists: Zoroaster, Krishna, Gautama Buddha, Lao-tzu, Confucius, Pythagoras, Plato, et al;
- crucial historical events in the known civilizations (critical moments in Dynasties and Great Pyramid in Egypt, Fall of Troy, First and Second destruction of the Jerusalem's Temple, Babylon Capturing, etc.), creation of calendars (as Time/Space systems), evolutionary trends in growth of population of China (over the period of two millennia), etc.

By having no possibility for going into details on social, economical and other manifestations of the ATS-epochs, which undoubtedly present actuality for system analysis of the developing situation, formulate the conclusions that result from the revealed synchronism between the internal trends of the considered phenomena in Nature and society and the ATS-epochs.

2. ATS – the discrete Scale for the crucial Terrestrial and social Periods, as well as for the evolutionary development of the Terrestrial and social processes in historical perspective.

In the narrow sense, it presents **twelve basic Auric epochs** which divide the term of the Mayan Calendar onto cycles with periods decreasing in the Golden section. By continuing these cycles into the depth of times, viz. beyond the year of the 3114 BC, we obtain **two more separation epochs, 6298 BC and 11449 BC**, which correspond (as approximations) to ruin of the last hearth of Atlantis (by Platon) and completion of the last Ice-age, and, together with the epoch of the beginning of the Mayan Calendar, these three are synchronous with the last three geomagnetic inversions, apart from other actual events. This means, that completion of the MC in 2012 AD signifies termination of 12 (or 13) evolutionary cycles since the ruin of Atlantis (completion of the last Ice-age) that cover, in total, the period of 8.3 (13.5) millennia which is (are) mentioned in bibliography and include more or less described history of this civilization.

In the broad sense, in common with other actual epochs (e.g. 551 BC) the event-versus-epoch data of Table 3.7 corroborates the effectualness of the Auric Time/Period Scale with respect to “historical” or evolutionary Time as well. In other words, if it was established in [5, Part 2] that the Auric (Time/Period) Scale presents the united system of periods (that is synchronism) both to the most cycles in Nature and society, and to the Solar-planetary ones, the results presented in this work allow to conclude that it is also adequate for describing the evolutionary (or “exponential”, in the sense of accelerating of the course of events) Time within some megacycles that cover millennia.

This way, the ATS might be likened to the **Auric Spiral of Time**, the turns of which are better described by the Aurically structured trends, whereas at each turn the phenomena are more adequately taken via the harmonic cycles of equal duration, unless this spiral approaches the point of bifurcation.

3. It is established that the **Golden section** and Fibonacci numbers in the form of the **ATS** and series ***u*, *v*** are essentially **incorporated in** both count of days and internal structure of the **Mayan Calendar**; this allows to state that this calendar reflects the Solar-planetary synchronism to the much more extent than it was supposed by taking account of its harmonical periods (Tzolkin, cycles of Venus, etc.) and evolutionary 2^k -cycles. As it can be seen in **Parts 6** and **7**, the concepts that were laid in its foundation had found the explicit manifestations in the Theosophical concepts and geometry and positioning of the Great Pyramid and Great Sphinx.

4. A **striking synchronism** between (i) the evolutionary trends in **growth of population of China** (over the period of two millennia) being considered as an indicator of world exponential trends, (ii) internal **Auric structure of the Mayan Calendar** covering the period of five millennia, and (iii) **global events and trends in Nature and consciousness of the known civilizations** (from geomagnetic inversions, earthquakes, and Supernova flashes to coming of Greatest Teachers of humanity and miraculous disappearing of the Mayans in 830 AD which also stretch for several millennia) testifies to the truthfulness of the Hypothesis on the Auric Time/Period Scale.

Therefore, the obtained qualitative conclusions and relevant quantitative estimates allow us to consider **the Age we came** to as the immediate threshold of transformation of the Earthy civilization (that was predicted by the Mayans long ago), or **the period of bifurcation** (arranged long before the period of possible cataclysms of 2035 – 2050 predicted by some researches) with the following key points:

T_1^* **1991 \pm 2** “Patent” bifurcation point being associated with the Solar activity maximum (1989 – 1991) and completion of the 6th (Table 7) and 7th (Table 8) evolutionary demographic cycles. It was reflected in the ruin of the USSR and coming of new world misbalance.

T_2^* **1996 - 1998** “Implicit” bifurcation point being associated with starting of critical doubling of population and respective final evolutionary cycle (1997 – 2013) of the Mayan Calendar, as well as with powerful manifestations of cosmogeneous influence being engendered by comet Hale-Bopp [75, 42] whose action was closely synchronized with the growth of the Solar activity [41] and had specified both factors of influence, and geographical and time foci for the development of the forthcoming trends.

T_3 **1999 - 2003** “Patent” bifurcation point being associated with the joint influence the forecasted [28] Solar activity maximum, Galactic Center [56] (viz. coming into the Age of Capricorn) and Uranus could exert onto the worldwide processes.

T_4^* **2008 \pm 2** “Implicit” bifurcation point being associated with starting of the last evolutionary demographic cycle before the termination of the Mayan Calendar.

T_5^* **2012** “Patent” bifurcation point being associated with termination of the Mayan Calendar and starting of critical succession of cycles of doubling of population, as well as with the forecasted Solar activity maximum and possible geomagnetic inversion.

5. The aforesaid allows to draw the general conclusion that the large-scale worldwide catastrophes associated with natural cataclysms and mass scale decrease in population, apart from other phenomena, are most likely to be expected long before the year of 2035 (by L. Pritsker) or 2030 – 2050 (by J. Forester); namely, we may suggest them to be developing until 2012, but in several stages with epicenters specified by the above mentioned bifurcation points that has already started to manifest themselves.

The basic idea of this work is neither to frighten the reader, nor to establish the date of the Apocalypses, but to emphasize the reality of Theosophical and Mayan concept implying for the humanity the necessity and possibility to correct its way on passing the period of bifurcation by urgently harmonizing the relations within itself and with the Nature. And so, the authors hope this work to be helpful in a way a diagnostics must precede an operation.

4. ATs-based Regular distribution of solar CYCLE

Energy emission centers

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4.1. Introduction

By taking account that general level of SA is not formally defined, the correlation between the Solar radio flux and the Wolf number is astoundingly good on both monthly and yearly basis, the SSN statistics is provided with the largest prehistory and sunspots precede other Solar effects, the SSN index is considered below as the general index of SA.

As it follows from Fig. 0.1 (Part 0), the first and second cycle maxima deviations from the intermediate cycle minimum (around Jan. 2001) in SSN is almost as pronounced as in the case with Radio flux, but magnitude of the former index greater at the first maximum, whereas the latter one reaches the largest value at the second maximum. This situation puts us before an insoluble problem: *though we may formally specify one of these maxima as the cycle maximum, we clearly see that neither one of them does actually represent the essence of concept of "maximum", nor the average of these two epochs gives us the result*, as we obtain in this case the epoch of local minimum (around Jan. 2001).

Secondly, a ***single-modal concept of Solar cycle is not adequate*** by another reason: it is established by M.N. Gnevishev, that during an 11-year cycle not one, but ***two SSN maxima*** are developed which are separated by two-tree years [29]. In the course of the former one the number of sunspots increases at all latitudes, whereas over the latter one - mainly *near the equator zone*. By overlapping, they give gradual decreasing of the average latitude of the sunspot zone.

Even *more difficulties arise* in study of Solar cycle extrema, when quite *subjective rules* (See Part 0) are used for defining cycle maximum, the more so that the *smoothed SSN* are used in these rules that "distort" the actual values (this leads to lowering of greater values and to growing of smaller ones).

Therefore, for correct ***quantitative study of Solar cycles*** we are firstly required ***to define a quantity*** that would reflect definite physical property of SA in a value that should be obtained with the use of a ***sample*** presenting the ***actual values of existing Solar index***. This problem is considered on the ground of preliminary study of conventional Solar cycle maxima [17, 28] distribution.

In the absence of explanations relative to what governs the development of Solar cycle, these cycles are considered as a sequence of relatively independent processes. Though it is established that the next cycle starts to develop within the last period of the former one, and short sequence of cycles may have something in common (e.g. lowered mean length or magnitude), almost nothing is known about that what makes the cause of development of Solar cycles, except of some hints (e.g. quantum jumps) and statistical considerations (e.g. flat/bimodal distribution of cycle lengths [25]), apart from Sun-Jupiter correlations [3, 11, 25] which, however, does not explain neither the stability, nor the origin of 11-year Solar cycles. For this reasons, we are not required to consider the development of Solar cycles as a relatively independent processes.

By taking all these considerations in mind, in search of a model describing the integral behaviour of Solar cycles, a concept of regular distribution of Solar cycle centres is put forward. For the purpose of comparison, this concept is firstly tested [17, 28] for the accepted cycle maxima epochs [8]; after then, the obtained results are disseminated onto the Solar cycle energy emission centres.

4.2. Regular Model of Sunspot Activity Maxima Distribution

Regular Model (RM) and its parameters. In order to find a model describing the integral behaviour of Solar cycles, the accepted cycle maxima epochs since 1605 were considered [17]. The problem was stated as follows: find an approximating model that gives unbiased and consistent point and interval estimates for Solar cycle maxima epochs (peaks, for short) for decades, which is stable and statistically preferable to the known ones. Source data (**L-sample**) for development of such model are presented by $n=36$ SSN maxima epochs [7] with absolute error being not less than 0.1 yr, which cover all telescopic observations over 17 to 20 centuries; **S-sample** covers the Zurich series of observations. At this, the "conventional" and proposed models of SSN peak distribution were considered:

Direct model. Let $\tau > 0$ be a random variable and t_{i-1} be the last actual peak. Then, the value τ_i taken by τ defines the *next* actual peak as follows $t_i = t_{i-1} + \tau_i$.

Regular model. Let a sequence $\dots, t_j^*, t_{j+1}^*, \dots$ satisfy to the following condition

$$t_{j+1}^* = t_j^* + T, \quad T = \text{Const.} \quad (4.1)$$

Then, the value δ_j defines the actual peak with number j

$$t_j = t_j^* - \delta_j. \quad (4.2)$$

Source data (Sample) for estimating the parameters of this model are presented in Table 4.1 by $n=36$ sunspot maxima epochs specified in bibliography, which cover all existing telescopic observations.

Table 4.1. SSN maxima epochs (year, with decimal fraction) for the last 400 years

1604.0	1615.5	1626.0	1639.5	1649.0	1660.0	1675.0	1685.0	1693.0
175.5	1718.2	1727.5	1738.7	1750.3	1761.5	1769.7	1778.4	1788.1
185.2	1816.4	1829.9	1837.2	1848.1	1860.1	1870.6	1883.9	1894.1
195.9	1917.9	1928.0	1937.0	1947.0	1958.0	1969.0	1979.0	1991.5

Notes. The epoch 1604.0 is estimation. For the last epoch, the second maximum 1991.5 (See Fig 1.1) is taken with respect to the behavior of other factors of SA and general shortening of the last cycles.

By implying $T \equiv T_o$, $T_o = 11.07$, we obtain [28] the following epochs for **model peaks**

$$t_k^* = 1605.27 + 11.07 \cdot k, \quad (k = 0, \pm 1, \pm 2, \dots), \quad (4.3)$$

where $k=0$ corresponds to the first observed maximum, and $k=35$ – to maximum of cycle 22; e.g. $t_{35}^* = 1992.72$ (for $k=35$) corresponds to $t_{35} = 1991.5$ (viz. the last entry of Table 4.1). Negative values provide extrapolation in prehistory of 1600.

The model peaks of (4.3) are obtained with the use of the least-squares method (LSM). For short, if the year of the peak is used as an index, instead of its number, it is put into brackets; e.g. t_0 means peak number 0 (viz. the year of 1604.0), whereas $t_{(1604)}$ denotes the same epoch directly, by its index.

Thus, let $T_B = 1600$ present an arbitrary origin (the year of 1600 is chosen for convenience). Then, if $\Delta = t_{(1604)}^* - T_B$ defines the shift for the model peak corresponding to the actual peak of 1604, any peak of (4.1) can be obtained by a simple rule

$$t_k^* = (T_B + \Delta) + T \cdot k, \quad (k = 0, \pm 1, \pm 2, \dots), \quad (4.4)$$

where $k = 0$ corresponds to the model peak relevant to the actual peak of $t_{(1604)}$, $k = +1$ – for $t_{(1615.5)}$, $k = +2$ – for $t_{(1626)}$, etc., whereas the negative values allow us to specify these peaks in prehistory of 1604.

With this presentation of the Regular model, the problem is reduced to finding of the value of Δ ; for this, with use of LSM, we have to find such Δ that minimizes the following criterion

$$L = \sum_{i=0}^{n-1} \{[(T_B + \Delta) + (i-1)T] - t_i\}^2 \rightarrow \min. \quad (4.5)$$

The solution to this problem is as follows

$$\Delta = \frac{1}{n} \left[\sum_{i=0}^{n-1} (t_i - T_B) - \frac{n(n-1)}{2} T \right], \quad (4.6)$$

where $n=36$ – is the amount of sampling $\{t_i\}_{i=0, n-1}$. For the sample of Table 4.1 this value makes $\Delta = 5.27$.

4.3. Basic properties of the Regular Model

4.3.1. Statistical testing of the Direct and Regular models

(confidence probability

$$\beta = 0.9).$$

Direct model. Due to Chi-square criterion the sample distribution of τ with sampling mean $\bar{\tau} = 11.07$ and variance $S_D^2 = 1.98$ can be accepted as Gaussian one.

Regular model. With the Regular model (4.1), our interest now focuses on the distribution of the deviation δ with actual values $\{\delta_j\}_j$. Consider this distribution from both statistical and numerical points of view.

The sampling mean and variance for δ are as follows

$$d^+ = 1.49, \quad d^- = -1.49, \quad S_R^2 = 1.88.$$

where d^+ , d^- are the means for positive and negative deviations of δ .

This unexpectedly accurate equality of means present a surprise by itself, but far from being the last. Due to Chi-square criterion the sample distribution of δ can be accepted as double-sided Relay distribution

$$f(\delta) = \frac{|\delta|}{2a} \exp\left(-\frac{\delta^2}{2a^2}\right),$$

where, a is derived from d^+ (d^-). However, one side of this distribution is more flat and far-extended; this geometric peculiarity will be seen later as well.

Due to F-criterion the variances for L and S samples can be adopted as equal.

Regardless of systematic deviations of average Solar cycle length to lower and upper values over the 17 – 20 centuries, the estimate for $\Delta_S = 5.47$ obtained by S-sample differs from $\Delta = 5.27$, but not significantly.

As t-criterion shows, this difference in 0.2 yr between S and L model peaks can be accepted as insignificant; as well, this difference is insignificant from practical point of view (especially in a long-term forecasting), since peak region is sometimes stretched over several months.

Statistical **comparing** of the **regular and direct** models shows that the former can be regarded as the basic one, (parametrically independent over the direct), while the latter – as the dependent one. Besides, high stability of the regular model allow us to forecast SSN maxima epochs over a time period of up to two centuries (at least – according to L/S comparison), which is incomparably exceeds any existing approach being based on a Direct-type model, with less error than it does the direct model for just one 11-year Solar cycle.

The above results present basic statistical properties of the regular model. However, in spite of relatively rough source data, the Regular model has allowed to reveal the following inexplicable discrete factor of Solar cycles.

4.3.2. Numerical properties of the Regular model

Much more important conclusions, that are obtained *without statistical concepts* and in spite of rough source data, specify the following peculiar properties of the Regular model.

A. High accuracy in long-term forecasting. The Regular model allows us to forecast SSN maxima over a time period of up to two centuries (which is incomparably exceeds any existing approach based on a Direct-type model) with less error than it does the Direct model for just one Solar cycle.

B. Discreteness in deviations. The Regular model shows clustering of maxima, which reveals an inexplicable discrete factor in Solar cycles. Indeed, consider the error (2.12) of coincidence of deviations δ_i, δ_j

$$\delta_{ij} = \frac{|\delta_i - \delta_j|}{\min(|\delta_i|, |\delta_j|)}. \quad (4.7)$$

Then, 67 % (viz. 24 of 36 actual peaks) of observed SSN maxima epochs form the pairs (**clusters**) which present the same deviations from model peaks within insignificant error (4.7) of 1-3 %. In other presentation, this means that within the accuracy of 10^{-3} the following ratio

$$\frac{|t_i - t_j|}{T} = e_{ij} \quad (4.8)$$

gives an integer for any cluster, which could be called a supercycle multiple. In other words, the grid (4.3) separates the actual peaks into clusters, the elements of which present the maxima epochs being separated by integer times of T_o .

This event may be regarded as random, but with a *ravishingly small probability* [17] of .

At this, limited number of observations ($n = 36$) and the above probabilistic estimates allow us to suggest that unclustered observations (viz. epochs of maxima) could have their duplicates either before 17th century, or in the future.

4.3.3. Regular model and intense surges of Solar activity

With respect to (4.3), the estimate for the SSN model peak for the 23rd cycle makes

$$t_{36}^* = 1605.27 + 11.07 \cdot 36 = 2003.79, \quad (4.9)$$

that is October 2003. We do not know the physical origin of clustering, but with respect to the observed distribution of deviations we may suggest, that the actual *peak* is to occur either significantly earlier, or later than at this date, since the model properties show, that the model peaks are not intended for forecasting of the epochs of maxima by their dates.

However, this does not relate to the local surges of Solar activity, the more so due to a multimodal behavior of Solar indices. Indeed, the actual trend in SA over the 23rd cycle was, once again, bimodal, with 1.5 – 2 year spacing. Thus, the largest and intense monthly maximum in SSN took place in July 2000; official estimate [8] states that "April 2000 marks the mathematical (viz. in smoothed SSN) maximum of Cycle 23. However, several other solar indices ... recorded a higher secondary maximum in late 2001" (viz. the second maxima). Moreover:

Example 4.1. After the "official end" of Solar activity maximum in 2000, an "unexpected" series of Solar storms, being estimated as the largest in three decades, took place at the end of October 2003. One of these Solar flares is estimated as the 3rd largest in history ["Sun shoots monster flare at Earth" <http://msnbc.com>, ID=984388]. Thus, a severe solar flare that occurred on October 28th and its associated coronal mass ejection (CME) produced an extreme geomagnetic storm starting on October 29th that lasted for twenty-four hours. On October 29th, Solar Active Region 486 produced another major solar flare resulting in a severe radio blackout. Associated with this solar flare was a coronal mass ejection. This CME impacted Earth's magnetic field on October 30th and produced another extreme geomagnetic storm. The primary source of this activity, NOAA Active Region 486, has become the largest sunspot region observed during this cycle.

[Space Weather Advisory Bulletin #03-4, www.sec.noaa.gov]. As a result, a rare effect of Northern Lights was observed at lower altitudes: in Japan, Ukraine and other countries.

Though this intense surge of Solar activity takes place unusually late in this Solar cycle, it gives us some more *evidence for the actuality of the Regular model*, because the current model epoch $t_{36}^* = 1605.27 + 11.07 \cdot 36 = 2003.8$, viz. October 18, 2003, with a high accuracy fits the dates of these Solar storms.

4.4. Eta Carinae – a Master-Clock for the Solar Cycles ?

The Regular model gives us a lucky chance to trace through it a *Solar-Stellar interaction*.

Massive stars are key astronomical objects: they mark the end of their stellar lives as supernovae whose peak luminosity can equal the entire radiant output of a *galaxy of a trillion stars*.

More than 300 explosions of Supernovae were photographically observed in other galaxies, but only three of them (in 1054, 1572, and 1604) were registered in our Galaxy which were seen even by naked eye as objects being brighter than Venus. Some indirect evidences may also give an estimate for the ancient Supernovae. As it was shown in Part 3, they come to an amazing correlation with the separating Auric epochs (given in bold) of the Mayan calendar: flashes of supernovae are attributed to the eras which correspond to the separating epochs **11 449 BC** and **6298 BC** [6]. A Sumerian recording of a "new star" about 3000 BC being possibly attributable to Eta Carinae [35] refers to **3114 BC**. The Supernova registered in 1054 by Chinese and Japanese astronomers was seen even in the day time – it refers to **1034**, while the flashes of Supernovae in 1572 (Tycho Brahe) and 1604 (Kepler) – to epoch of **1574**.

The last one (1987) took place between the close epochs of **1971** and **1997**. Thus [38], in 1987 Shelton had registered the flash of Supernova which was assigned the name SN1987A. Registration of the respective splash of gravitational radiation shows that its magnitude was extremely high. As a result, a vigorous energy flux had struck the Sun and planets, and it was powerful enough to influence even the Solar processes. At the beginning of the 1987 the Sun was calm, whereas even in two days after this flash the sunspots had aroused on the surface of the Sun, and, since then, the number of sunspots had begun to steadily grow until the 11-year Solar activity maximum took place in 1989 – 1991, after the shortest inter-maxima period over the 150 years. At this, a series of fierce natural cataclysms took place in that year: unprecedented drought and forest fires in USA and China in Summer and powerful floods in China in Autumn; the Nile had burst its banks and flooded Khartum. The Spring floods on the Rhine and Danube had exceeded all the levels on the record. The tropical thunderstorms and showers were continuing over the European part of the USSR for a month. In Autumn, $\frac{3}{4}$ of the Bangladesh territory was flooded, 30 millions of people were left homeless, the epidemic of cholera had flared up. The typhoon "Gilbert" did damage to the Caribbean Region for about \$10 milliards. All these are apart from the unprecedented natural calamities in Nicaragua, Indonesia, and other regions.

The extreme members of this class of supernovae might produce "*hypernovae*" [36], cataclysms hundreds of times more energetic still. The Milky Way contains *at least one possible member* of this putative class of hypernova progenitors, the massive, luminous, and relatively nearby star; its properties do really impress [35]: (i) its radiative power is **50000000** times of the Solar's power; (ii) its radius makes the distance Earth from the Sun; (iii) **150** years ago, Eta Carinae (or η Car, for short) underwent a giant outburst; *it released as much energy as a supernova*. The star *survived the event*, though such massive objects are not, generally, the long-livers.

The Eta Car's behavior during the 90's has been unprecedented in its modern photometric record. A more pronounced brightening occurred in 1998; this new phenomenon, more extreme than any brightness change seen in Eta Car during the past 50 years. "The death of Eta Car is likely to be one of the most explosive events ever experienced in the Galaxy", though astrophysics cannot determine neither the current evolutionary state of this star, nor the length of time until eventual end as a supernova or hypernova [36].

Therefore, flashes of supernova are quite actual for this study, all the more that all of them, that have been registered in our Galaxy over the last millennia, are synchronous with the considered Auric epochs of the Mayan Calendar. Even more so for the Hypernova.

In 2003.5 Eta Carinae was expected to undergo an X-ray eclipse, which was believed to occur every 5.52 years and thought to be correlated with the 5.52 fading of high excitation lines or 2020 day radiation cycle. According to previous observations, X-ray cyclic variation, timing of flares, and variations in column density show fairly stable periodicity of physical parameters of Eta Car [36]. For this reason, before this event the following Eta Car vs. Solar cycle correlation was estimated [45].

The Eta Car cycle of 2020 days makes $T_{EC} = 2020 / 365.24 = 5.5306$ yr. Twice this value, $T_E = 11.061$ yr coincides with the average Solar cycle duration T_o to the accuracy of $\delta_o = 0.08\%$. This leads us to

Conclusion EC1. In terms of cycle length being inverse to the frequency of the events, the average period $T_o = 11.07$ yr of the 11-year Solar cycle presents the second harmonics of the basic Eta Carinae radiation event cycle period of $T_{EC} = 5.5306$ yr with the accuracy of $\delta_o = 0.08\%$.

Further on, by taking the accepted estimation 2003.5 for the reference point, we obtain the following model for the Eta Carinae event distribution

$$\tau_i^* = 2003.5 + T_{EC} \cdot i, (i = 0, \pm 1, \pm 2, \dots). \quad (4.10)$$

Comparing the epochs of actual events (4.10) vs. the model ones (4.4) gave the following result [44].

Table 4.2. Most prominent Eta Carinae events [37] vs. the model peaks of Solar and η Carinae cycles

Actual Event		11-Year SA Cycle Model		Eta Car Cycle Model	
Description	Year, t_E	Year of t_k^*	$\Delta_k^* = t_k^* - t_E$	Year of τ_i^*	$\Delta_i^E = \tau_i^* - t_E$
1	2	3	4	5	6
The giant eruption begins	1827.1	1826.67	-0.43	1826.52	-0.58
New light peak to 0.2^m	1838.0	1837.74	-0.26	1837.58	-0.42
New light peak to -0.2^m	1850	1848.81	-1.19	1848.64	-1.36
First "spectroscopic event"	1948	1948.44	0.44	1948.19	0.19
Events similar to that of 1948	1981 (1982)	1981.65	0.65 (0.35)	1981.38	0.38 (0.62)
The predicted event	2003.5	2003.79	0.29	2003.5	

The average absolute errors for the columns 4 and 6 (for the five dated events) make $\Delta^* = 0.59$ yr, $\Delta^E = 0.59$ yr, though the relative errors are 5% and 11%, respectively, as the SA cycle period is twice the Eta Car's one. If the middle point $t_k^{**} = (t_k^* + t_{k+1}^*) / 2$ is taken for an Eta Carinae event that takes place between the model peaks t_k^* , t_{k+1}^* , the average errors Δ^{**} , Δ^{EE} similar to Δ^* , Δ^E , for the remaining set of events: 1843.2 (The giant eruption ends), 1887 (Burst), 1987 and 1998 ("spectroscopic events") take the values 0.19 yr and 0.06 yr, or 1.5% and 1%, respectively.

Conclusion EC2. Within the existing two-centennial observation data, the 11-year SA cycles and Eta Carinae events present the synchronous, in a narrow sense, processes, cyclic and periodic ones, where the model peaks t_k^* of (4.5) present the most prominent Eta Carinae events [37] with not less accuracy than the peaks τ_i^* being defined by the accepted Eta Carinae event distribution (4.10).

Hypothesis. A relative stability of the Regular model (1.20) – (1.23), (4.4) over the two millennia allows us to assume, that Eta Carinae presents a Master-Clock for the 11-year Solar Activity Cycles; namely, that: (i) the highly exact coincidence of the average duration T_o of Solar cycles and doubled value T_E of the basic Eta Carinae's period T_{EC} , as well as the *synchronism* between the events they define are *not random*;

- (ii) the huge emissive power of *Eta Carinae*, in comparison with the Sun, assumes it to be *a master generator for the Sun* for this pair of stars;
- (iii) if so, this gives grounds to suppose that before the Eta Carinae's giant eruption in 1827 *the periods T_o, T_E were also equal*.

In good agreement with the prediction, the latest X-ray minimum began at 2003 June 29, with the minimum in July and August 2003. It was more accurately estimated that the spectroscopic cycle had period 2023 ± 7 d, based on photometry, spectroscopic variations, and X-ray observations [43]. As far as the new estimate $T'_{EC} = 2023 / 365.24 = 5.5388$ differs from the old one, but insignificantly (by 0.15 %), these conclusions remain unchanged.

4.5. Resume to sections 4.1 – 4.4

In (4.8) we firstly meet a stable discrete element in development of Solar cycles which shows that *the Solar maxima epochs show a trend to develop at the discrete distances of the model epochs t_k^* so that the same deviations δ_k between the actual maxima and model epochs repeat at integer times of T_o* .

Besides, it turned out that these model epochs (4.10) are synchronous, in a narrow sense, with the hypernova Eta Carinae radiation event cycles.

However, the provided analysis has not yet allowed us to reveal the internal structure of Solar cycles, which may be attributed to use of source data being distorted by smoothing of sunspot numbers and applying of subjective criteria for defining the Solar maxima. With the aim to reveal this structure, we are required to consider more exact source data than smoothed SSN and revise the criterion.

4.6. Median as a solar CYCLE energy emission center

With the aim to increase the resolving capacity of Regular model, a quantity is defined as a substitute for cycle maximum, which specifies the *Solar cycle energy emission centre*. This stable characteristic is specified as a function of *monthly mean SSN* in standard *Ri units* [7], since no other index of SA, including the smoothed SSN, allows us to increase the accuracy of the results by an order of magnitude.

4.6.1. Definition of Solar cycle median

The average cycle duration $T_o = 11.07$ presents a stable and unbiased integral characteristic of Solar cycles. For obtaining a function $F(S)$ that specifies an epoch of cycle energy emitting centre as a consistent characteristic of a cycle, consider a sample $S = (s_1, s_2, \dots, s_n)$ of monthly mean SSN, with the first and last values specifying the cycle bounds.

We demand for this function to satisfy the following requirements:

1. $F(S)$ is **stable** mathematically: small variations in bounds of S affect the epoch $F(S)$, but insignificantly.
2. $F(S)$ reflects a Solar cycle energy distribution centre.
3. The accuracy of $F(S)$ can be estimated.

For the basic claimants to this characteristic the following concepts may be considered:

cycle maximum, M_r [8];

SSN monthly maximum, M_x , – the epoch of maximal value in S ;

mode, M_o , – the epoch of maximum of a least power unimodal smoothing polynomial for sample S , which is used as an estimation for a cycle "maximum" (6th power suffices this goal);

median, M_e , – the median for S .

Though *the first three* quantities definite integral properties of a Solar cycle, none of them satisfies to all the above requirements. Thus, the shortcomings of M_r were considered above. The value M_x presents, basically, a local feature of Solar cycle and can lie far from other integral "maxima". M_o is used in predictive purpose (e.g. [20, 21]), but its basic disadvantage lies in arbitrariness in specifying the "best" smoothing polynomial. For this reasons, they are considered below, but as the subjects for comparison.

Consider now the concept of median in more detail. Let a sample S present the monthly mean SSN for months $M_S = (t_1, t_2, \dots, t_n)$. Since SSN reflects general level of SA, a value s_i presents a monthly averaged daily Solar emissive power, or a monthly averaged daily intensity of energy radiation. If $z(t)$ presents a continuous analogue of s , the total Solar cycle energy emission E can be approximated as follows

$$E = \int_{t_1}^{t_n} z(t) \cdot dt \approx \sum_{i=1}^n n_i s_i \cdot 1 \approx m \cdot \sum_{i=1}^n s_i, \quad (4.11)$$

where $n_i, (m)$ – is the number of days in month i (in an average month). In a continuous case, the epoch t^* is called *median*, if it specifies the integral centre of distribution $z(t)$ as follows

$$\int_{t_1}^{t^*} z(t) \cdot dt = \int_{t^*}^{t_2} z(t) \cdot dt = \frac{E}{2}. \quad (4.12)$$

So, in this context, **median** presents *the centre of total Sun's energy radiation over a Solar cycle*.

4.6.2. Stability of median

For a discrete analogue S of $z(t)$, estimate the epoch of median M_e by the middle of the month i^* where t^* resides. So, if

$$E_M = \sum_{i=1}^n s_i, \quad \sum_{i=1}^{i^*-1} s_i < \frac{E_M}{2}, \quad \text{and} \quad \sum_{i=1}^{i^*} s_i > \frac{E_M}{2}, \quad (4.13)$$

then i^* is taken for the median M_e . Note, that it is stable in a sense of selection of time unity. Indeed, let $\{\zeta_k\}_{k=1,2,\dots,K}$ present K daily values for the same time interval, and, for simplicity, all months are of equal duration m . For these values the sum, similar to (4.13), after grouping by months makes

$$E_D = \sum_{k=1}^K \zeta_k = \sum_{i=1}^n [sum\ of\ daily\ values\ over\ month\ i] \approx \sum_{i=1}^n [m\ times\ the\ monthly\ mean\ s_i] = m \cdot \sum_{i=1}^n s_i. \quad (4.14)$$

Hence, E_D differs from E_M by a scale factor m (average number of days in a month). At this, if the median day ζ^* is close to first (last) days of the month, it may get off the month i^* due to a difference between m_i and m , but with an insignificant probability, since the left and right sides of sample S (with respect to i^*) are long enough (up to 5 years) and, in average, compensate for this small error.

As far as the median ζ^* can be taken for the true one, we can conclude that, almost for sure, the true median t^* fits the month i^* and deviates from its centre by no more than 0.5 (month). Therefore, the error for the median estimate i^* does not exceed half a month, or

$$\Delta_{Me} \approx 0.5 \frac{1}{12} \approx 0.042 \text{ yr.} \quad (4.15)$$

Note, that this stability and accuracy cannot be attributed to a median of the *smoothed* monthly mean SSN.

Show now, that median is stable with respect to selection of bounds of Solar cycle (the epochs of minima). As in existing approaches [8, 20], in obtaining a median i^* in (4.13) we also have to define the epochs of minima, but this time the influence of the sample bounds is not significant.

For concreteness, consider the SSN over the last 50 years. Their values, in a several month vicinities of Solar maxima, were from 100 to 254; say 150 in av. For months of minima, these values were from 0 to 12; say 5 in av. Assume for simplicity, that median M_e hits the middle of month i^* exactly. Then, new median M_e corresponds to the accumulated value

$$\sum_{i=1}^{i^*-1} s_i + 150/2 = \sum_{i=1}^{i^*-1} s_i + 75 = \frac{E_M}{2} \text{ (units).}$$

Hence, an error of ± 6 months in defining of the left minimum (month t_l) will change the value of E_M by ± 30 units: $(\pm 6 \text{ months}) \times (5 \text{ units a month}) = \pm 30 \text{ units}$; in its turn, this shifts the former median to a position of $E_M / 2 \pm 30 / 2$. This means that new median is ± 15 units shifted relative to the former one. But the value 75 ± 15 still remains within the month i^* , and only an error in $x = \pm 30$ months, that can be obtained from the equation $(\pm x \cdot 5) / 2 = 75$, may push out the median from the original month.

Of course, cycles with such low SSN do not observed normally, and only at random a median may hit the centre of month. But this qualitative proof allows us to exclude mathematics for the sake of clarity. Hence, a **monthly mean SSN median** provides us with a **stable characteristic of Solar cycle** (with respect to variation of cycle bounds, transfer to daily SSN and other Solar indices), which presents the **centroid of Solar**

cycle Energy emission; by order of value, its *error* is $\Delta_{Me} \approx 0.04$ yr. Therefore, as it satisfies to the stated requirements, the median M_e can be taken for the searched consistent characteristic of Solar cycle.

4.6.3. Medians for Zurich series

The medians for the Zurich series, together with cycle modes, monthly maxima, and the official cycle maxima [8] are given in Table 4.3. They are obtained as described in (4.13), with the use of monthly mean SSN [7]. Sample bounds correspond to cycle minima [8]; by allowing for its incompleteness, a symmetric time span is taken for the current, 23rd cycle.

Table 4.3. Epochs of basic characteristics of Solar cycles

Zurich No.	Maximum M_r	Median M_e	Mode M_o	Monthly max. M_x
1	1761.5	1761.29	1761.46	1761.38
2	1769.7	1770.54	1770.13	1769.79
3	1778.4	1779.29	1778.92	1778.38
4	1788.1	1789.38	1788.40	1787.96
5	1805.2	1803.96	1803.96	1804.79
6	1816.4	1817.13	1817.14	1817.21
7	1829.9	1829.38	1829.79	1830.29
8	1837.2	1837.96	1837.33	1836.96
9	1848.1	1849.04	1848.47	1847.79
10	1860.1	1861.04	1860.25	1860.54
11	1870.6	1871.38	1871.20	1870.38
12	1883.9	1883.63	1883.72	1882.29
13	1894.1	1894.38	1893.83	1893.63
14	1907.0	1906.96	1906.75	1907.13
15	1917.6	1918.04	1917.85	1917.63
16	1928.4	1928.13	1927.95	1929.96
17	1937.4	1938.54	1938.01	1938.54
18	1947.5	1948.63	1948.28	1947.38
19	1957.9	1958.54	1958.19	1957.79
20	1968.9	1969.79	1969.09	1969.21
21	1979.9	1980.88	1980.52	1979.71
22	1989.6	1990.71	1990.3	1990.63
23	2000.3	2001.21	2001.16	2000.54

4.7 Regular Model for Solar Cycle Medians (RMM)

Apply the Regular model (4.1) - (4.2) with the same average cycle length $T_o = 11.07$, but this time – to 23 medians of Z-series. This gives the following epochs for Zurich cycles ($i \geq 1$) model medians

$$M_j^* = 1760.396522 + T_o \cdot (i - 1), \quad (i = 0, \pm 1, \pm 2, \dots). \quad (4.16)$$

For the purpose of comparison, consider E-series as well; in this case the conventional maxima [8] are taken for the pre-Zurich actual medians; in (4.16) they are corresponded by model medians with numbers $i = -12, \dots, 0$. The basic values associated with this model are presented in Table 4.4. The calculated (4.13) medians M_e are given in col. 2, the model (4.16) ones – in col. 3, and their difference – in col. 4.

Table 4.4. Calculated vs. Model Medians for E-series

Cycle N. i	Median M_i	Model Median M_i^*	Deviation $d_i = M_i - M_i^*$
1	2	3	4
-12	1615.5	1616.487	- 0.987
-11	1626.0	1627.557	- 1.557
-10	1639.5	1638.627	0.873
-9	1649.0	1649.697	- 0.697
-8	1660.0	1660.767	- 0.767
-7	1675.0	1671.837	3.163
-6	1685.0	1682.907	2.093
-5	1693.0	1693.977	- 0.977
-4	1705.5	1705.047	0.453
-3	1718.2	1716.117	2.083
-2	1727.5	1727.187	0.313
-1	1738.7	1738.257	0.443
0	1750.3	1749.327	0.973
1	1761.29	1760.397	0.893
2	1770.54	1771.467	- 0.927
3	1779.29	1782.537	- 3.247
4	1789.38	1793.607	- 4.227
5	1803.96	1804.677	- 0.717
6	1817.13	1815.747	1.383
7	1829.38	1826.817	2.563
8	1837.96	1837.887	0.073
9	1849.04	1848.957	0.083
10	1861.04	1860.027	1.013
11	1871.38	1871.097	0.283
12	1883.63	1882.167	1.463
13	1894.38	1893.237	1.143
14	1906.96	1904.307	2.653
15	1918.04	1915.377	2.663
16	1928.13	1926.447	1.683
17	1938.54	1937.517	1.023
18	1948.63	1948.587	0.043
19	1958.54	1959.657	- 1.117
20	1969.79	1970.727	- 0.937
21	1980.88	1981.797	- 0.917

22	1990.71	1992.867	- 2.157
23	2001.21	2003.937	- 2.727

4.8. Statistical and error-bound analysis of the Regular Model for medians

4.8.1. Statistical analysis of Regular Model

Analysis of Table 4.3 acknowledges close time correlation for the considered characteristics. Thus, all correlation coefficients exceed make 0.999. With respect to squared and Chebyshev's deviation, the closest of them are cycle medians and modes with rms 0.446 yr and maximal deviation 0.98 yr. Second in turn, is the concordance between the cycle maxima and modes, with rms 0.525 yr and maximal deviation 1.24 yr. Show now, that RMM is stable to choice of samples. By applying the model (4.1) - (4.2) with $T_o = 11.07$ yr to other characteristics of Table 5.3, we obtain the model epochs that are given in Table 4.5. Their accuracy is estimated by rms for the actual and model epochs. In parallel, these epochs were calculated for the sample means instead of T_o (the respective mean and rms values are given in brackets).

Table 4.5. Regular model epochs for Z- and E-series

Regular Model for:	Zurich series ($n=23$)		Extended series ($N = 36$)	
	Model epoch	rms	Model epoch	rms
1	2	3	4	5
Maximum, M_r	1759.87	2.26 (10.86, 2.6)	1760.21	2.02 (10.99, 2.0)
Median, M_e	1760.40	1.87 (10.92, 2.2)	1760.55	1.72 (11.02, 1.7)
Mode, M_o	1760.09	2.03 (10.90, 2.3)	—	—
Monthly Max. M_x	1759.97	2.34 (10.87, 2.7)	—	—

It is clear from Table 4.5, that use of "own" means instead of T_o coarsens the results. At the same time, we observe sufficient stability of the model epoch of 1760 for $T_o = 11.07$ yr for all characteristics, as well as for the reference epoch 1760.25 of (4.3) that allows for estimate maximum of 1604. At this, the RMM, even though the conventional maxima substitute the pre-Zurich values in E-series of medians, shows the least variance, which probably can be attributed to exclusion of subjective factors. For these reasons, and with taking account that growth of amount of sample increases the accuracy, we may choose the average of these most significant dates for a common reference epoch, at least – for cycle maxima and medians

$$M_{Av} = \frac{1}{3}(1760.397 + 1760.21 + 1760.547) = 1760.385 \quad (22)$$

4.8.2. Error-bound analysis of RMM.

For the RMM of (4.16), correlate Z-series median deviations $d_i = M_i - M_i^*$ (Table 4.4, col.4) with respective terms of series Γ , Γ^* as shown in Table 4.6, and for E-series – in Table 4.7, where error

$\delta_i = |\gamma_k - |d_i||$ gives absolute deflection of d_i from respective ATS term γ_k . All values in these Tables, except of col. 3, are given in years.

Tables 4.6, 4.7 present the *distribution of Z- and E-series median absolute deviations* $\{|d_i|\}_i$ *over the terms* $\gamma_k \in S = \{\varphi^6, \dots, \Phi^3\}$ *of the series* Γ, Γ^* (**median distribution**, for short); if the terms of series Γ^* are not included, denote this series S^* . The largest value of series S corresponds to the greatest deviation, whereas the smallest one – to the source data error (4.15) since in this direction the terms of ATS series converge to zero.

It is clearly seen from these Tables that modulus of each deviation fits some term of series S , whereas absence of deviations for the remaining terms of these series can be attributed to a small amount of observations. Indeed, we see that increase in number of observations (Table 4.7 vs. Table 4.6) leads to eliminating of these gaps. Evaluate now the closeness of this correspondence.

Table 4.6. Z-median distribution over the series Γ, Γ^*

Term γ_k of ATS		Deviation d_i		Error δ_i
Sign	Value	i	Value	
1	2	3	4	5
φ^6	0.056	18	0.043	0.013
		8	0.073	0.017
φ^5	0.090	9	0.083	0.007
$2 \cdot \varphi^4$	0.292	11	0.283	0.009
$2 \cdot \varphi^2$	0.764	5	- 0.717	0.047
$\varphi^0 = \Phi^0$	1.000	1	0.893	0.107
		21	- 0.917	0.083
		2	- 0.927	0.073
		20	- 0.937	0.063
		10	1.013	0.013
		17	1.023	0.023
		19	- 1.117	0.117
$2 \cdot \varphi^1$	1.236	13	1.143	0.093
		6	1.383	0.147
Φ^1	1.618	12	1.463	0.155
		16	1.683	0.065
$2\varphi^0 = 2\Phi$	2.000	22	-2.157	0.157
Φ^2	2.618	7	2.563	0.055
		14	2.653	0.035
		15	2.663	0.045
		23	-2.727	0.109
$2 \cdot \Phi^1$	3.236	3	-3.247	0.011
Φ^3	4.236	4	-4.227	0.009

Firstly, estimate an error of discrepancy between the deviations and S -series terms. Thus the average errors for col. 5 of both Tables make 0.063 and 0.058 , resp., or $\delta_A = 0.06$ yr for Z- and E-series. However, for the series S^* these errors are 0.11 and 0.13 , or $\delta_A^* = 0.12$ yr for both ones. This twice as much reduction in error caused by allowing for both series, Γ and Γ^* , supports the suggestion that the latter series is as actual as Γ .

As well, in continuation of the analysis of closeness of Solar cycle characteristics we obtain that the similar average errors for cycle mode (M_o), monthly (M_x) and official (M_r) maxima deviations from the Regular model medians, for the same S series, are small enough and show almost the same values (Table 4.8).

Table 4.7. E-median distribution over the series Γ , Γ^*

Term γ_k of ATS		Deviation d_i		Error δ_i
Sign	Value	i	Value	
1	2	3	4	5
φ^6	0.056	18	0.043	0.013
		8	0.073	0.017
φ^5	0.090	9	0.083	0.007
$2 \cdot \varphi^4$	0.292	11	0.283	0.009
		-2	0.313	0.021
$2 \cdot \varphi^3$	0.472	-1	0.443	0.029
		-4	0.453	0.019
$2 \cdot \varphi^2$	0.764	-9	-0.697	0.067
		5	-0.717	0.047
		-8	-0.767	0.003
		-10	0.873	0.109
$\varphi^0 = \Phi^0$	1.000	1	0.893	0.107
		21	- 0.917	0.083
		2	- 0.927	0.073
		20	- 0.937	0.063
		0	0.973	0.027
		-5	-0.977	0.023
		-12	-0.987	0.013
		10	1.013	0.013
		17	1.023	0.023
		19	- 1.117	0.117
$2 \cdot \varphi^1$	1.236	13	1.143	0.093
		6	1.383	0.147
Φ^1	1.618	12	1.463	0.155
		-11	-1.557	0.061
		16	1.683	0.065
$2 \cdot \Phi^0$	2.000	-3	2.083	0.083
		-6	2.093	0.093
		22	-2.157	0.157
Φ^2	2.618	7	2.563	0.055
		14	2.653	0.035
		15	2.663	0.045
		23	-2.727	0.109
$2 \cdot \Phi^1$	3.236	-7	3.163	0.073
		3	-3.247	0.011
Φ^3	4.236	4	-4.227	0.009

Table 4.8. Error for M_o, M_x, M_r against the RMM of (4.16)

M_o	M_x	M_r
0.09 yr	0.12 yr	0.11 yr

Therefore, as far as the average error δ_A of discrepancy between the deviations of medians (against the Regular model values) and respective terms S of series Γ , Γ^* corresponds to the source data error (4.15), and this error is stable with respect to increase in amount of observations, we *can conclude, that this distribution of Solar cycle median deviations over the ATS series reflects some objective, or functional dependence*. With taking account of Table 4.8 we may resume that cycle modes, monthly and official cycle maxima also follow this dependence.

4.8.3. Probability of randomness of median distribution

For each term $\gamma_k \in S$ consider a segment I_k that contains both this value and those deviations which are referred to it. Let K be the number of such segments and N – the number of observations (23 for Z-series, and 36 – for E-series).

Assume that the deviations are uniformly distributed over the time interval $R = \Phi^3 \approx 4.2$ yr specified by series S , and i_k gives the length of interval I_k . Then, a single median fits one of intervals I_k by chance with a probability of $P_I = (\sum_{k=1}^K i_k) / R$, whereas all N observation fit these intervals accidentally with a probability of $P_N = (P_I)^N$.

For series S consider three types of intervals which reflect average, actual and maximal dispersion of deviations around the terms γ_k . Define the former one as $\Delta_A = 2 \cdot \delta_A$. The actual interval Δ_D presents the maximal difference between the lowest and largest deviations, including γ_k itself. The maximal interval Δ_M makes twice the maximal difference between the term γ_k and deviations being referred to this term. The similar intervals for the series S^* are marked by asterisk.

For the considered samples the probabilities of randomness of median distribution are given in Table 4.9. The last line contains the geometrical mean probability for the above values (arithmetical mean is not indicative as it retains the maximum of these values).

Table 4.9. Probability of randomness of median distribution

Interval	Z-series	E-series
Δ_A	8×10^{-12}	5×10^{-18}
Δ_A^*	4×10^{-9}	2×10^{-9}
Δ_D	6×10^{-14}	5×10^{-19}
Δ_D^*	5×10^{-9}	4×10^{-9}
Δ_M	2×10^{-10}	3×10^{-13}
Δ_M^*	2×10^{-6}	2×10^{-5}
for S	4×10^{-12}	9×10^{-17}
for S^*	3×10^{-8}	5×10^{-8}

Here, as well, we see that transfer from series S to S^* decreases the probability by 4 orders for Z-series and by 9 orders for sample E-series, which gives an additional argument in support of use of both basic Auric series, Γ and Γ^* .

4.9. RMM Clusters, or Mystic Recurrence of Solar Cycle Centres

Distribute the medians of Tables 4.6, 4.7 over the corresponding terms of series Γ , Γ^* with respect to the signs of the deviations. The result is presented in Table 4.10

Table 4.10. Clusters of medians for Z- and E-series, and how they merge into united clusters

Cluster		United cluster	Z-series Medians	E-series Medians	Resulting clusters
Designation	Determinative ATS term with sign				
1	2	3	4	5	6
C_3^-	$- \Phi^3$	$U_2^- = Z_1^- \cup C_2^-$	1789.38	1789.38	1789.38
Z_1^-	$- 2\Phi^1$		1779.29	1779.29	1779.29
C_2^-	$- \Phi^2$		2001.21	2001.21	2001.21
Z_0^-	$- 2\Phi^0$	$U_1^- = Z_0^- \cup C_1^-$	1990.71	1990.71	1990.71
C_1^-	$- \Phi^1$			1626	1626
Z_{-1}^-	$- 2\Phi^{-1}$			1958.54	
C_0^-	$- \Phi^0$	$U_0^- = Z_{-1}^- \cup C_0^-$		1615.5	1615.5
				1693	1693
			1770.54	1770.54	1770.54
			1958.54	(1958.54)	1958.54
			1969.79	1969.79	1969.79
			1980.88	1980.88	1980.88
Z_{-2}^-	$- 2\Phi^{-2}$			1660	1660
				1649	1649
			1803.96	1803.96	1803.96
C_{-6}^+	Φ^{-6}		1837.96	1837.96	1837.96
			1948.63	1948.63	1948.63
C_{-5}^+	Φ^{-5}		1849.04	1849.04	1849.04
Z_{-4}^+	$2\Phi^{-4}$			1727.5	1727.5
			1871.38	1871.38	1871.38
Z_{-3}^+	$2\Phi^{-3}$			1705.5	1705.5
				1738.7	1738.7
Z_{-2}^+	$2\Phi^{-2}$			1639.5	1639.5
C_0^+	Φ^0	$U_0^+ = C_0^+ \cup Z_{-1}^+$		1750.3	1750.3
			1761.29	1761.29	1761.29
			1861.04	1861.04	1861.04
			1938.54	1938.54	1938.54
Z_{-1}^+	$2\Phi^{-1}$		1817.13	1817.13	1817.13
			1894.38	1894.38	1894.38
C_1^+	Φ^1	$U_1^+ = C_1^+ \cup Z_0^+$	1883.63	1883.63	1883.63
			1928.13	1928.13	1928.13
Z_0^+	$2\Phi^0$			1685	1685
				1718.2	1718.2
C_2^+	Φ^2		1829.38	1829.38	1829.38
			1906.96	1906.96	1906.96
			1918.04	1918.04	1918.04

Z_l^+	$2\Phi^l$	$U_2^+ = C_2^+ \cup Z_l^+$		1675	1675
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In this Table $\alpha \in \{+, -\}$ denotes the sign of deviation, p – the Golden section power of the respective term so that:

C_p^α - denotes cluster containing the medians whose deviations are approximated by Φ^p with sign α ;

Z_q^α - denotes cluster containing the medians whose deviations are approximated by $2 \cdot \Phi^q$ with sign α ;

U_p^α - denotes cluster comprising the elements of clusters C_p^α and Z_{p-1}^α .

For example, C_2^+ stands for cluster of medians with positive deviations being approximately equal to Φ^2 , whereas C_2^- stands for cluster of medians with negative deviations being approximately equal to $-\Phi^2$.

In order to show the stability of clustering, the median 1958.54 is firstly (for Z-series) put in cluster C_0^- , and, secondly (for E-series), in Z_{-1}^- , since its deviation with the same accuracy fits both values, $2\Phi^{-1}$ and Φ^0 . But this situation does not make difficulty, since these clusters are united into the cluster U_0^- .

With the aim to estimate the accuracy of clusters being presented in Table 4.10, for each pair of epochs t_i, t_j being referred to each cluster calculate the error

$$\delta_C = |e_{ij} - k_{ij}| / k_{ij} \quad (4.17)$$

which specifies a discrepancy between the multiple $e_{ij} = |t_i - t_j| / T_o$ of (4.8) and the closest integer k_{ij} . The average of these errors, for Z- and E- series separately, is given in col. 2 of Table 4.11. After then, calculate the same average error, but for those medians which comprise the united clusters U_h^α ; they are presented in col. 3 of Table 4.11. The same error for the resulting clusters (col.6 of Table 4.10), which include the clusters of all three types, are given in col. 4 of Table 4.11.

Table 4.11. Average Error δ_C between the elements of clusters of Z- and E-series medians

	Source clusters Z_p^α, C_q^α (to col. 4 of Table 5.8)	United clusters U_h^α (col. 5 of Table 5.8)	Resulting clusters (col. 6 of Table 5.8)
Z-series	0.27 %	0.5 %	0.35 %
E-series	0.11 %	0.33 %	0.19 %

4.10. Conclusions

1. THE MONTHLY MEAN SSN MEDIAN provides us with a (i) *stable characteristic of Solar cycle* with respect to variation of cycle bounds, transfer to daily SSN and other Solar indices, which presents (ii) a formal analogue of maximum – the *centroid of Solar cycle Energy emission*, that (iii) can be calculated with an accuracy which, by order of value, correspond to the source data error; for the monthly mean SSN, the error in median does not exceed $\Delta_{Me} \approx 0.04$ year.

These properties of Solar cycle monthly mean SSN median allow us **to take it for the searched consistent characteristic of 11-year Solar cycle extremum.**

2. REGULAR MODEL FOR MEDIANS. The distribution of Solar cycle median deviations over the ATS series Γ , Γ^* reflects some objective, or functional dependence:

(a) the *average error* of discrepancy between the deviations of medians (against the Regular model values) and terms of series Γ , Γ^* makes $\delta_A = 0.06$ year and corresponds to the median and source data error; this error is stable with respect to increase in amount of observations and transfer from series Γ , Γ^* to a single series Γ ($\delta_A^* = 0.12$ yr). This also supports the suggestion that series Γ^* is as actual as Γ ;

(b) apart from statistical closeness of such *Solar cycle characteristics* as mode (M_o), monthly (M_x) and official (M_r) maxima, we obtain the similar average error of 0.1 yr for their deviations from the RMM peaks. For this reason we may resume that these characteristics also follow the model epochs of the RMM;

(c) the *probability of randomness* of median distribution over the terms of series Γ , Γ^* make a vanishingly small values of 10^{-12} for Z-series and 10^{-16} for E-series, or 10^{-14} in average.

3. MEDIAN CLUSTERS. Tables 4.10, 4.11 give one more evidence to the truthfulness of the *RMM*, including the estimate for the *average Solar cycle length*, as such high accuracy of correlations cannot be neglected.

In particular, it shows practically "exact" *distribution of medians over the clusters* being defined by the series Γ and Γ^* , in which the medians repeat epochs in integer times of $T_o = 11.07$ years with an insignificant error (0.27% for Z- and 0.11% for E-series), and even after transfer to the united clusters defined by the series Γ only, this error grows, but not significantly (up to the values of 0.35% and 0.19% , resp.).

There are some more interesting properties of these clusters that can be presented. But this is another problem that should be studied in this connection: according to what law the medians are assigned to this or that cluster; or, in other words, what is the nature of the law that chooses the ATS term and sign for the deviation of the next median?

To the blessed memory of A.L. Tchijevsky

5. Tchijevsky's Disclosure:

How the Solar cycles Modulate the History

© Smelyakov S.V., 2006

5.1. Physical Factors of the Historical Process

The Author's Summary to the booklet:

A. Tchijevsky. Physical Factors of the Historical Process. A short sketch. Kaluga, 1924. – 72 p. (now included in a [2]), in Russian

SUMMARY

The principles of modern natural science have urged me to investigate whether or not there existed a correlation between the more important phenomena of nature and events in the social-historical life of mankind. In this direction, beginning in the year 1915, I have performed a number of researches, but at present I am submitting to the public only those which are directed towards determining the connection between the periodical sun-spot activity and (1) the behavior of organized human masses and (2) the universal historical process.

The following facts are based upon statistics gathered by me while submitting to a minute scrutiny the history of all the peoples and states known to science, beginning with the V century B. C. and ending with the present day.

1. As soon as the sun-spot activity approaches its maximum, the number of important mass historical events, taken as a whole, increases, approaching its maximum during the sun-spot maximum and decreasing to its minimum during the epochs of the sun-spot minimum.

2. In each century the rise of the synchronic universal military and political activity on the whole of the Earth's territory is observed exactly 9 times. This circumstance enables us to reckon that a cycle of universal human activity embraces 11 years (in the arithmetical mean). (See. Fig. 2, 3 & 4, also historiometrical table, p. p. 30—31).

3. Each cycle according to its historical psychological signs is divided into 4 parts (periods):

I. Minimum of excitability3 years;
II. growth „ „2 „
III. maximum „ „3 „
IV. decline „ „3 „

The number of historical events in each cycle are distributed approximately according to the data for 500 years (XV—XX cent.) in the following manner (in the mean):

I period5%;
II „20%;
III „60%;
IV „15%;

(See diagram on p. 29).

4. The course and development of each lengthy historical event is subject to fluctuations (periods of activity and inactivity) in direct dependence upon the periodical fluctuations occurring in the sun's activity. Formula: the state of predisposition of collective bodies towards action is a function of the sun-spot periodical activity.

5. Episodic leaps or rises in the sun's activity, given the existence in human societies of politico-economical and other exciting factors, are capable of calling forth a synchronic rising in human collective bodies. Formula: the rising of the sun-spot activity transforms the people's potential energy into kinetic energy. (See Fig. 5).

My studies in the sphere of synthesizing historical material have enabled me to determine the following morphological law of the historical process:

6. The course of the universal historical process is composed of an uninterrupted row of cycles, occupying a period equaling in the arithmetical mean 11 years and synchronizing in the degree of its military-political activity with the sun-spot activity. Each cycle possesses the following historio-psychological peculiarities:

a. In the middle points of the cycle's course the mass activity of humanity all over the surface of the Earth, given the presence in human societies of economical, political or military exciting factors, reaches the maximum tension, manifesting itself in psychomotoric pandemics: revolutions, insurrections, expeditions, migrations etc., creating new formations in the existence of separate states and new historical epochs in the life of humanity. It is accompanied by an integration of the masses, a full expression of their activity and a form of government consisting of a majority.

b. In the extreme points of the cycle's course the tension of the all-human military-political activity falls to the minimum, ceding the way to creative activity and is accompanied by a general decrease of military or political enthusiasm, by peace and peaceful creative work in the sphere of state organizations, international relations, science and art, with a pronounced tendency towards absolutism in the governing powers and a disintegration of the masses. (See p. 51).

7. In correlation with the sun-spot maximum stand:

a. The dissemination of different doctrines political, religious etc., the spreading of heresies, religious riots, pilgrimages etc.

b. The appearance of social, military and religious leaders, reformists etc.

c. The formation of political, military, religious and commercial corporations, associations, unions, leagues, sects, companies etc.

8. It is impossible to overlook the fact, that pathological epidemics also coincide very frequently with the sun-spot maximum periods (see table on p. 47).

9. Thus the existence of a dependence between the sun-spot activity and the behavior of humanity should be considered established.

One cycle of all-human activity is taken by me for the first measuring unit of the historical process. The science concerned with investigating the historical phenomena from the above point of view I have named historiometria.

At present I am working on a plan of organizing scientific institutes for determining the influence of cosmic and geophysical factors upon the condition of the psychics of individuals and collective bodies, and devising a working method for them.

A. Tchijevsky.

November, 1922.

10, Ivanovskaia, Kaluga, Russia.

5.2. Physical Factors of the Historical Process

ILLUSTRATIONS

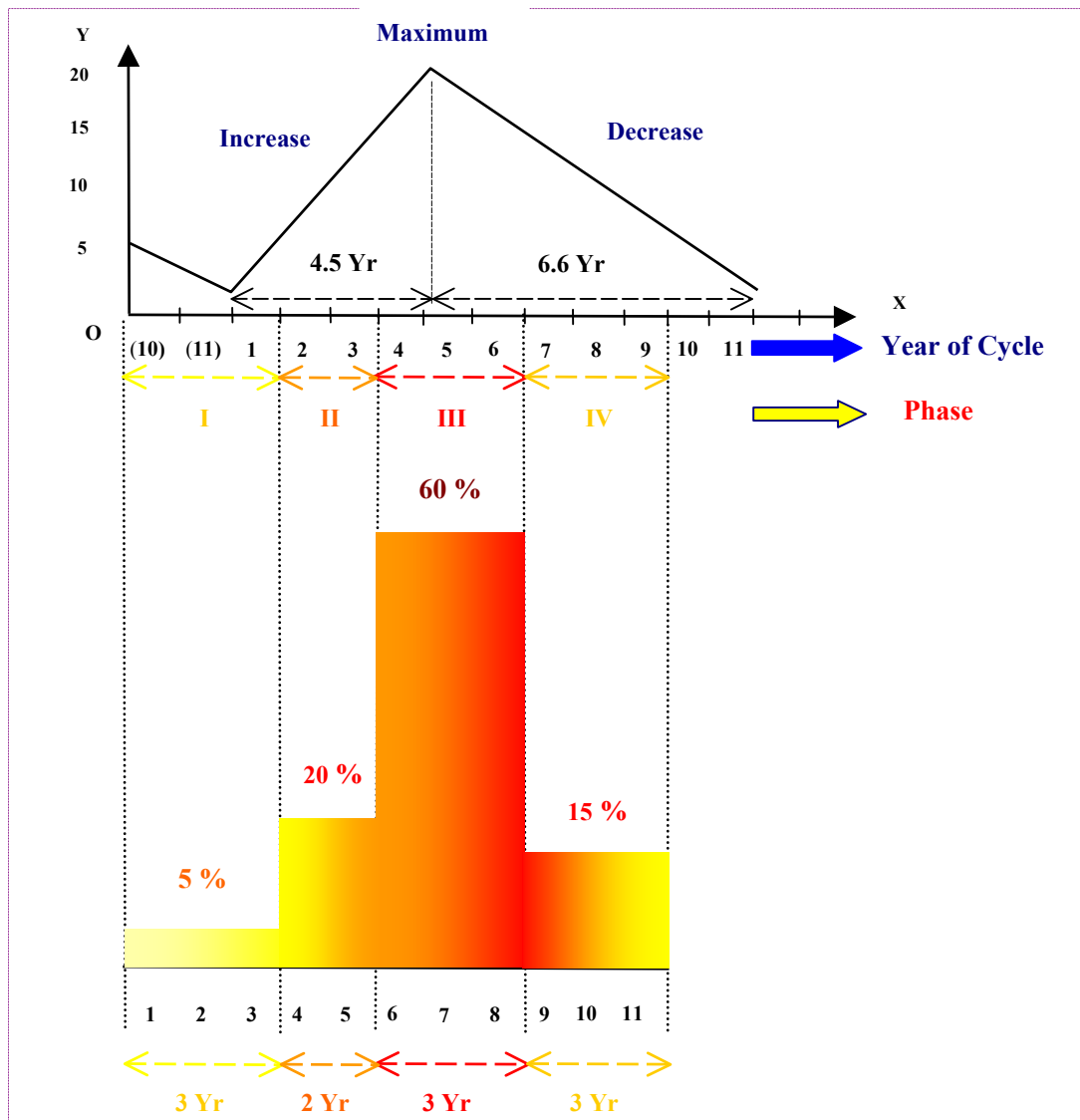


Fig.1. Percentage diagram for the number of originations of historical events, per Solar cycle years and phases, as an average for 500 years of observation (XV – XX centuries)

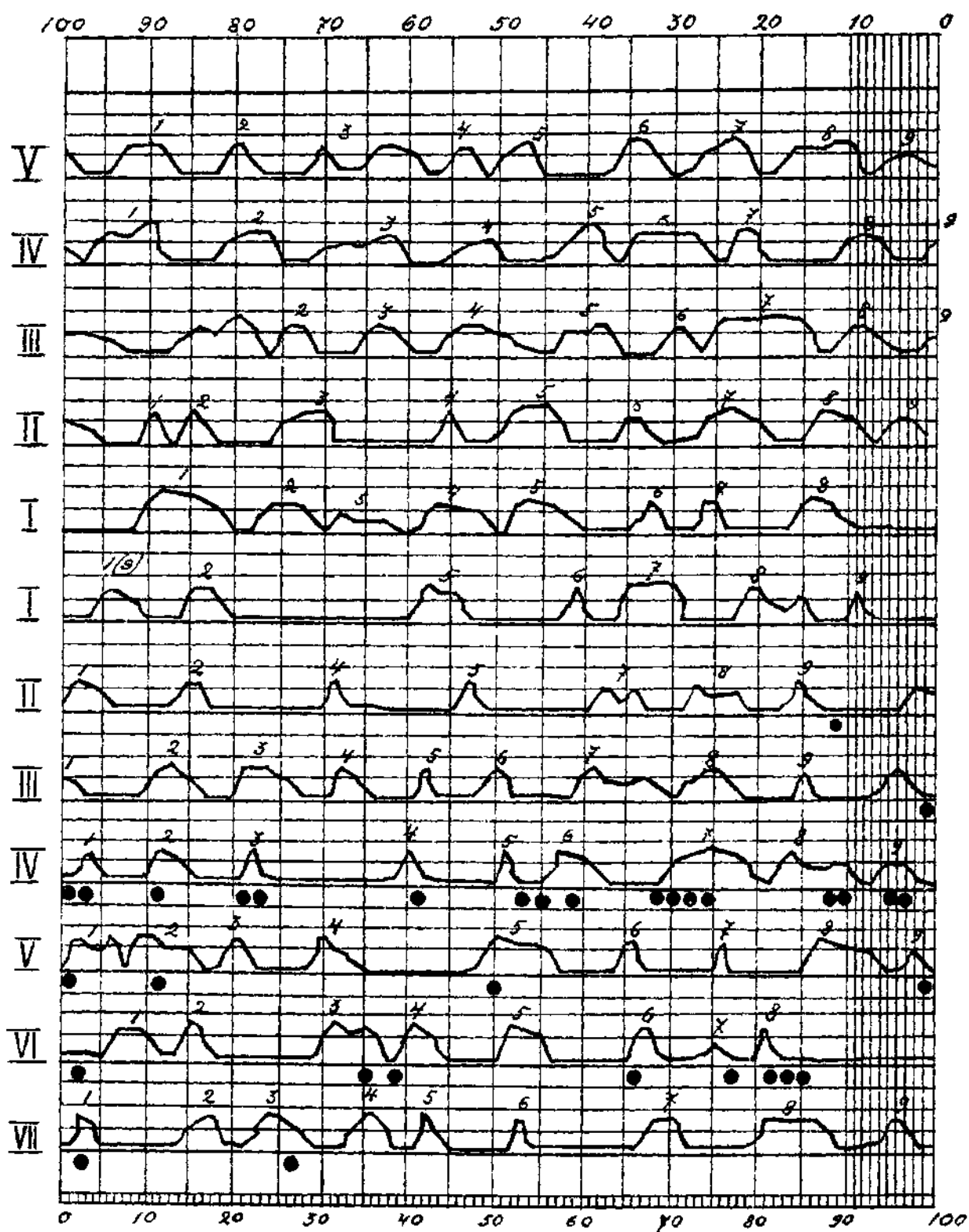


Fig. 2. The fluctuation's mean curves of the universal historical process on all the surface of the Earth during the period from V century B.C. till XX century A.D.

Along the abscissa axis are marked the years, along the ordinate axis – the quantity of important historical events. Dots mark the pretelescopic and later – astronomical data of the sun-spot maximum. Hyphens mark its minimum.

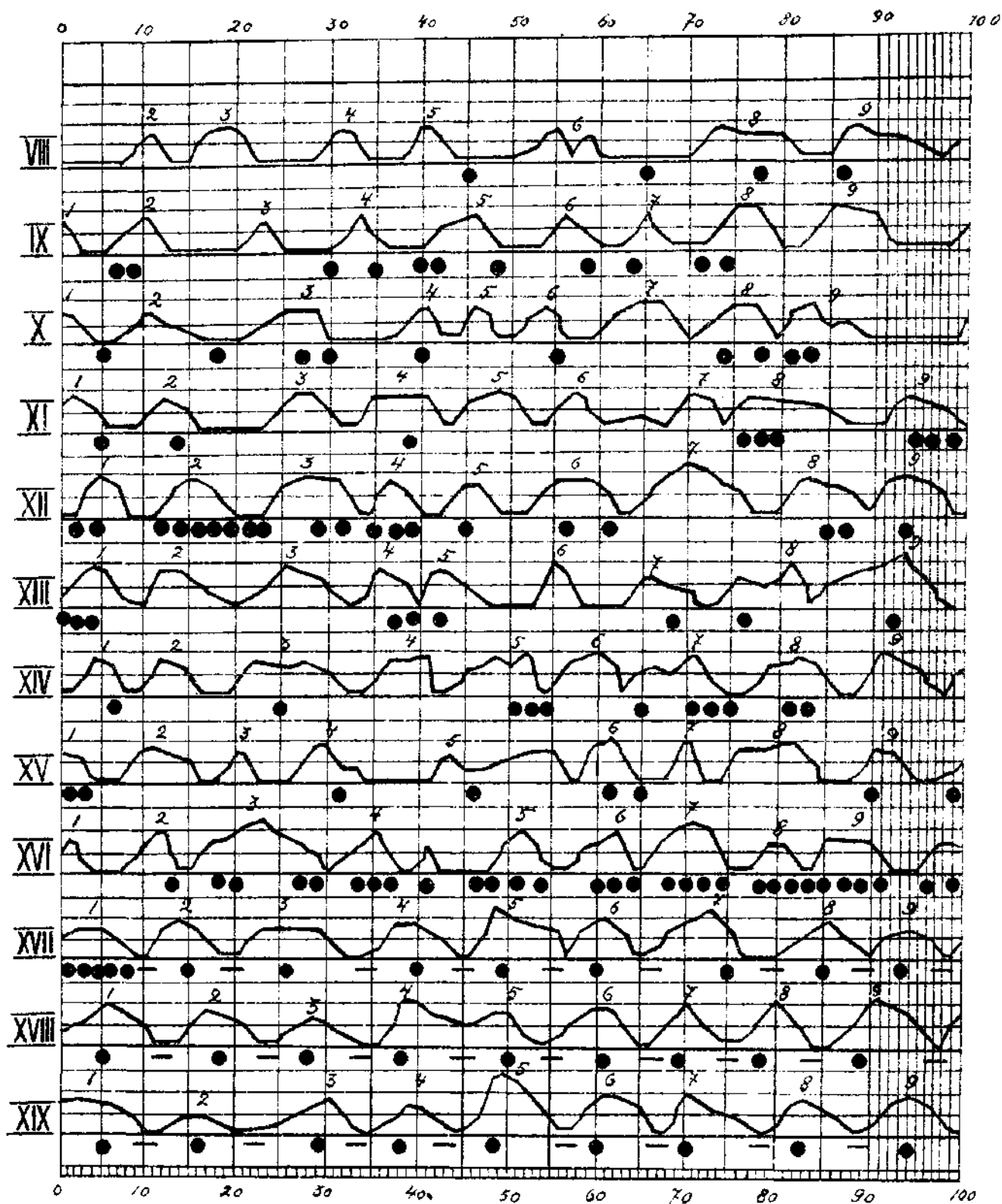


Fig. 3. The fluctuation's mean curves of the universal historical process on all the surface of the Earth during the period from V century B.C. till XX century A.D.

Along the abscissa axis are marked the years, along the ordinate axis – the quantity of important historical events. Dots mark the pretelescopic and later – astronomical data of the sun-spot maximum. Hyphens mark its minimum.

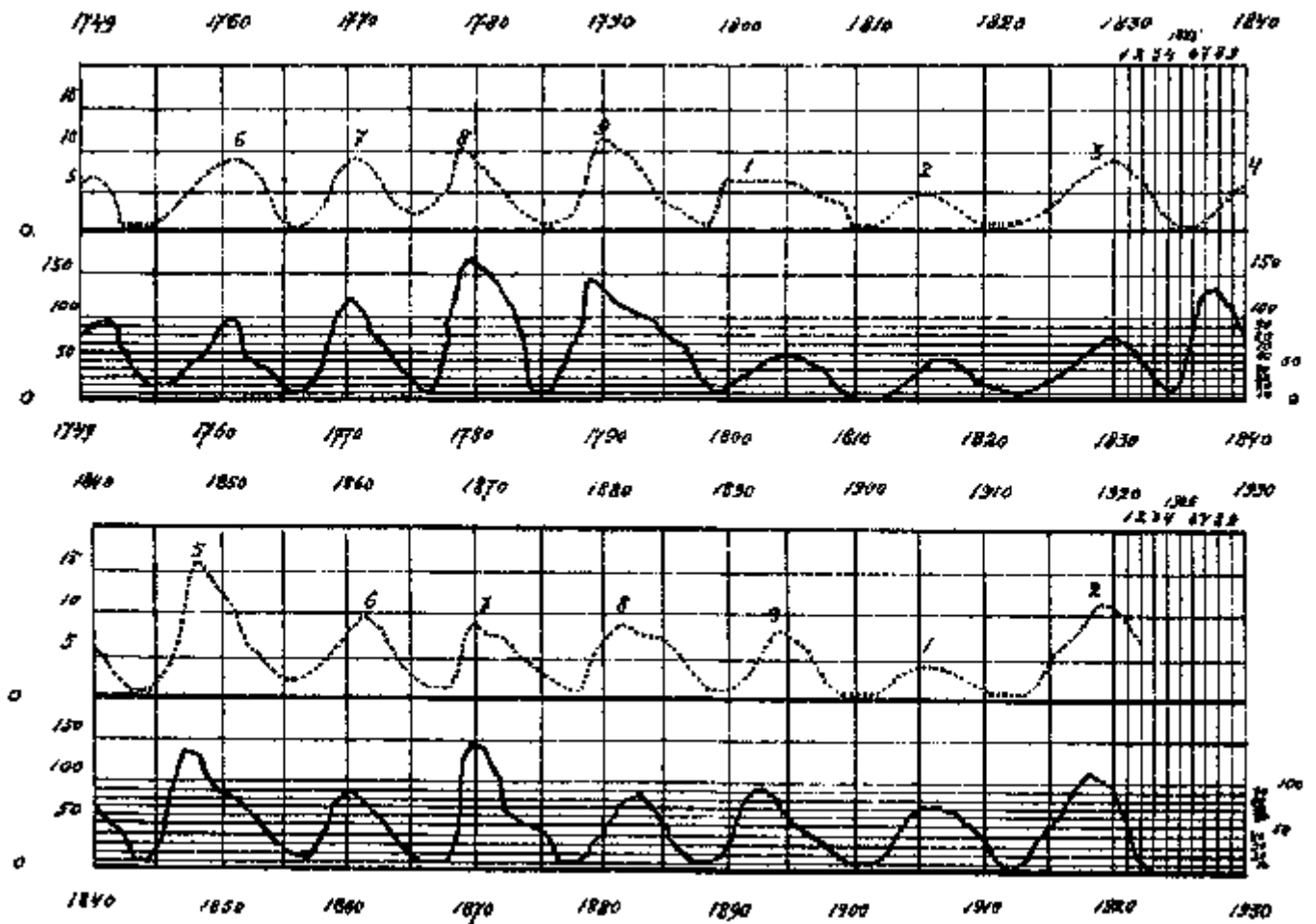


Fig 4. Parallelism of the curves of sun-spot activity (below) and the universal human military-political activity (above) from 1749 till 1922

SCHEMATIC SUMMARY OF PROPERTIES OF A COMPLETE HISTORIOMETRIC CYCLE

Sunspot activity	SA cycle Duration	11.124 Year, in the arithmetic mean			
	Duration of phases				
	Phase #	I	II	III	IV
	Sunspot number	Minimum	Gradual increase in sunspots and their groups	Maximum	Gradual decrease in sunspots and their groups
Social activity of human masses	Historiometric Cycle (HC) duration – 11 years (in the arithmetic mean)				
	Phase duration	3 (in average)	2 (in average)	3 (in average)	3 (in average)
	Phase name	Minimal Excitability (Epoch of relaxation)	Growth of Excitability	Maximal Excitability (concentration)	Decline of Excitability
	Rate of originations of historical events	Minimal number of originations of social movements of masses	Gradual increase in number of such movements	Maximal number of originations of social movements of masses	Gradual decrease in number of such movements
	Per Phase	5 %	20 %	60 %	15 %
	Per year	1.7 %	10 %	20 %	5 %
	Socio-psychological behaviour of masses per HC phases	Differentiation of masses, apathy to social matters, peaceable disposition of masses, tractability, tolerance, depression, static character of masses	1. Rise of social order ideas in masses and onset of collective concentration. 2. Grouping of ideas and masses. 3. Appearing of one prevailing idea and general consolidation of masses	I. a. Masses are influenced by Popular and military leaders, speakers, press; b. Effectuality of ideas being circulated in masses. II. a. Swiftiness in development of popular movements; b) increase of territory sweep; c) integration of masses; d) individualization of collectives; e) high dynamics of masses	Progressive slowness of social reactions to irritations. Degradation of concentrated action, enthusiasm, inspiration, etc.
	Note	These phenomena are developed provided that political, military or other exciting factors are present in the society			
	Historical events per Cycle Phases	Making peace pacts, not large-scale aggressions, surrenders, occupations, maximal reduction of parliamentary rights, strengthening of autocracy	Hesitation in solving of military and political questions; preparations to war; worsening of international relations; initiating of conspiracies; exposure of military-political tendencies	Moving forward of popular and military leaders, statesmen; triumph of ideas that were supported by masses; maximal raise of parliamentary rights; democratic and social reforms; democracy, constraining of autocracy. Revolutions, rebellions, mutinies, wars, expeditions, campaigns, emigrations, persecutions and other outbursts of large-scale people's activity	Disintegration of military and political organizations; separatism; rejection of claims of state or international level; dispersal or breakdown of popular assemblies; popular uprisings are quelled easily; completion of events that arose at the previous phase

5.3. A Sketch on Scientific Biography of Alexander Tchijevsky

(February 8, 1897 - December 20, 1964)



Eight years of WWI, Revolution (1917) and Civil War (1918-1921) have killed the Russian economy. This forced the bolsheviks to allow private property for a decade (this period was called NEP – New Economic Policy). Though they tried to introduce their bastard ideology in every sphere of life from the very incipient revolt, they had neither enough administrative forces, nor recruited scientists, nor time for achieving this goal in the twenties.

Just at that time, a graduate of Moscow Archeological Institute and Moscow Commercial College, Alexander Leonidovich Tchijevsky (or Chijevsky), had started to establish contacts between history, Mathematics and Biology: having been inspired by his ideas, he prepared his thesis on "Analysis of Periodicity of the World Wide Process" in search of a PhD in World History at the Scientific Council of the History and Philology Faculty of Moscow University in 1918.

His work received a positive approval from the official opponents, famous historians, who had carefully studied the thesis. Due to the extremely unusual subject of his thesis the members of the Council were in doubt, but they concluded that they were dealing either with a great delusion, or with an ingenious discovery and, in order that the progeny should not accuse them of a fateful error, they adjudged him a PhD since with respect to his professional maturity (according to the work done) A. Tchijevsky deserved this degree.

In 1922 he made a report on the discovery of the effect the periodicity of sunspot activity exerts on the rise and spreading of epidemics, which expands the concepts of his PhD thesis by taking into account the electromagnetic factors of influence.

These two discoveries were first published in 1600 copies, with sufficient details, in 1924 [2].

Prof. Tchijevsky is not the first who noticed a correlation between the periodicity of sunspot activity (Solar activity, SA, in our days), food prices, etc. But he was the first who (1) discovered the synchronism between the SA cycles and social processes, (2) proposed a systematic forecasting approach that was based on this synchronism, and (3) assumed the electromagnetic and corpuscular origin of influence the Sun exerts on people, while considering the sunspot index as an admissible indicator of SA level. On these grounds he was the first in modern science, to put forward the concept that the fate of mankind depends on the fate of the Universe and calls upon the disclosure of the Solar effects on biological subjects and psychics from the viewpoint of physics and chemistry. Thus, he wrote: "Let us not restrict our thinking to the bounds of the Solar System but avow that other Space forces cannot be excluded from the forming of large-scale effects in society, in this or that way, even if they are unknown due to our ignorance."

He called this 72-page work a short sketch. But the results of his researches in full, relevant to Solar activity and history were not published any more in the USSR, even after his death. Only after the revolution of 1991, they came into life [3]. Publication of [2] made him a world famous scientist, but a pariah as well – mostly by soviet authorities. In this state of outcast and misery he lived until the end of his life.

Perhaps because it was hardly possible, if not hazardous to life, to continue to attract attention to his historical discoveries in the time of the Lenin/Stalin terror, that he concentrated his attention on the other, biological, side of his discovery by continuing his researches in the direction of heliobiology, viz. on physical and chemical effects the Solar radiation exerts on biological subjects.

However, in spite of the fact that after the publication of [2] he was officially engaged in air-ionization, not in historical studies, the resonance that was induced by this work had never stopped. He was commanded to officially repudiate the results of his long-term investigations, to repent and publicly to desecrate and abandon his work. In particular, this demand was recorded in the minutes of the Agriculture Academy of USSR. But he refused to do this.

In the twenties, Stalin's repressive power was not as almighty as at the end of thirties. Besides, to some extent NEP had weakened the ideological press in the twenties. Perhaps this was why a rare soviet leader was able to stand up for his own opinion not in corroboration with that of the party's. One of them was the first soviet minister of public health, N. Semashko, whose support of researches being conducted by Tchijevsky and editing of the latter's manuscripts had drawn Stalin's dissatisfaction. But in a private meeting with Stalin, Semashko had upheld the concepts of Tchijevsky and, for some time, the latter was left alone.

Since 1918 Tchijevsky studied the separate elements of a possible Sun-Earth interaction mechanisms. His primal attention was devoted to the problem of ionization of air. At his own miserable expense, he arranged a laboratory at home. At the end of 1919 he received the first results that were reported in Kaluga Society for the study of Nature which were then sent to a number of scientists in Russia and abroad. You can imagine his pleasure when he received a reply from Nobel Prize laureate S. Arrhenius who invited Tchijevsky to continue his studies at his laboratory. But he was not allowed to take this proposal; moreover, he became unemployed as he was required to give up all his jobs before going abroad.

In 1923 Tchijevsky managed to take a job at a zoological laboratory being headed by V. Durov, where he studied the influence air-ions exert on people and animals, until 1931. The results of his work on air-ionization and space biology were highly appreciated in Europe and USA. For his work in heliobiology and Solar activity cycles, he was elected to Toulon Academy of Sciences. He was invited to have a lecture course on biophysics at the Columbia University in NY. In appreciation of his work on air-ionization, the soviet government established the Central scientific-research laboratory on air-ionification, and he was appointed head of this lab. Professor Tchijevsky worked there for 11 years and published dozens of articles devoted to this subject. In particular, he paid much attention to the practical implication of air-ions in poultry farming, dyeing industry, and medicine. He invented a device for the ionization of air in premises that is now known as the Tchijevsky's chandelier.

Meanwhile, if in 1931 one of the basic soviet official newspapers, "Izvestia" qualifies his experimental results as "a brilliant achievement of soviet science that opens a new era in reconstruction of animal husbandry", in 1935 the sentinels of bolshevik ideology took over and the principal communist party newspaper "Pravda" dedicated an article to him: "An Enemy Under a Mask of Scientist" that was followed by a series of denunciations the profound sense of which is seen from their titles – e.g.: "infinite impudence of mock-professor Tchijevsky". However, though such a "disclosure" in those days was a sign of inevitable arrest and imprisonment, he was not repressed. Why? Why a scientist being dismissed from all his jobs and marked by this fiend label has lost his lab, but not freedom? Those, who knew him, attribute this phenomenon to his virtually world wide fame.

At the end of twenties, Stalin shut down NEP. Since then, the concentration camps established by Lenin began to swell with farmers, businessmen, and scientists who ventured to have their own point of view. However, though the Lab was closed, he continued to work at home (in those days any private establishment was absolutely prohibited). But from 1931 to 1959 his works were not published in the USSR (except for a scientific report on epidemics in 1934), though his articles were still published in Europe until 1936.

In 1939, the First International Congress on Biophysics and Space Biology was opened in New York where four honorary Presidents were elected, and Prof. Tchijevsky – among them. Already at that time it was acknowledged that he disclosed definite mechanisms of resonance between the live cells and Earth's biosphere with the mighty resonator – the Sun, through the electromagnetic and corpuscular Solar emission. No reason is seen except that this international support and acknowledgement of his scientific results, had postponed his inevitable fate of imprisonment until 1942.

It is really amazing that a scientist, who not only ventured to state but even to support a PhD thesis pertaining to Solar activity effects on the minds of people, had remained out of prison for such a long period of time. As in the state of triumph of terroristic ideology his work [2] not only shows that bolsheviks succeeded with the revolution of 1917 not due to the trustworthiness of the "Lenin-Stalin" ideology, but to a greater degree – due to a successful use of large-scale psychosis in the circumstances of war and economic dislocation around the Solar activity maximum in 1917. The more so as the large-scale sharpening of terror and imprisonment started around the Solar activity maxima in 1928 and 1937, in close correspondence with Tchijevsky's forecast.

In 1942, the so-called "Special Trio" – an extrajudicial organ of security services had sentenced him to imprisonment in a concentration camp and to subsequent exile. In essence, he was doomed. He refused to wear a large camp number over the back, objected to being treated with familiarity, and he stuck up for a sick man... . Hardly alive, he was removed from a punishment cell, only after the authorities were reminded that he was a biologist and could help with the typhoid epidemic that struck the camp. It was necessary to stop it by improvised means, such as bleaching powder etc. He succeeded in doing this.

As a reward, he was permitted to organize a kind of clinical laboratory (!) at the camp hospital, where he studied some aspects of moving blood being important for military medicine. Fifteen years later, by a directive of the President of Academy of Sciences of USSR, the Academy issued a Tchijevsky's monograph: "Structural analysis of moving blood", the experimental basis for which was obtained at "clinical laboratory of Saviour (by the name of nearby church) hospital". In this monograph Tchijevsky writes: "Complete verification of the theory requires special equipment. However, its basic principles were acknowledged in 1948-1949 by experiments that required almost no equipment except for microscope and glass capillaries. Subsequent mathematical analysis has allowed him to form the principles for the description of the observed phenomena". The witnesses add that that microscope was the only one, and the camp commander set a courier several times to Moscow for reagents and laboratory animals for the convict scientist.

On January 22, 1950, Tchijevsky was discharged, but he refused to leave the camp (!) as he had not completed an important experiment. In 33 days, the result was obtained, and with permission to take his scientific archive, he obtained his "freedom": to go into exile in the Ural mountains and Kazakhstan, where he lived until he was rehabilitated. Prof. Tchijevsky continued his researches there in hemodynamics and air-ionization, implemented the results of this work at several coal mines in Karaganda coal basin and, after that – in Moscow, he implemented an air-ion-therapy at several hospitals.

In 1958 he returned to Moscow, together with his wife, who also had come through the camp's wretchedness, in a tiny one-room flat. But the inter-shelf space in that room was filled with the bright sunny landscapes by the brush of Tchijevsky, who was also a poet and lover of theatre.

His monograph "Air ionization in national economy", in 1960, for a long time contained the most fundamental description of the subject. In meteorology and other Earth sciences as well, he overturned the "Geocentric" approach in the study of various Earth's phenomena by taking in account the Solar and other Space factors of influence.

He went to the better world on December 20, 1964. And three days later the governing communist party, by the hand of one A. Erochin, had summarised his life and scientific achievements in a party journal under the title of "Black Spots". This bouquet for the scientist's coffin states: "Tchijevsky explains all the paramount events in the history of mankind, including the Great Revolution of 1917 and the activity of Lenin, by a mass psychosis, as if it arises as a result of sunspot activity...", and resumes with "inconsistency and damage arising from this "scientific balderdash" ...".

However, a series of progressively thinking scientists and journalists, L. Golovanov and A. Lebedinsky among them, had decided to defend the name of the late scientist. They strived for a creation of a Commission on the scientific heritage of professor Tchijevsky at the Institute of Technique and Natural History of Academy of Sciences of USSR. And already 3 months later, in March 1965, the same journal published the full text of the conclusion of this Commission (by the opinion of the author of [1], this is the first case in the soviet press, when the refutation of lies took more place than the lie itself.).

But 25 more years had passed before Tchijevsky's scientific works devoted to Solar activity were published in Russia in full. After the first publication of his small-circulation sketch [2] in 1924, it was reviewed in a popular journal "Chemistry and Life" in 1989-1990, and, after that - as a full copy of [2] with a circulation of 100 000. Only in 1995, his fundamental 768-page monograph [3], with all required statistics and references, was issued. Its first, basic part: "The Earth in the Embrace of Sun" (600 pages) was written in 1929 – 1930. Other works also either were not published, or disappeared, such as "Heliotaraksia", of which none of the 200 copies is accessible in Russia now.

Of course, most of the references to physical effects in [3] have become out of date, and new statistics and physical effects are found due to a fantastic growth of possibilities with which electronics and space flights now present us. But all these results either support, or develop the basic concepts that were put forward by Tchijevsky a century ago.

References (in Russian): 1. V. Stantzo. "With Sun in blood we were born..." Chemistry & Life, 1989, N.12, p.27-31. 2. A.L. Tchijevsky. Physical Factors of the Historical Process. Kaluga, 1924.-72p. 3. A.L. Tchijevsky. The Cosmic Pulse of Life. Moscow, 1995. - 768p.

Compiled by S. Smelyakov

5.4. the Golden section distribution of significant historical events over the Solar cycles

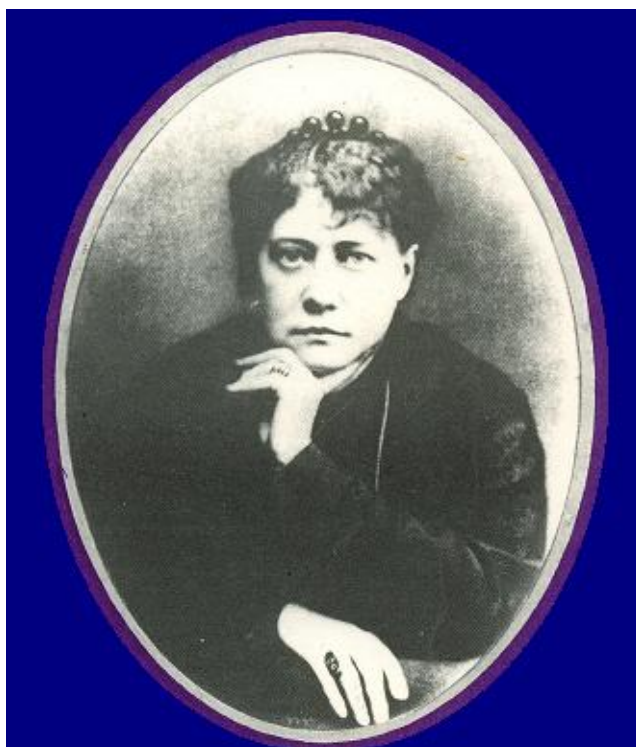
In compliance with Tchijevsky's data [2] covering the time interval from the 5th century BC to XIX century, we obtain that the quantity n_k presenting a number of years in a century k which are marked by significant historical events, takes the values being close to Fibonacci numbers and the terms of the series z (Table 5.1); at this, an absolute error of deviation of values n_k ($k = 1, 2, \dots, 24$) from the nearest values u_i , v_j is quite small and equals to $\Delta = 1.7$ yr (with the exception of the XVIII century data, $n_{18} = 65$), while the respective relative error is about 3%.

It is interesting, that Tchijevsky put the question mark at number 23 (for the 2nd century BC), though in the context of the considered Model the more questions could call the number 65, the appearing of which might probably be explained by definite subjectivity in evaluating the XVIII century being stormy on events, other things being equal. Hence, high accuracy of n_k distribution over the terms of the series z is also can be taken as the argument for the ATS.

Table 5.1. Distribution of the value n_k (number of years within a century which manifest significant historical events) over the united Fibonacci series $z = u \cup v$

Terms of series u_i, v_j	n_k values (for the sample of 24 centuries)	Average, \bar{n}_k	Deviation of n_k from z_i , $\Delta_i = n_k - z $, $z = \{u_i \text{ or } v_j\}$
$u_8 = 21$	23	23	2
$v_7 = 29$	27, 28, 28, 29	28	2, 1, 1, 0
$u_9 = 34$	32, 36, 37, 37	35.5	2, 2, 3, 3
$v_8 = 47$	44, 45, 47, 49	46.3	3, 2, 0, 2
$u_{10} = 55$	52, 53, 53, 54, 56, 56, 56, 57, 58	55	3, 2, 2, 1, 1, 1, 1, 2, 3
$v_9 = 76$	76	76	0
$u_{11} = 89$	86	86	3
Average =			1.7, $\delta \approx 3\%$

This Part is devoted to the blessed memory of Helen Blavatsky



6. Esoteric significance of Solar cycles

6.1. Introduction

The ancient wisdom of many cultures pays special attention to the mystery of the Sun. To this end, H.P. Blavatsky (H.P.B.) notes that the mystery of Sun is, perhaps, the greatest of all the countless secrets of Occultism [46, Vol. III, Sec. XXIII]. But up to the end of the XIX century the most part of these mysteries remained unknown, until some important revelations pertaining to the subject of this study were promulgated by Helen Blavatsky in the "The Secret Doctrine" [46].

By taking it for granted, that the ancient Hierophants in India, Egypt, Babylon and other places were well acquainted with astronomy and mathematics [46, et al], it presents an interest, *further to the Mayan Calendar*, to analyze, with the use of these revealed concepts and geometrical language of ancient Egypt artefacts, how the basic elements of ATS correlate with them.

For this, in this Part a synopsis of these concepts is presented which relate to the Solar cycles that were presented in [46] and further developed by the former International Head of the Theosophical Society (1929 – 1942) G. de Purucker, Ph.D. [47], where the associate ATS analogues are given in curly braces. The aim of this discussion is to emphasize the substantial actuality of 11-year Solar cycles and their average length T_0 for our spiritual ancestors, including the ancient Egypt Hierophants, and, on these ground, to show that these Solar cycle correlations are reflected in their Temples and symbols, and not at random.

To this end, in continuation of this synopsis an outline of Esoteric roots of the Great Pyramid, the Ankh and some other artefacts is given in Part 7. On this basis, the Platform for Studying of the Great Pyramid and other Egyptian Artefacts is put forward.

In the subsequent Sections of Part 7 a series of direct correlations between the main ATS elements and some basic Egyptian artefacts is shown, which allows us to conclude, that the Solar cycles were not only

well-known to the Hierophants in their numerical form and qualitative significance, but also reflected in their Temples and symbols.

6.2. A synopsis of the Esoteric concepts relative to the Solar cycles

Note. This Section presents an abbreviation of the Sections "Sun-spots and the Circulation of the Solar System" and "Terrestrial Magnetism" of [47]; other references are given explicitly.

"The Sun is the heart of the Solar World (System) and its brain is hidden behind the (visible) Sun. From thence, sensation is radiated into every nerve-centre of the great body, and the waves of the life-essence flow into each artery and vein. ... The planets are its limbs and pulses." [46, I, Part III, Sec.VIII].

What are the sun-spots? Similarly one might ask the question: What are the pores of the human skin? The sun-spots are the outer mouths of channels through which the rivers of lives go forth from and re-enter the sun. They are the openings (if we do not distort this word 'openings' too greatly) by which and through which the sun expels to the remotest corners of its System its own accumulated store of solar vitality; and it is this solar vitality which gives life to all things within the aura or atmosphere of the sun, which aura extends even to the remotest boundaries of the solar system. It is through the sun-spots again that this solar blood, this solar energy, this solar electricity or magnetism, more accurately speaking psycho-magnetism, returns to be purified in the heart which once sent it forth some twelve years previously {significance of planetary and Auric series which are synchronized by the average Solar cycle period T_0 }. The sun-spot periodicity is usually now reckoned at 11.2 of our years {average Solar cycle length T_0 }; but it has been found that this cycle is not always exact.

Strictly speaking, the cycle of sun-spots is a ten-year cycle. The current of vitality which governs this cycle requires, however, another year to pass through the sun, and still another year for its return through the sun, which makes twelve years all told. But cycles succeed cycles. Each cycle is a vibration, a new beat of the pulse of the sun. The sun is a heart, a beating heart; in another sense of the word it is a brain. There is a temptation to use these two words, 'heart' and 'brain' in what we might call a literal sense, and it wanders not far from fact, from truth, for in relation to its own Solar System, the Sun *is* its heart. It is also its brain. It is these two and yet it is a coalescence of these two. The two are unified in the one, and yet it is not the physical globe which we see which is the true head and true heart, except so far as the physical Universe is concerned. The real head, the real heart, both coalescing and working as one, are the Divinity behind and above and within the physical vehicle which we sense as our glorious day-star.

As H.P.B. explained it in one of her important early articles:

If the "Adepts" are asked: "What, then, in your views, is the nature of our sun and what is there beyond that cosmic veil?" – they answer: *beyond* rotates and beats the *heart and head* of our system; externally is spread its robe, the nature of which is not matter, whether solid, liquid, or gaseous, such as you are acquainted with, but *vital* electricity, condensed and made visible. ... Undoubtedly were the "robes", the dazzling drapery which now envelopes the whole of the sun's globe withdrawn ... our whole universe would be reduced to ashes. *Jupiter Fulminator* revealing himself to his beloved would incinerate her instantly. But it can never be. The protecting shell is of a thickness and at a distance from the universal HEART that can hardly be ever calculated by your mathematicians." [The Theosophist, Vol. IV, No. 12 (48), September. 1883, p 300.]

As the heart and brain of its entire system, the Sun sends a twelve-faceted life into every atom of its own universe, the Solar Universe of which we form an integral part. The Sun is pre-eminently and essentially a giver of life. Cosmogonically, it is our Elder Brother, and not at all our physical parent as modern scientific speculations have it; yet it is also in a vital sense our Father-Mother, because through the Sun, from planes superior to our own, come down the invigorating life-streams from systems and worlds above ours; and our planet Terra, as all the other planets, receives its own share of these life-streams, precisely as every individual atom and every entity, on the microcosmic scale, receives also a portion of these life-giving

streams, while, at the same time receiving them individually from the Inmost of the Inmost within itself. The Sun is a storehouse of vital-electric energies, vitalizing and informing the endless hosts of beings under its systemic sway, as the great pulsating heart of its system.

Could we see the human heart and watch its vital functioning on another plane, we would see what would appear to us, unless we understood what it was, as a vibrating globe of light, beating with rhythmic regularity a certain normal number of beats per minute of human time.

The sun-spot cycle, as a cycle, is due to the same forces which make the sun-spots themselves. The sun sends forth from itself through these spots currents of psycho-magnetic vitality throughout the entire solar system; and through these spots it receives back the blood, the solar blood, the psycho-magnetic energy, on its return – to be cleansed, purified, in the deep recesses of the solar orb.

As pointed out by H. P. B., in one of the most illuminating passages from her pen:

. . . there is a regular circulation of the vital fluid throughout our system, of which the Sun is the heart – the same as the circulation of the blood in the human body – during the manvantaric solar period, or life; the Sun contracting as rhythmically at every return of it {See the main concept of the Regular model, Part 4}, as the human heart does. Only, instead of performing the round in a second or so, it takes the solar blood ten of its years, and a whole year to pass through its *auricles* and *ventricles* before it washes the *lungs* and passes thence to the great veins and arteries of the system.

This, Science will not deny, since Astronomy knows of the fixed cycle of eleven years when the number of solar spots increases, which *is due to the contraction* of the Solar HEART. The universe (our world in this case) breathes, just as man and every living creature, plant, and even mineral does upon the earth; and as our globe itself breathes every twenty-four hours. ... It is similar to the regular and healthy pulsation of the heart, as the life fluid passes through its hollow muscles. Could the human heart be made luminous, and the living and throbbing organ be made visible, so as to have it reflected upon a screen, such as used by the astronomers in their lectures – say for the moon – then every one would see the sun-spot phenomenon repeated every second – due to its contraction and the rushing of the blood [46, Vol. I, Sec. VIII].

{To this end, the *model epochs* of the Regular model of Solar cycle energy emission centres reflect the "proper" moments for cycle maxima, from which the observed maxima deviate, as in reality a human's heart does, but in the Golden section manner – see part 4}

With respect to this concept, in a foot-note it is described [47] a series of observations on the relation of human and solar heart beats, which take place according to analogical fundamental time-periods based on the esoteric series of digits **432** {this number is specially considered below, in Part 7}.

The periodicity of the sun-spots coincides with the mean periods not only of the planets which are nearest the Earth, but of all the planets of our solar system – those planets which are visible as well as the scores of planets which are invisible. Remember that our Sun is the beating heart, the sensitive brain also, of our solar-systemic world and consequently every movement of this beating heart is intimately related to, and is in exact synchronous accord in all respects with, every other movement, great or small, which takes place within the members of its solar family.

Every celestial body: Sun of course, nebula, comet, planet, is the dwelling-place of a spiritual being, in other words the physical efflux or manifestation of a god. All these divine beings, or cosmic or planetary or solar spirits, are organs – or members of the life of the Spiritual Sun, the Supreme Divinity of our Solar System.

In using these terms, 'gods,' 'cosmic spirits,' 'planetary spirits,' etc., it should always be remembered that no reference is made thereby to the physical body or vehicle of any celestial orb which our eyes see, or do not see, as the case may be, but to its indwelling life, to its indwelling spiritual, intellectual, and vital essence. The solar system, from one standpoint, can rightly and truly be looked upon as a vital-mechanical organic entity, functioning in its physical and astral aspects as a mechanism, but nevertheless a mechanism which is ensouled – ensouled by living beings greatly varying in evolutionary degree, of course, but who are nevertheless spiritual beings. The Sun, for instance, is a divine being in its inmost parts or essence.

It is the giant planet of our solar system, Jupiter, which, especially in its time-periods, is in particular relation with the sun-spot cycle, the periodic times of sun-spot maxima and minima. Jupiter's year is some twelve of our years – more accurately 11.86 of our years; while the sun-spot period is reckoned, as said before, at 11.2 or 11.5 of our years.

There is a large body of most interesting facts showing the connexion between the sun-spot cycles and the periods of the planets of our Solar System; for the sun-spot cycles and the orbital periods of the planets, i.e., their respective 'years,' are as intimately geared together, as closely related, both causally and effectually, as are the interlocking wheels of some intricate physical mechanism. When we remember that our Sun is at once the 'heart' and the 'brain' of our Solar System and that it is both a giver as well as a receiver of the vitality of the Solar System and furthermore of those far higher powers and potencies thereof which we humans ordinarily call spiritual and intellectual and psychical, we can perhaps picture to our minds, at least somewhat vaguely, the relations of sun-spot periods to the respective planetary 'years,' or planetary periods, of the planets of the Solar System²⁰.

²⁰ Doubtless the astronomical mathematicians or mathematical astronomers of the future will discover this intimate cyclical relation of the planetary periods with the sun-spot period, or with an aggregate sum of sun-spot periods; possibly the rule of the 'lowest common multiple' will be a hint to those who have a mathematical bent of mind in discovering how the planets work together with the Sun towards a common ultimate destiny in the evolutionary scheme. {See the planetary and Auric series, and the algebraic structure of their average periods which are synchronized by Solar cycle period T_o , Parts 2, 3}.

Now the sun-spots are both vents as well as receiving orifices – to use ordinary human terms; and in and out of these sun-spots stream in steady flow – and at certain periods in veritable in-rushes and out-rushes – not only streams of lives, but their involved masses of psycho-magnetic-vital powers. These 'Rivers of Lives' are intimately connected with the planetary periods – otherwise the 'years' of the planets – in which the respective positions taken by the planets at different times, or what modern astrologers would call their 'aspects', mark critical points in the interlocking 'celestial mechanics' of the Solar System: the term 'celestial mechanics' not being employed in the sense of mere mechanisms, but applicable directly to the circulations and interblendings of the various planetary magnetisms, coalescing with the magnetism of the Sun itself.

Suffice it to say here, therefore (because most of this teaching belongs to higher esoteric Degrees), that the great cycles on Earth, as well as all smaller ones indeed, are the effects of cosmic causes {See Part 2 – the synchronism of Solar and Terrestrial periods}, which causes are marked in their beginnings of operations by the positions in their orbits of the different planets and their 'aspects' to the Sun. Thus, at the beginning of Kali-Yuga on Earth {that coincides with the beginning of the Mayan calendar and principal Auric benchmark of evolutionary time – See Part 3}, certain planets were grouped together, it is stated by ancient Hindu books, in one of the Zodiacal Signs, aspecting certain other planets, thus powerfully affecting the Sun which in turn likewise powerfully reacted upon such grouping; and the Earth being involved as a unit in this group, the end of the Dwapara-Yuga took place followed by the opening of the Kali, which important event was likewise marked in history by the death of the Avatara Krishna. But I have said enough.

Every planet in the solar system not only has its own individual effect or influence on the period of the sun-spots, but also you may phrase this same truth conversely: the period of sun-spots is intimately connected with and influences the vital activities of all the planets of our solar system, whether 'those planets be visible to us or invisible; and when we speak of 'invisible' planets these must not be understood as being necessarily superior to those which our physical eyes can see. When we speak of planets which are 'visible,' we mean only this: that our eyes can see certain planets. That is all the meaning of this word 'visible.'

This fact does not give to the visible planets either a character or characteristics of superiority or indeed inferiority; nor does it imply that the invisible planets have attributes of inferiority or of superiority. Visibility simply means that our eyes, because of having evolved on this plane, can see certain celestial bodies belonging to this plane: just exactly as our eyes can take in, in other words see, a certain range of electro-magnetic vibrations, which we humans call 'light.' There are other ranges of electro-magnetic vibrations

which we humans sense as heat; and still other ranges of electro-magnetic vibrations which are now known to us as the X-Rays, the Cosmic Rays; and so forth.

If you remember, then, that the Sun is the beating heart of our system, and that the sun-spot cycle including its maximum and its minimum phases is just like the expanding and contracting of the human heart, you will understand that the fact is as that fact also is in the human body, where every organ and indeed every molecule of it is intimately connected with the beating of the heart. So is it in the Solar System: every celestial body in the solar system is intimately connected with the beating of the solar heart.²²

²² "The idea that the Sun is a *pulsating star* is not a new one in scientific circles. It was put forward by Hilfiker at the Observatory of Neuchatel (Switzerland) as far back as the years 1840-1870. Hilfiker proved that the diameter of the Sun was at its maximum when the number of sun-spots on its surface was at its minimum, and vice versa: in other words that the phenomenon of the *then* supposed pulsations of the Sun was periodical and with a period equal but of opposite phase to that of the sun-spots. His conclusions were supported by Secchi. Later on, after considerable contention on the part of various researchers, the facts regarding the actual contraction and lengthening of the solar equatorial and polar radii were definitely established, especially through the investigations of Armellini, at the Royal Observatory of the Campidoglio, in Rome. According to his researches, the maximum of the sun-spots' activity occurs some two or three years before the minimum of the sun's volume, and, in the same way, the minimum of the sun-spots takes place a little before the maximum dilatation of the Sun. These scientific investigations confirm once more the teachings of the Esoteric Philosophy with regard to the nature of the Sun and its role in the Solar System." [Summarized from an article entitled: 'Is the Sun a Pulsating Heart?'. The Theosophical Path, XXXII. 273-82, March, 1927.]

There are many mysteries connected with the sun-spots. These may be described as being 'windows' through which we have the vaguest kind of glimpses into the temple-body of a living god. We may speak of them also, changing this figure of speech a bit, as the embrasures in a Fort or House of Life, through which embrasures we may cast – provided indeed we can do so! – our vision, and see at least a little of what takes place within. Through the sun-spots we are looking a little way into the dark invisible heart of the Sun. We may look upon them as channels, canals, openings, vents, which serve for the passing into the Sun, and for the ejection from the Sun, of Rivers of Lives.

These Rivers of Lives are of many grades, high, low, and intermediate. Every Monad, every life, of all the countless myriads which infill the solar system, must pass again and again and again and again at cyclic periods into and through the solar heart, and come out there from; just as every drop of blood in the human body, and every molecule of every drop of blood, and every atom of every molecule of every drop of blood, must pass into and through the human heart, and come out from it again to pursue its destiny along the circulations of the human body. Just so is it with the beating heart and the circulations of our solar Universe.

There are great mysteries connected with the sun. For instance, what is the cause of this incessant outpouring of energy through so many aeons? The modern astronomical theory suggests that it is caused by atomic dissociation thus releasing energy previously imprisoned in atomic structure. These new theories of astrochemistry are exceedingly interesting, incomparably superior to the theories of a generation or two last past. This particular theory, however, is entirely too mechanical. Being mechanical, it does not fully explain. It is therefore but an adumbration of the truth. It is not denied by the Masters of Wisdom that there are elements of truth in this new and brilliant idea, and it is a beautiful and very suggestive idea as compared with the ideas or theories of the past; but yet it is not sufficiently broad. It does not take in all factors of the equation.

What brought the sun into being in the beginning? What governs its course? What is the cause of its incessant outpouring of energy? What makes it what it is and not something else? These are the main factors in the problem, the main elements of the problem, and they must be explained. Every sun is a living entity, and its source of energy is found within its own heart. It derives from out itself its ceaseless streams of

force or energy, which it is so unceasingly pouring into space through millions, hundreds of millions, billions, and even trillions of years." ²⁴

²⁴Cf. [The Mahatma Letters to A. P. Sinnett, p. 168]: "The sun gives all and takes back nothing from its system. The sun gathers nothing 'at the poles' – which are always free even from the famous 'red flames' at all times, not only during the eclipses. . . . Nothing can reach the sun from without the boundaries of its own system in the shape of such gross matter as 'attenuated gases.' Every bit of matter in all its seven states is necessary to the vitality of the various and numberless systems – worlds in formation, suns awakening anew to life, etc., and they have none to spare even for their best neighbours and next of kin. They are mothers, not stepmothers, and would not take away one crumb from the nutrition of their children. . . . For indeed, there is but one thing – radiant energy which is inexhaustible and knows neither increase nor decrease and will go on with its self-generating work to the end of the Solar manvantara."

Atomic dissociation may, from a mechanical point of view, account to a certain degree for the *modus*, but does not explain the origin. All the sun's energy originally comes from within; on its way outward it feeds the entire solar system with life, with spirit, with psychical powers. For however great may be the physical influence of the sun, it is a minor thing, very small indeed, as compared with the enormous part that the sun plays in the invisible realms. The sun is the centre, the beating heart, of our solar system, which it feeds with the life that it generates within its own heart, and pours so unceasingly forth.

The dissociation of the atoms may be one aspect or phase by which this is accomplished in the physical solar veil, which we, seeing it with our eyes, call the 'sun'; but it is merely the veil or reflexion of the true sun. The vitality, the intellectual power, that the sun is constantly pouring forth from itself, together with the spiritual energy that it ceaselessly emanates, are all derived from the god which is its heart of hearts. And this god should not be thought of as being solely at the heart of the physical sun. That is not the idea. This god is in what are to us the invisible realms and spheres. Just so the real man does not dwell in his physical part, for the entire physical body is but the veil or garment or reflexion of the real man who lives and acts and, strictly speaking, moves in the invisible parts of his constitution.

The question might be asked: How far does the influence of the sun extend? Being the heart of its own solar system, its influence extends throughout that solar system, which it feeds continuously.

Energy or force and matter are fundamentally one thing. What is force to us, is substance on a higher plane than ours. What is matter on our plane, is force or energy on a plane inferior to ours.

Deduction: Could you see, had you the eyes to vision, to be able to trace, the reach of the energies pouring forth from the sun and extending to the outermost bounds of its kingdom, which is the solar system, and could you do this by rising to a higher plane, you would see what we call the empty space of our solar system as one vast substantial body. And, could you glimpse this apparently substantial energy through your telescope, from some distant planet circling round some distant star, you would say: "See the irresolvable nebula out there in the spacial distance!" What you would see and call the 'irresolvable nebula' would be simply the flood of energy, of life, of vitality, of substance, pouring forth from the heart of the sun, and returning to it in regular cyclic intervals and by-roads and pathways, which last are called the 'Circulations of the Cosmos' – the pathways which all entities follow in passing from planet to planet, and from planet to sun, and from sun on their returning journey to planet: a circulation truly of the life-blood, the life-essence, of the solar system.

Thus far does the influence of the sun extend. It is all-permeant within the bounds of its own kingdom – and even beyond in its more ethereal essences. It goes everywhere therein. It is the life which infills everything, and inspirits everything, and inspires everything.

The two poles are said to be the store-houses, the receptacles and liberators, at the same time, of Cosmic and terrestrial Vitality (Electricity): from the surplus of which the Earth, had it not been for these two natural 'safety-valves,' would have been rent to pieces long ago [46, Vol. I].

There is a very close and important connexion between the sun-spot cycle and terrestrial magnetism, particularly at the Poles of the Earth. This connexion is as important with respect to the North Pole as it is with respect to the South Pole, although there exists a very important difference between the two Poles, a difference of quality in their respective magnetisms.

To use the ancient metaphorical manner of speaking, there is indeed a 'Door of Horn,' as there is a 'Door of Ivory,' through which there enter and leave the Earth, not only celestial influences, but the souls of men and other beings. Mystical Greek and Roman writers said that through the 'Door of Horn' came and went one class of entities and influences, while through the 'Door of Ivory' came and went an opposite class of entities and influences. One of these doors, or entrances, is the portal of ingress, or entry, this door is one of the Poles in other words, and in this case it is the North Pole; and the other or South Pole of the Earth is the Earth's vent, or door of egress. All things that are great, and good, and lofty, and high, and elevating, and spiritual, belong to or are connected with the Gate or Door of Horn at the North Pole; and all things that are evil and foul, bad and degrading, impure and unclean, pertain to the vent of the Earth, or the South Pole which is the Gate or Door of Ivory.

The eleven year sun-spot cycle is one which affects very intimately indeed all the planets of the solar family, and therefore the Earth also, and in each case this takes place through the two opposite poles of any such planet; for each one has its north pole and each one has its south pole. To repeat, so far as the Earth is concerned, the Gate of Horn or the Door of Horn is the North Pole; and the Ivory Gate is the South Pole. The magnetism which reaches the Earth from the Sun — physical magnetism and astral and mental likewise — enters the Earth through the North Pole; it then follows certain circulations within and about and around the Earth, and leaves the Earth at the other Pole. All these magnetic circulations pass around the belt or equator of the Earth a certain number of times, whether the cyclical circulations be brief or of longer duration. At this, the Earth follows very closely the breathing of the Sun. {See Part 2 – the synchronism of Solar and Terrestrial periods, from brain waves up to geological cycles – through the average Solar cycle length times the Golden section powers}.

6.3. Esoteric concepts relative to the geometrical Scale of Time

["*EVOLUTION*" in Manvantara takes place] in cycles and strictly on the basis of *GEOMETRICAL* [mathematical] *PROGRESSION* scale... [46, II, Addenda, Sec. V].

By considering the meaning of two circles which surround two mutually penetrating triangles, H.P.B. reminds the *Caduceus*, associate *lemniscate* and development of an elementary cell, as well as a *neutral point* which is passed two times a cycle [49, Part I, Sec.5]: ... *lemniscate* for the descending evolution from Spirit to Matter, may be other type of spiral for the ascending evolution [46, I, Part II, Sec. X].

7. Solar cycles and ATS in the Artefacts of Egypt

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7.1. The Mystery of the Artefacts of Egypt

The main goal of this section is to review the basic achievements of the Ancient Egypt which pertain to the goal of this study, or rather – to mark them out and to supply with references for more details. This synopsis is based on the works of Helen Blavatsky, but also includes the results of other scientists (whom H.P.B. cites). However, due to the rarity of their books the references are given to her works. Besides, as far as the author of this work is in the lack of English texts of H.P.B.'s works, these references are supplied with the *volume* and *section* numbers. A series of reference, which would allow a reader to gain some insight into a modern state of Pyramidology, though without a claim to completeness, are also presented.

7.1.1. An Outline of Esoteric Roots of the Great Pyramid

HISTORY. From outside, the pyramid symbolises the creative origin of Nature, as well as illustrates the principles of geometry, mathematics, astrology and astronomy. From within, it was a majestic *Temple*, in the dark secluded premises of which the mysteries were performed, and the walls of which were the witnesses of the king's family *initiations*. The porphyry *sarcophagus* (called *coffer* now) was a christening font; after getting out of it, the neophyte was considered "born anew" and became an adept [48, I, Chap. IV].

Astronomy, as separate branch of knowledge, had originated after astrology, and *Astronomer* was the title of the *Highest Hierophant* in Egypt. After reaching of his highest degree, a hierophant arrived from a Holy niche, called *Manneras*, and was given the *Golden Tau*, the Egyptian Cross; after his death, he was buried with this Cross on his chest [46, III, Chap. XXXVI].

Whoever was the builder of the *Great Pyramid* (GP), he was not Cheops (Khufu), and it was finished, by scientific estimates, not later than 5000 BC [46, III, Chap. XXXIII]. With respect to its orientation relative to the stars, its age is estimated as not less than 31 000 years [46, I, Part II, Chap. XXII]. Moreover, the Egyptian Zodiac stores the incontrovertible evidences of records that cover more than three and a half sidereal years, or about 87 000 Earthy years; Egyptian priests assured Herodotus that it was a time when the Earth and Ecliptic Poles coincided [46, II, Part I, Stanza XI].

As a consequence of invasion of Ethiopians and federal governing of 12 chieftains, the Royal power fell into the hands of Amasis, a man of humble origin. This was in 570 BC, and namely Amasis had shattered the priestly power. This way, that ancient theocracy had fallen into decay which was showing before Egypt and the whole world its crowned priests for so many centuries [46, III, Chap. XXXIII].

COMMONALITY OF ANCIENT EGYPT AND OTHER CULTURES. Moses was a sanctified priest; he was acquainted with all the mysteries and occult knowledge of Egyptian Temples, and, thus, with the *Ancient Wisdom*. Namely in this Wisdom one should look for the symbolic and astronomic meaning of this "*Mystery of Mysteries*", the *Great Pyramid*. And as he was acquainted with the Hermetic secrets being *hidden* for the long aeons *in its solid depths*, *measurements* and *proportions* of the *Space*, including our small *Earth* – no wonder that he had used his knowledge, since esoterism of Egypt at one time was the esoterism of the whole world. Besides, the GP, with all its measurements, is revealed, even in details, in the design of the Solomon's Temple and Ark of the Covenant (See also <http://www.gizapyramid.com/arcof.htm>). Moses had used his knowledge of Cosmogonic secrets of the Great Pyramid in constructing the Cosmogony of the Genesis, in symbols and glyphs. He understood the *great danger in passing of such truths to masses* and,

therefore, he had drawn a veil over them to protect against a profanation and presented them allegorically, as the other Masters did [46, III, Chap. VI].

It is also found an identity in beliefs and rituals between the Egyptians and *Maya*; the ancient Holy alphabet of Maya and the Egyptian's one are almost identical [46, I, stance VII]. (*Note, that this correlation is also important with respect to the Evolutional Time – See Part 3 – S.S.*). In Mexico, a Mayan column is found, the sides of which are coated with hieroglyphs and the top is covered by a truncated pyramid with a head being encircled with *Solar disc* with the clearly seen *17 rays*; Note, that *17* – is the *Sacral number* of the *Egyptian Solar discs* [49, III, Sec. 8].

It is known that the numbers *12, 13, 21, 36*, as the Egyptian proportions of Temples are frequently met in Stonehenge, Karnak (Brittany), Mexico and other ancient places; at this, the dimensions of Stonehenge become integer, if we start to measure them in Egyptian cubits [48, I, Chap. XIV]. All this – apart from a numerous similarities in the Egyptian and *Indian* esoteric concepts [46-51].

For this, See also [<http://www.gizapyramid.com/stonehenge.htm>]

GENERAL LEVEL OF knowledge. Herodote acknowledges that all, what the Greeks knew, they received from Egyptians [48, I, Chap. XIV].

In astronomical aspect, the constellation of *Orion* is called Sahu, or *mummy*. The soul of Horus was considered as arising from the dead and ascending to the Heavens, to the Stars of Orion [49, Part I, Sec. I].

A mathematical constant π (**Pi**) relating the circumference of a circle to its diameter, is known, from the ancient times – at least as quite exact proportions *20612:6561* (≈ 3.141594) and *355:113* (≈ 3.141593) which are *correct* to within *6 decimal digits*, apart from the simplified ratio *22:7* (≈ 3.143) with 3 correct digits which is seen in the design of the Great Pyramid. After Moses, an allegory of King's Solomon Temple was created, the dimensions of which coincide with those of the GP since the former are considered to repeat the dimensions of the GP through the Moses' Sanctuary [46, I, Part II, Sec. II.]. The name of that King is considered as presenting the mystic name of the Sun in three languages [48, II, Part VIII, Sec. VI], whereas neither he, nor that Temple had never existed [46, I, Part II, Sec. II]. The above approximations of π are also seen in Genesis, in analysis of Holy names as a reflection of the GP base measurements [46, III, Sec. XVIII].

Since a Divine birth was attributed to this proportion, which was used in astronomical calculations, it was considered as the afflatus and, for this reason, remained secret.

PERIODS. As to the definite values of *large-scale periods* being known to High Priests of Egypt, we consider them later, when appropriate; note here, that they have much in common with the Vedic ones [46-51]. What is especially important now is to emphasise the following statement:

["*EVOLUTION*" in Manvantara takes place] in cycles and strictly on the basis of *GEOMETRICAL* [mathematical] *PROGRESSION* scale... [46, II, Addenda, Sec. V].

This is very seldom and, for this reason, *extremely important* concept for study of *Time*, as it emphasises the existence of *Geometrical Scale of Time* (or growth) in addition to a conventional concept of "linear" time, which develops in cycles of permanent lengths.

So far, the *manifestations* of the *Golden Section* Φ were basically associated with *arts* and *growth* of plants and shells. Might be due to this reason, *improper attention was paid to the Golden Section in study of the GP*, though it is known that it presents, together with the π , the mathematical "identification card" of the Great Pyramid (this problem is specially considered below, in Sec. 7.3).

What is important for this study, this statement directly *supports the concept of ATS* and gives us the *ground to search for its manifestations in the GP and other artefacts*, which are associated with *TIME*, as, in contrast to *Pi*, it is generally associated with "*changing in time*".

SENSITIVE KNOWLEDGE. Nevertheless, *why do we know so little about the Mysteries of Egyptian artefacts ?* These are universal austere silence of priests, purposeful searching and putting to fire of all ancient Egyptian books by the Rome's directives, removing of the Great Pyramid casing stones.

Thus, Herodote (V century BC) reported that *inscriptions* of strange characters were to be found on the *pyramid's casing stones*.

In AD 1179 the Arab historian Abd el Latif recorded that these inscriptions were so numerous that they could have filled "*more than ten thousand written pages*." William of Baldensal, a European visitor of the early fourteenth century, tells how the stones were covered with strange symbols arranged in careful rows. Sadly, *in 1356*, following an earthquake that levelled Cairo, the Arabs robbed the pyramid of its beautiful casing of stones to rebuild mosques and fortresses in the city. As the stones were cut into smaller pieces and reshaped, *all traces of the ancient inscriptions were removed* from them. **A great library of ageless wisdom was lost forever** [http://sacredsites.com/africa/egypt/great_pyramid.html].

But probably the basic cause of our ignorance relative to the *functional destination* of the Great Pyramid lies in the uncompromising requirement as to barring of dissemination of knowledge and practices which relate to *dealing with energies*, in all their forms, in order to prevent their use in unseemly purposes, that is for black magic. Therefore, as far as the Great Pyramid, apart from other destinations, in all probability was used as such an instrument, we hardly would approach to its Mystery, unless we would know what energies and how it puts in action.

7.1.2. Modern studies of the Great Pyramid

A. For better understanding of the Great Pyramid structure, general view, internal chambers, passages and former casing, See the following sites

INTRODUCTION AND OVERVIEW OF THE GREAT PYRAMID OF GIZA

<http://www.gizapyramid.com/overview.htm>

A PICTURE TOUR OF THE GREAT PYRAMID OF GIZA

<http://www.gizapyramid.com/newtour1.htm>

GENERAL INFORMATION

<http://www.gizapyramid.com/general.htm>

MEASUREMENTS OF THE GREAT PYRAMID

<http://www.gizapyramid.com/measurements.htm>

PYRAMID HISTORY

<http://www.gizapyramid.com/history.htm>

OLD PHOTOS OF THE PYRAMIDS AND SPHINX

<http://www.gizapyramid.com/oldphotos1.htm>

THEORIES AND RELATIONSHIPS

<http://www.gizapyramid.com/itr.htm>

B. A synopsis of modern studies of the Great Pyramid are available at [52]

Relative to the *AGE* of the *GREAT PYRAMID*, it gives the following up-to-date estimate:

"Still further evidence that the dynastic Egyptians did not construct the Great Pyramid may be found in sediments surrounding the base of the monument, in legends regarding watermarks on the stones halfway up its sides, and in salt incrustations found within. Silt sediments rising to fourteen feet around the base of the pyramid contain many seashells and fossils that have been radiocarbon-dated to be nearly twelve thousand years old. These sediments could have been deposited in such great quantities only by major sea flooding, an event the dynastic Egyptians could never have recorded because they were not living in the area until eight thousand years after the flood. This evidence alone suggests that the *three main Giza pyramids are at least twelve thousand years old*".

Relative to the *GREAT PYRAMID* as *ENERGY CONCENTRATOR*, it gives the following present-day evidences:

"...Unexplained energetic anomalies frequently noticed and recorded in the main chamber. In the 1920s, a Frenchman named Antoine Bovis made the surprising discovery that, despite the heat and high humidity of the main chamber, the dead bodies of animals left in the chamber did not decay but completely dehydrated. Thinking that there might be some relationship between this phenomena and the position of the main chamber in the pyramid, Bovis constructed a small-scale model of the pyramid, oriented it to the same direction as the Great Pyramid, and placed the body of a dead cat at the approximate level of the main chamber. The result was the same. As he had observed in the Great Pyramid, the cat's body did not decay. In the 1960s, researchers in Czechoslovakia and the U.S., conducting limited studies of the geometry of the pyramid, repeated this experiment with the same results.

They also found that the form of the pyramid somehow mysteriously kept foods preserved without spoiling, sharpened dull razor blades, induced plants to germinate and grow more quickly, and hastened the healing of animals' wounds. Other scientists, in consideration of the high quartz content of the granite blocks in the main chamber and the incredible pressures those blocks are subjected to, theorized that the main chamber may have been the focal point of a powerful piezoelectric field; magnetometer measurements inside the chamber indeed showed higher levels than the normal background geomagnetic field.

Although much research remains to be done in these areas, legend, archaeology, mathematics, and earth sciences seem to indicate that the Great Pyramid was a monumental device for gathering, amplifying, and focusing a mysterious energy field for the spiritual benefit of human beings. We do not know exactly how the pyramid and its main chamber were used, and the geometric structure of the pyramid has been subtly altered by the removal of the casing stones and the cap-stone. None-the-less, the Great Pyramid of the Giza plateau still emanates great power as a transformational power place. It has done so for uncounted thousands of years and seems destined to continue for ages to come."

To this end one more publication can present practical interest [53].

C. Other researches dealing with definite peculiarities of the Great Pyramid are available at [54, 55].

7.1.3. An Outline of Esotery and Geometry of the Ankh

BASIC TYPES OF CROSS. Each nation which had an astronomical system held the **CROSS** in high respect [48, II, Part II, Sec. IX]. Of course, the **four-point cross** \pm presents the *four cardinal points*, but this concept does not cover all the meanings of this symbol (See Table 7.1). Though it came from a definite origin, later on it was accepted for presentation of *different concepts* [46, II, Part II, Sec. VIII]. It is one of the most ancient symbols, if not the oldest one, and Eastern Initiates confirm that it was concurrent with the **CIRCLE** of Divine Infinity and the first differentiation of Substance, *blending* of **Spirit** and **Matter** [46, II, Part II, Sec. VIII]; in abstractiveness, \pm disappears and becomes \bigcirc [49, Part I, Sec. 5].

Thus, the evolution of humanity in the Third and Fourth Races is designated as \ominus and \oplus , respectively; whereas the second symbol presents the first and the earliest Egyptian **Tau** \top ; after then, it becomes \pm which means separation of sexes and fall into engender [46, II, Part I, Stance I], or *physical SPACE*.

This way, the conjunction of the Heavenly **VERTICAL** (*Spirit*) and the Earthy **HORIZONTAL** (*Matter*), or the *masculine* and *feminine* principles, in a **POINT** makes the Cross [48, II, Part II, Sec. VI], or *Stauros*, presenting the potential of positive and negative, or masculine and feminine energies in the Nature.

Table 7.1. Basic Types of Cross

\bigcirc	\ominus	\oplus	\top	\pm	\oplus	♀	♀	♂	卐	✳	✝
—	—	—	—	—	—	—	—	—	—	—	—
1	2	3	4	5	6	7	8	9	10	11	12
Circle	Diameter in the Circle		Tau	Cross (Stauros)	Astrono- mical cross	Ankh , or Crux Ansata	Venus	Earth	Swastika	8-point cross	Calvary cross

The symbol of Spirit and Immortality is everywhere presented by the *circle*; from this – the *serpent*, that bites its tail, presents the Circle of Wisdom and Infinitude, *cyclicity* of **TIME**, as well as the *astronomical cross* \oplus – the cross within the circle, and a sphere with two wings that became a sacred *scarab* of Egypt. The latter symbol evidently shows that the Egyptians believed in reincarnation, but this esoteric doctrine was kept secret [46, II, Part II, Sec. VIII].

The Circle and the Cross are indivisible; as the universal presentation, as old as the human wisdom, they are at the head of the long rows of, so to say, international symbols which frequently expressed *great scientific truths*, apart from psychological and even physiological secrets [46, II, Part II, Sec. VIII]. In particular, they present the **UNITY** of **TIME** (or "Wheel of Time") and **SPACE**.


VENUS. Venus is the most occult, powerful and mysterious planet among the others; the influence it exerts to the Earth and its connection with our Planet are especially powerful. For this reason, these two are called "Twin-Sisters", though the Spirit of Earth is subject to "Lord" of Venus [46, II, Part I, Stance I]. Pythagoras named this Planet "(another Sun" [46, II, Part I, Stance I]. **Note**, that the periods of these planets relate as the *Golden Section* (See Part 3) to within an error of 1%.




Astronomically, Venus is presented as a sphere hovering over the cross ♀ , whereas the Earth – as a sphere with the cross above it ♂ . These crosses denote the Egyptian *Crux Ansata*, an attribute of Isis (Who is Venus, as well as Aphrodite and Nature). The fact, that the Earth is presented by an upturned *Crux Ansata*, is of great occult importance [50, Part I, Sec. 5].



A sphere over a cross, as a symbol of Venus, shows that it monitors origination of the humanity. The Egyptians symbolised **Ankh** – "Life" – as *the circle over Tau*, ♀ ; this was another symbol for Venus (Isis) ♀ [46, II, Part I, Stance I].

ANKH, OR CRUX ANSATA ♀ . The **MOST SACRED CROSS** of the Egyptians is that which their **Gods, Pharaohs** and **mummies held in their hands**: this is – **ANKH** ♀ [46, II, Part II, Sec. VIII].

Its upper part is the hieroglyph Ru (*flat ellipse – S.S.*) being placed vertically over the cross Tau, which means door, gate, mouth, outlet. It denotes birth place in the *Northern part of the heavens*, from where the Sun is born once again. Therefore, the Ru of Ankh is the female symbol of place of birth and presents the **NORTH**. (Note, that the **entrance of the GP** also looks to the North – S.S.) Namely in the *North* the Goddess of Seven Stars, or "Mother of Circulation", gave the birth to **TIME** in the early cycle of the year.

Its other forms are a loop, which is found in Egypt and India, Greek Cross, as well as a Cross in a vertical oval with symbols of solstice and equinox, which resemble *swastika*  – one of other presentations of the Cross in India [46, II, Part I, Stance I]. At this, the **Great Circle of Time** in India was described by a dolphin being bent in a **circle with a cross**, with which Seven Rishi, Pleiades and Ursa Major correlate, which were also associated with the *cycles of Time* and **Yugas** [46, II, Part II, Sec. VIII]. This also means that a *circle with a cross plays an eminent part*, as the Pleiades are allocated near the centre of rotation of our Galaxy [46, II, Part II, Sec. VIII], that presents a crucial point from astrological point of view. To this end See [56].


Note also that Tau  and Egyptian astronomical cross  are discovered in the ruins of Mayan Temples [48, I, Chap. XIV]. As well, *Crux ansata* is frequently placed, instead of the central geometrical point which symbolises the invisible "Central Sun", in the dual triangle; being modified this way, this cross has almost the same meaning as the "Cross of the World"  of the Egyptian Hermetics [51, Sixth- and five-point stars].

CRUCIFIXION. Stauros, or Tau,  becomes a "tool" for execution too much later [49, Part I, Sec.1]. In the Mystery of Initiation an adept was tied to a **couch** having the **form** of , put into a deep sleep (or rather a mortal-like trance) and left for three days and nights; in Egypt, the body was placed in the **Sarcophagus** of the **King's Chamber** of the **Great Pyramid**. Before the Sunrise of the third day, the body was removed to the **entrance** of the Gallery (*Northern* side of the GP) for the candidate being put into trance to be awaked by the rays of the Sun and, thus, to be initiated by Osiris and Thoth. A lot of similar cruciate couches were found in subterranean chambers of Egyptian Temples. This is one of the seven esoteric meanings of the mystery of crucifixion, which is revealed in geometrical symbols [46, II, Part II, Sec. VIII].

Egyptian Hierophant was given a **square** headgear which he had to wear permanently, and only after his death the perfect Tau, **Ankh**, as the attribute of Isis was put on the chest of his *mummy* [48, II, P.VIII, S. VIII].

*By considering the meaning of two circles which surround two mutually penetrating triangles, H.P.B. reminds the **Caduceus**, associate **LEMNISCATE** and development of an elementary cell, as well as a **NEUTRAL POINT** which is passed two times a cycle [49, Part I, Sec.5]: ... **lemniscate** for the descending evolution from Spirit to Matter, may be other type of spiral for the ascending evolution [46, I, Part II, Sec. X].*

Basic Assumptions relative to the Time-Space Code of the Ankh

The **ANKH**, or **Crux Ansata**,  presents the most sacred symbol of the Ancient Egypt, the esoteric meaning, geometrical design and, possibly, the geographical orientation of which reflect the basic concepts of the Ancient Wisdom. With respect to the above consideration we can assume the following.

1. The **PRIMARY GEOMETRICAL DESIGN** of the **ANKH** (See Table 7.1) presumes that the **diameter** of the **circle**, as well as the **lengths** of the **segments** are the **same**. At this:

The **DELINEATED ANKH** may bring up other details, which pertain to one or another concept(s) that stands beyond this symbol (e.g. vertically stretched oval, designation of solstices, etc.), which, however, reflect the basic concepts of the **primary** design, but develop them in other way.

The **GRAPHIC PRESENTATION** of **ANKH** (image, for short) in critical places to all probability can be taken as the "certified" image of the delineated Ankh; for these places we can take those where the images are allocated either in the hands of Gods and/or Pharaohs, or as a separate objects, but in a significant position (e.g. near the faces of the same persons). For the above reasons, we can use these **images** as criteria, for **testing** the **hypotheses** pertaining to the Ankh.

2. The **CROSS** and **CIRCLE** of the **Ankh** geometrically present the concept of **Unity of Time and Space**, whereas the **LEMNISCATE**, as a substitute for the circle, presents special interest relative to **evolution**.

3. *Close relation* may exist between the *Ankh*, *Sarcophagus*, *King's Chamber* and the *Great Pyramid*, whereas the *NORTHWARD* (Poleward) direction is the dominant for both the *Ankh* and the *Great Pyramid*.

7.2. The Platform for Studying of the Egyptian Artefacts

With taking account of a variety of standpoints relative to the Egyptian Artefacts, we must accept some grounds for further discussion of these objects, or otherwise it will be reduced to a talk between a deaf and a blind men. For this, resume our understanding of these Artefacts as the *ANCIENT WISDOM Platform* (AWP) in the following theses.

1. The *GREAT PYRAMID* was knowingly designed, built and used as a *TEMPLE of Ancient Wisdom*, the most significant one of those which could be seen at present. It *has nothing in common with a burial place*, neither Cheops' nor other royal person, *except of symbolical burial during an initiation*. For this reason, the name "*GREAT PYRAMID*" shows the best correlation with the history.
2. We must *distinguish* between the *ANCIENT WISDOM of Higher Priests*, which they did not have an intention to disseminate, and *widespread knowledge* being presented in papyri and carvings; from this point of view it *makes no sense to estimate the level of the former* (in mathematics, engineering and other spheres of knowledge) *by the latter one*.
3. As a Temple of Ancient Wisdom, the *Great Pyramid reflects*, by its position, proportions and sizes, the basic elements of that *Wisdom* as to *SPACE* (Universe, Sun, Earth, etc.) and *TIME*.
4. By allowing for the fact that the same geometrical or other relation may reflect, but several concepts, in the further consideration we must take account for the *POLYSEMY of the artefacts*.

This means that *different concepts* may *simultaneously* be presented in the same geometrical structure (as it is said in the Secret Doctrine, that there is the key for each mystery, and it must be turned seven times).

5. As a Temple of Ancient Wisdom, the *Great Pyramid* presents not only as a structure, but a sort of *ENERGY CONCENTRATION INSTRUMENT*, since dealing with various kinds of energies presents the essence of most important secret mysteries and has been acknowledged experimentally.

The more so that its name, viz. the word *PYRAMID*, comes from Greek Πυραμῖς, viz. *FIERY VESSEL* (!)

To this end, while not rejecting the effectuality of symbols, it is useful to distinguish between the explicit effects it can produce (e.g. *influence* it can exert onto the objects being placed within it, or light effects) and its *descriptive* (or "librarian") aspect being associated with presentation of Ancient Knowledge in the Pyramid directly (in inscriptions on the lost casing stones) and implicitly (in its sizes and proportions).

Call these two the *FUNCTIONAL* and *DESCRIPTIVE* aspects of the artefacts, Pyramid included.

6. Therefore, the *Great Pyramid*, as any other important artefact, is to be considered as a *complex system*, which incorporates in its design a series of heterogeneous, but coordinated concepts. By following this *systems approach* we can expect, as well, that these concepts must correlate in different artefacts, or manifest themselves in a similar way.

Therefore, even if somebody has revealed some correlation for the Great Pyramid or other artefact, he probably should not think that his result gives the "complete answer" to the Mystery of that object.

7. In order to provide definite confidence to the obtained *relations*, the *numerical accuracy* of the result must be estimated within a *systematic* approach.

By taking all these consideration into account, we hardly may assume that we would be able to significantly approach the mystery of the GP, unless we have assimilated the system of functional aspects of the Ancient Wisdom. Until then, we are doomed to work within the frame of a contradictive backward structural design modelling of the Great Pyramid.

By turning down the AWP, only one principal concept can be suggested – that the GP was a tomb being erected in two dozen years by those constructors who were unaware of mathematics, even on a level of an elementary school. As far as this concept is not supported by the sound evidences [57], nor a compromise exists between these two, the AW Platform gives good grounds for systematic researches in Pyramidology.

Since we do not know who was the Designer(s) and Builder(s) of the GP, the collective name *Architect* is used below for distinctness of addressing.

7.3. Regular and Concave Pyramid Models

7.3.1. The Great Pyramid Analysis Criteria

With respect to the AW Platform, the GP, as a solid body (without taking account of its internal premises) can be analysed in both descriptive and functional aspects. Study of the former one is more "fruitful" in a sense that we "may assign" our models to the GP without testing, whether it was the Architect's intention to do so, or a coincidence.

As far as no rule exists for distinguishing between these two possibilities, we must define some *critterion* for this. For this, we may assume that some *model* (e.g. – a ratio of element lengths) for the GP's elements reflects the intention of the Architect, functional of descriptive, if:

(**R1**) an accuracy of this model is high enough, if it is presented in an algebraic form, and

(**R2**) more or less reasonable and systematic explanation may be attributed to this model.

For use of rule R1 we must define a *threshold relative error*, or a series of such thresholds for the basic and secondary models. A positive example for this is given below, where the constants are considered.

For use of rule R2 it is natural to suppose that such "explanation" must be grounded on some *system* of more or less *acknowledged and/or iterative concepts*. A negative example for this rule is given by a book I saw recently, where several hundreds of mathematical relations were presented for all mathematical and physical constants, planetary periods etc. But they are expressed in such an unsystematic variety of combinations of functions (trigonometric, logarithms, etc.) which give grounds for obtaining a correlation for any two values you wish.

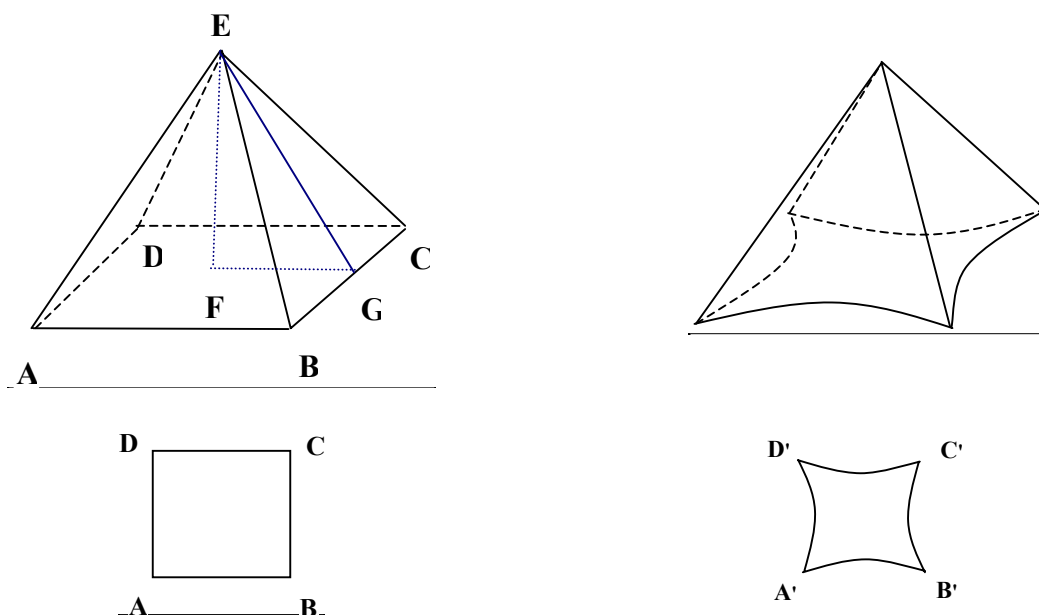
Of course, we can justify a lot of models, both descriptive and functional, the more so that our knowledge as to the functional properties of the GP design is very scarce. Nevertheless, for testing the functional hypotheses we can make use of some evidences; for example, this may be attributed to some energy manifestations being associated with electromagnetic fields, light effects, dehydration of dead bodies [52, 58, 59].

Besides, by assuming the polysemy of artefacts we may decompose the GP, as it was done with the Ankh, with respect to the level of commonality, or details.

On these grounds, consider the mathematical model of the GP at two levels:

R-pyramid: a regular pyramid with the square base and equal flat faces (Fig. 7.1.a);

C-pyramid: a pyramid with a symmetric four-point star base and equal concave faces (Fig. 7.1.b).



a)

b)

Fig.7.1. R- and C-pyramids and their bases. The concavity of C-pyramid is highly enlarged

With taking account of rules **R1** and **R2** consider, firstly, the properties of the GP as an R-pyramid.

7. 3.2. Form Ratio Certificate of the Great Pyramid

From the ancient times it is known that the GP design incorporates the following relation between its basic parameters: Herodotus was told by Egyptian temple priests that [60] the Great Pyramid was constructed in such a way that

"The area of each of its four faces is equal to the square of its height" (7.A)

Still another relationship is apparent in the Great Pyramid:

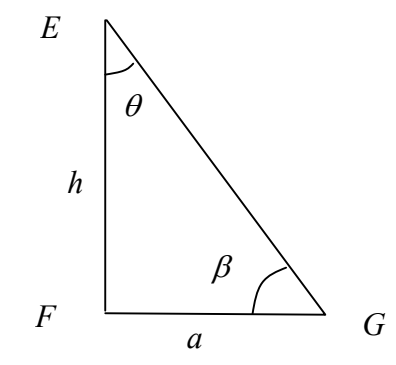
"The perimeter of the square base is equal to the circumference of a circle having radius equal to the height of the pyramid" (7.B)

Besides, we know that the basic numerical concepts of the ancient world in Egypt, Bible and other artefacts were presented in proportions, as (7.A) and (7.B), or in dimensions; in either case, however, the basic elements, both the sizes, and the numerator and denominator of proportions, were expressed in **integers**. This is so for the original (with the Cap and casing stones) GP's linear dimensions in Royal Egyptian cubits (c, for short):

GP's height: $h = 280$ (c);
GP's base length: $2a = 440$ (c); (7.C)

where 1 cubit makes, to various estimates, from 0.523 to 0.525 meter, and a is the length of half of the base edge.

Thus, if we consider R-pyramid $EABCD$ (Figs. 7.1), then EF is its height (F is the center of the base) and EG is the apothem (perpendicular from E to the base edge BC). In this case EFG is the right triangle; its legs adjacent to the right angle make h and a ; the remaining angles are denoted as shown in Fig. 7.2.

**Fig.7.2. The form ratio certificate of the Great Pyramid (the profile of pyramid of Fig. 7.1.a, right side)**

EF – pyramid height, FG – half of the base, EG – apothem of the pyramid face

Though all these relations and their connection with the respective mathematical constants are well-known, we repeat them here for two purposes: (1) for introducing a systematic threshold error analysis in studying of the GP, and (2) for obtaining a preliminary basis for a further analysis.

The values of (7.C) define the geometrical properties of a regular square-based pyramid in full: the ratio

$$p = \operatorname{tg} \beta = \frac{h}{a} \quad (7.1)$$

defines the form (to within a similarity) of the pyramid, whereas any of these two values fixes its size. Whatever was the goal of the Architect with incorporating the numerical relations (7.A), (7.B) and integer-valued constraint (7.C) on height and edge into the GP's design, He had firstly to compose for it that what is called now a *mathematical model* of the object.

Form ratio model of GP's R-pyramid. So, consider a problem M_R : construct a pyramid which *exactly* follows the requirements (7.A) – (7.C). For this, reformulate them algebraically and, after then, transform to a uniform presentation (7.1). For (7.A) we obtain

$$\frac{l}{2} EG \cdot BC = h^2, \text{ or } a\sqrt{h^2 + a^2} = h^2.$$

By dividing the latter equation by h and denoting $p = h/a$, we obtain the equation for the "form ratio"

$$p = \sqrt{1 + \frac{1}{p^2}}, \quad (7.2)$$

the only real root of which is

$$p_\Phi = \sqrt{\Phi} \quad (7.2')$$

where $\Phi = 1.618033989... \approx 1.618034$ – is the same Golden Section number that was considered in the previous Parts.

In a similar way, for (7.B) we obtain

$$4 \cdot (2 \cdot a) = 2 \cdot \pi \cdot h, \quad (7.3)$$

for which the form ratio makes

$$p_\pi = \frac{4}{\pi}, \quad (7.3')$$

where $\pi = 3.141592654... \approx 3.141593$.

For (7.C) we have an integer-valued constraint

$$p_C = \frac{n}{k}, \quad (7.4)$$

where n, k are relatively small integers without mutual multipliers.

As far as π and Φ are irrational numbers, any pair of the obtained values p_Φ, p_π, p_C is incompatible in the sense of exact mathematics. Therefore, **the problem M_R is insoluble** even for any pair of the requirements (7.A) - (7.C).

However, in the same sense *any mathematical problem is insoluble too*, if some measurements are considered, since nobody has seen a line without width, as it is defined in geometry, and other mathematical objects.

For this reason the numerical mathematics is used, if someone wishes to present a mathematical formula in a design, or to reveal a dependence from measurements and observations. By having this in view, reformulate the problem M_R as follows.

N_R : Find the parameter p^* which minimizes the deviations from the given values p_Φ, p_π and satisfies the constraint (7.4).

The mathematical solution to this problem is not unique. But whether the answer being given in the stones of the Great Pyramid is one of them?

The values of the given ratios p_Φ , p_π are as follows

$$p_\Phi = \sqrt{\Phi} = 1.272\,019\,65\dots \approx \mathbf{1.272\,02}; \quad (7.5)$$

$$p_\pi = 4/\pi = 1.273\,239\,55\dots \approx \mathbf{1.273\,24}. \quad (7.6)$$

With the use of (7.C) we obtain, that the actual ratio p_{GP} for the Great Pyramid makes 280/220, or

$$p_{GP} = \frac{n}{k} = \frac{14}{11} = 1.272727\dots \approx \mathbf{1.27273}, \quad (7.7)$$

with the following GP's basic multiples which, as fractals, were commonly used in various analogies

$$n = \mathbf{14} \text{ and } k = \mathbf{11}. \quad (7.8)$$

If the whole base edge length is considered, these basic multiples take the form

$$n^* = 7 \text{ and } k = \mathbf{11}. \quad (7.9)$$

Without the constraint (7.4), the solution to the problem N_R , which gives the least error for both values of p_Φ , p_π , is specified by their average

$$p_A \approx \mathbf{1.272\,63}. \quad (7.10)$$

Now we see, that the GP's ratio differs from this solution, but insignificantly, with a relative error of 0.008%, which may be written as $p_{GP} \cong p_A$ ($\delta = 0.008\%$).

Hence, apart from an extremely high accuracy with which the actual GP's form ratio with the equal error follows the ratios for both constants, Φ and π , it does this just with the use of two **small integers**.

Moreover, as you may easily check this by yourself, no other smaller integers exist that can afford such close proximity of the GP's form to the requested one, but only much larger ones that can put the ratio (7.4) closer to p_A . Of course, you may find large enough integers, for which the ratio (7.4) will be closer to p_A , but the expediency of use of such numbers for GP's integer dimensions is doubtful, apart from other considerations.

Therefore, in the sense of minimality of the Great Pyramid form ratio numbers (7.8) we can state that within the relative error of 0.008% the ratio p_{GP} (7.7) gives the **optimal solution** to the problem N_R .

And what is more, the same ratio p_{GP} reflects the third basic mathematical constant as well! As it is revealed by Rick Howard [61], the Euler number (being also called the base of natural logarithm, Napier's number, etc) $e = 2.718\,281\,829\dots \approx \mathbf{2.718\,28183}$ is also present in the form ratio certificate of the Great Pyramid, but relates the angles (See Fig. 7.2) as follows

$$\frac{\beta}{\theta} = \frac{e}{2}. \quad (7.11)$$

Find the value of angle β which satisfies this equation exactly. Since $\beta + \theta = \pi/2$, we get

$$\beta = \frac{\pi \cdot e}{2(2 + e)} = 0.904\,962\,286\dots \text{ (radians)}$$

Then, with respect to (7.1), the p-ratio for this case makes

$$p_e = \operatorname{tg}(\beta) = 1.273\,081\,528\dots \approx \mathbf{1.273\,08}. \quad (7.11')$$

What is important, this value fits the interval $[p_\phi, p_\pi]$. This allows us to conclude the following.

Resume 7. 3.2.

From mathematical point of view, the solution $p_{GP}=14/11$ (7.7) presenting the actual Great Pyramid form ratio remains effectual (with the same accuracy) in approximating all three fundamental mathematical constants Φ , π and e with the following relative errors

$$\delta_\phi \approx \frac{0.0007}{1.27273} \approx 0.00056 = 0.06\%,$$

$$\delta_\pi \approx \frac{0.0005}{1.27273} \approx 0.00040 = 0.04\%,$$

$$\delta_e \approx \frac{0.00035}{1.27273} \approx 0.00028 = 0.03\%.$$

This means that the Ancient conceptual description (7.A) – (7.C) of the Great Pyramid gives actually the optimal solution to the problem of integer approximation of all three irrational mathematical constants, Φ , π and e :

- the accuracy of this approximation cannot be substantially increased, since the GP's form ratio differs from the average ratio for these constants, but insignificantly, with a relative error of $0.000\,08$, or 0.008% ;
- no other small integers exist, except of 14 and 11, that provide such an exact approximation for the pyramid ratio.

Therefore, on the level of R-pyramid, the GP, as every construction, may be attributed a minimal tolerance with which the relations must take place if they are expected to present the basic concepts. By allowing for the provided analysis, for this **threshold error** it is suggested to take the value $\delta_{GP}^* = 0.1\%$, which rounds the maximal error $\delta_{GP} = \delta_\phi = 0.06\%$ of this construction to the tenth of percent.

From esoteric point of view, the numbers $n = 14$ and $k = 11$ are very important by themselves. If the former presents one of the most Sacred Egypt numbers, the latter one is not significantly associated with any significant ancient cycle or other quantity. However, with respect to the great significance of the 11-year Solar cycles, we can suggest that in this important GP's proportion it reflects namely the length $T_o=11.07$ of this cycle. In another presentation, $n^* = 7$, $k = 11$, we see not less significant number 7, which, in particular, is associated with the Moon; in this case we see the direct association with the Moon quarters (7days) and Solar cycles (11 years). Note also, that the latter ratio, 14:22 gives the number **22**, which presents, apart from other meanings, the Hale cycle of Solar activity.

Besides, the numbers 7 and 11 present the sequential terms of the Fibonacci series $\nu = \{1, 3, 4, 7, 11, 18, \dots\}$ (See Part 2); asymptotically, it gives the integer presentation of the Golden Section number power series and, therefore, their ratio ν_{i+1} / ν_i , gives the Golden section.

Note also, that the multiple **20** of the basic dimensions 280, 440 (220) and numbers 14, 11, presents a widely spread base of count, for Mayans as well.

7. 3.3. Geographical Certificate of the Great Pyramid

Relative to the **POSITION** of the Great Pyramid it is known that its Latitude makes [62]

$$29^{\circ} 58' 51'', \text{ or } L_{GP} = 29.98083333...^{\circ}. \quad (7.12)$$

Several suggestions exist which provide explanations [62] for the divergence of this value from exactly the 30th parallel. However, even if that was the intention, the accuracy of this allocation was very high

$$L_{GP} = 30^{\circ} (). \quad (7.13)$$

Notes. By taking account of those *natural cataclysms* that took place ten to twelve millennia ago (flooding of the GP [52], rise of temperature in Greenland by 10 degrees in 20 years [63], etc), the continental land-slides must not be ruled out for the site where the GP resides; the more so that the error δ_L corresponds to a relatively small distance of about 2000 meters.

In any case, *this error corresponds* to the *threshold error* of the **GP's form ratio** $\delta_{GP} \approx 0.06\%$.

Relative to the **BASE SIDE LENGTH** it is known that the original perimeter of the GP's base made ½ minute of latitude at the equator [52]. With respect to the Reference values [29], we obtain Table 7.1.

Table 7.1. Half a minute of arc of Meridian and Latitude at the Equator

Perimeter in cubits: 1760	Meters	1 cubit = 0.523 m	1 cubit = 0.524 m	1 cubit = 0.525 m	Relative error
½ <i>minute arc of Meridian</i> (= of latitude) at the equator	921.469	1760.21 +	1758.53 -	1755.18 -	0.012% 0.084 % 0.27 %
½ <i>minute arc of Parallel</i> (= of longitude) at the equator	923.7865	1764.64 +	1762.95 +	1759.59 -	0.26 % 0.17 % 0.023%

Therefore, with the various meter-to-cubit conversion factors, which are considered in Pyramidology, it is more exact to say that the **GP's perimeter reflects** not only the true length of the Meridian, but *even the DIFFERENCE IN LENGTHS BETWEEN THE EQUATOR AND MERIDIAN* (!).

This conclusion (*I don't know, whether it was known before – S.S.*) is based on the fact that the average and commonly used conversion factor of **0.524 m/c**, together with the distribution of the results for other factors, shows that the perimeter presents rather the average for the lengths of ½ minute arcs of both Meridian and Equator, than one of these values. The average deviation for this case makes $(|-1.47| + |2.95|) / 2 = 2.21$ (c) which defines a relative error of $\delta_{LL} \approx 0.1\%$ that corresponds to the *threshold error* $\delta_{GP}^* = 0.1\%$ for the GP's form ratios.

Note. If we assign 1760 cubits to the respective Meridian (Equator) length in meters, we obtain:

$$\begin{aligned} 1 \text{ cubit (as } \frac{1}{2} \text{ minute arc of Meridian)} &= 0.523 \, 562 \text{ m;} \\ 1 \text{ cubit (as } \frac{1}{2} \text{ minute arc of Parallel)} &= 0.524 \, 879 \text{ m.} \end{aligned}$$

For the average value we obtain:

$$1 \text{ cubit (as average of } \frac{1}{2} \text{ minute arc of Meridian and } \frac{1}{2} \text{ minute arc of Parallel)} = 0.524 \, 220 \text{ m.}$$

Therefore, this average value for the **cubit, 0.5242 m** (or 20.64 inches), gains one more support.

Relative to the **ORIENTATION** of the original Great Pyramid to the cardinal points, the discrepancy is also estimated and small enough: on average, the deviation from true is **three arc minutes**, which corresponds (with respect to the right angle) to a relative error of 0.0555%, or $\delta_{Ang} \approx 0.06\%$, once again!

Resume 7.3.3.

Comparison of the actual metric and geographical parameters of the Great Pyramid vs. the most probable Earth's parameters that are associated with them allows us to conclude that the Great Pyramid position on the Earth, orientation to cardinal points, and its base length are fixed in its construction with the same, in average, relative error of $\delta_{Ang} \approx 0.06\%$, which, in its turn, corresponds to the maximal error of $\delta_{GP} = 0.06\%$ with which the structure of the Great Pyramid reflects the mathematical constants through the integer ratio of 14 to 11 (or 7 to 11).

Resume 7.3.4

As far as the metrical, geographical, and algebraic (trigonometric and proportion-like) relations being incorporated in the GP's regular design take place simultaneously and to within almost the same error of $\delta_{GP} \approx 0.06\%$; this value, or its round off $\delta_{GP}^* = 0.1\%$, can be accepted for the **Primal threshold error** in the further analysis of the Great Pyramid (for comparison: this accuracy corresponds to a 52 second interval relative to day, 24 hours).

From the symbolical point of view, the Great Pyramid is principally described by the numbers **14** (or **7**) and **11**, together with the number **20**. To this end it is important to note, that if the numbers 14 and 7, as the Sacred ones, are well known, the number **11** hardly can have other basic meaning than the length of the **Solar cycle**, whereas the combination of the three is seemingly present the **Solar-Moon** association (in years and days, respectively); this is apart from coming of these numbers from the Fibonacci series $\nu = \{1, 3, 4, 7, 11, 18, \dots\}$ which specifies the integer core of the **Auric Time Scale** (See Part 2).

Besides, this pair of numbers, 7 and 11, are seemingly present the principal numbers of the Sun: the first of them, as the most Sacred one, specifies the Mystic number of the Seven Sun Rays, whereas the second number specifies the length of the Solar cycle.

Note also that the number **20**, as in many other cases, presents here the **base (or radix) number**, which is also important in the **Mayan calendar**.

7. 4. How the Sun Illuminates the Great Pyramid

7. 4.1. Introduction

The legends show that the Great Pyramid was shining as a diamond, with its golden cap.

"It was originally covered with casing stones (made of *highly polished limestone*). These casing stones reflected the sun's light and made *the pyramid shine like a jewel*. It has been calculated that the original pyramid with its casing stones would act like *gigantic mirrors* and reflect light so powerful that it would be visible from the moon as a *shining star* on earth. Appropriately, the ancient Egyptians called the Great Pyramid "Ikhet", meaning the "**Glorious Light**" [<http://www.gizapyramid.com/general.htm>].

"When you look up at the Great Pyramid, it's apex seems to be missing. It is flap topped and not pointed like a pyramid should be. Usually, when a pyramid was constructed, the top part, or capstone (also called top-stone), was the last thing to be placed on it. It was considered the most important part of the pyramid and was made of special stone or even gold. The capstone was usually highly decorated. [for an example of a capstone See the reference below].

Was the great pyramid always without a capstone or was it stolen, destroyed, etc? No one knows but the accounts of visitors to the pyramid from the ancient past (as far back as the time of Christ) always reported that the pyramid lacked a capstone...Another possibility is that capstones were sometimes made of gold and maybe the first thing looted" [<http://www.gizapyramid.com/gip2.htm>].

By taking account of this amazing reflecting ability of the GP, consider the properties of the Great Pyramid from this functional point of view. Meanwhile, due to the complexity of the complete analysis, put forward the following restrictions.

1. Consider the *Sun* as a *geometrical point* which radiates the light along the "*straight lines*"; this presumes that we neglect its angular dimension and various distortions being caused by refraction and other effects.
2. As to the form of the GP, consider the R-pyramid model; this presumes that its *faces* present the *flat* and quite *perfect mirrors*. When required, we will allow for the curvature of the faces in an explicit way.
4. For the basic point of time consider the *local noon* (if not specified otherwise), since it defines the unique, but daily event – the culmination of the Sun against the North-South axis of the Great Pyramid. Remind that *North* presents special interest from esoteric point of view (See Sec. 7.2); virtually, the front entrance to the GP is at the Northern face of the Great Pyramid.

7. 4. 2. The Solar Culminations which are Critical to Illumination of the GP

At noon, the Sun is allocated in the North-South plane of the GP's height; its rays are reflected as shown in Fig. 7.3, where, as in Fig. 7.2, the triangle *FEG* presents the right side of the profile of the Pyramid: the Southern face (*EG*) is perpendicular to the plane of the Figure; *NN'* is the normal to this face.

In this case, if the face presents a perfect mirror, the Sun rays are reflected to the sky (above the normal, if $h_1 < \theta$, or below the normal, if $\theta < h_2 < 2\theta$), until its height increases to $h_3 = 2\theta$. Before the latter moment, the observer standing in front of this face "do not see" the shining of the face (viz. the reflection of the Sun); immediately after that moment, for the observer *the Pyramid face "flares up"* with the reflection of the Sun, but only if he stands within the Spot of reflected light which stretches from the Pyramid base and has the width of its base; the length of this Spot is quickly shortening from "infinity", as the Sun continues to rise.

The basic contradiction of this model with the reality lies in the historical evidences that shining of the GP was seen from different places and continuously, that is neither *before the noon* only, nor as a *spot* of re-

flected light (solar hare, as it is called in Russian). With the aim to provide definite dispersion of the re-
 flected light, the face ought to be concave or convex, and, as it is known, *it was* slightly concave.

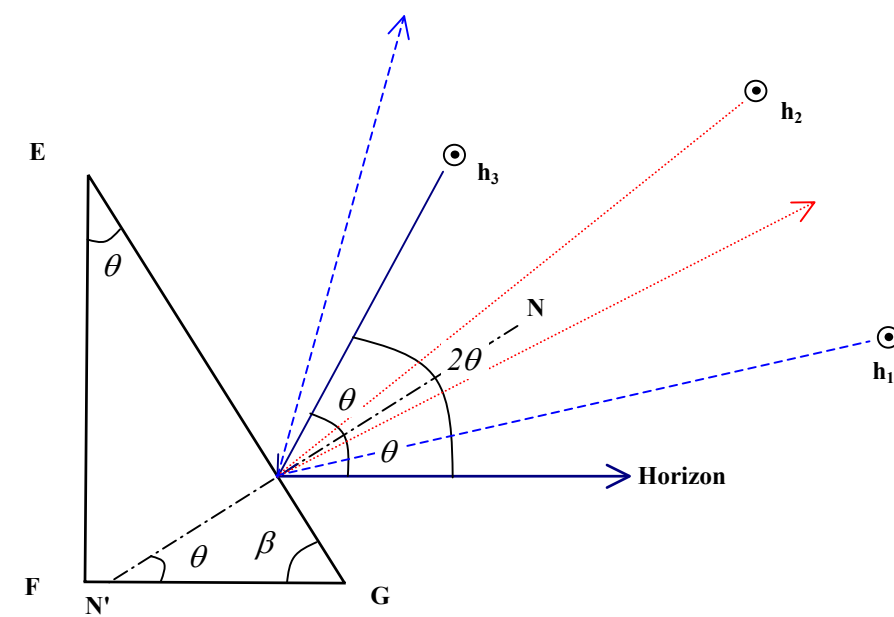


Fig. 7.3. Reflection of the Sun rays from the GP's face at noon. NN' – is normal to the face EG.
The height $h_3 = 2 \cdot \theta = 76.31445...^\circ$ defines the angle of the rising Sun, after which the *face EG "flares up"*

Until now, it is not known the form of this concavity; basically, it is supposed that it presented a tri- or dihedral angle (e.g. [64]). But from the above consideration we may conclude, that the flat surface, or two or three of them do not solve the problem. To this end, *the solution* to the problem can give a *face with continuous curvature* for obtaining a parabolic-type face, with non-zero, but small curvature along the horizontal and vertical axes. As well, we may presume that the concavity was chosen, instead of convexity, in order to exclude shadows and premature flank illumination for the critical positions of the Sun.

One more argument for this suggestion consists in focusing of energy in a cord-like area, the lower end of which, as some preliminary calculations show, is remote by 1 – 2 km, whereas the upper end of the cord could touch the GP's Cap. The limestone core concavity, together with the possibility to vary the width of the thick casing stones, can seemingly make it possible. If considered as a coil, the pyramid may close the loop through its axis, ground and this cord.

Therefore, the *concavity* of the faces of the *Great Pyramid* presents a significant part in reflecting the Sun light and, on this ground, can present a *functional* element of this Pyramid. A slight negative concavity of the GP's faces does not yet prevent us from further analysis.

Table 7.2. Critical angles of the Sun at its culmination

Design.	Event	Angle
WS	Winter Solstice	$h_W = 90^\circ - \varphi_{GP} - \varepsilon = 36.585\,833^\circ$
N	Sun is at the normal NN' to the face	$h_N = 90^\circ - \beta = \theta = 38.157\,227^\circ$
L	Sun starts (stops) illumination of the Northern face; all faces are illuminated	$h_L = \beta = 51^\circ 50' 34'' = 51.842773^\circ$
EQ	Equinoxes	$h_E = 90^\circ - \varphi_{GP} = 60.019\,167^\circ$
F	The illuminated Southern face (it looks to the Sun) <i>"flares up"</i> (<i>"dies out"</i>) for the ground observer	$h_F = 2 \cdot \theta = 76.314\,453^\circ$
SS	Summer Solstice	$h_S = 90^\circ - \varphi_{GP} + \varepsilon = 83.454\,2^\circ$

Consider now the **basic critical angles** for the **Sun** passing the same profile (Fig. 7.3), which are presented in Table 7.2 where we ignore the time discrepancies between the moments of the respective events and noon. In this Table the following constants are used:

$\varepsilon = 23^\circ 26' (\pm 18'' \text{ for nutation having the period of 18.6 years})$ – the angle of inclination of the Earth axis;
 $\varphi_{GP} = 29^\circ 58' 51'' = 29.98083(3)^\circ$ - The Latitude of the Great Pyramid.

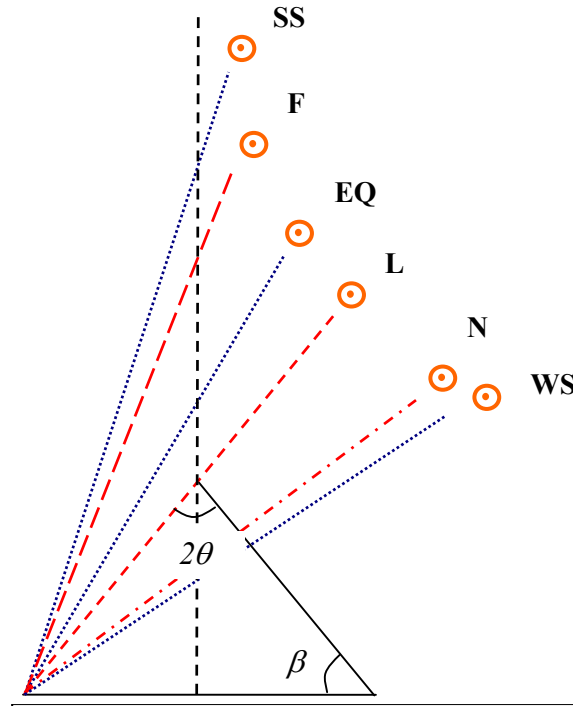


Fig. 7.4. Critical angles for the Sun at its culmination at the GP's Southern face
 (Angles are given in Table 7.2)

Consider the Solar positions at culminations (Fig.7.4). After the Autumn Equinox, the Sun illuminates the Northern face till the moment of the event **L**; then, this face remains not illuminated until the Sun rises to the same height h_L before the Spring Equinox.

After the *Equinox*, it starts to illuminate this face after the sunrise and before the sunset as well; at each of these moments the GP also "flares up" and "dies out". And only when the Sun rises to the height $h > h_F = 2 \cdot \theta$, viz. above the position **F**, its Northern face starts to "flare up" and "die out" before and after the noon; at this position "exactly", it makes a short "flash".

This process continues until the Sun reaches the same position after the Summer Solstice and, after then, this process proceeds in the reverse order.

Find now the *Ecliptic longitude* λ for these **critical positions** of the Sun, Solstices included; the more so that these critical points of the yearly Solar cycle were Sacred in all ancient asterisms.

For the GP's latitude φ_{GP} , the Sun's height h , declination δ , and Ecliptic longitude λ satisfy the equations

$$h = 90^\circ - \varphi_{GP} + \delta; \quad (7.14)$$

$$\sin \delta = \sin \varepsilon \times \sin \lambda. \quad (7.15)$$

Thus, for $\varphi_{GP} = 29^\circ 58' 51'' = 29.98083(3)^\circ$ we obtain

$$\lambda = \arcsin \frac{\sin(h - 60.019167^\circ)}{\sin 23.433333}. \quad (7.16)$$

The obtained longitudes are presented in Table 7.3. Note, that the equation (7.16) gives two latitudes for each height, except for Solstices, for which the exact values are known.

Table 7.3. Ecliptic longitudes for the Critical angles of the Sun at its culmination

Design.	Event	Angle
WS	Winter Solstice	$\lambda_W = 270^\circ$ or 0° Cap
L	Sun stops <i>illumination</i> of the Northern face (at noon)	$\lambda_{L,A} = 200.954457^\circ$, or $20^\circ \text{ Lib } 57.3'$
	Sun starts <i>illumination</i> of the Northern face (at noon)	$\lambda_{L,S} = 339.045543^\circ$, or $9^\circ \text{ Pis } 2.7$
E	Sun starts illumination of the Northern face (at Sunrise)	$\lambda_{SE} = 0^\circ$, or 0° Ari
	Sun stops illumination of the Northern face (at Sunrise)	$\lambda_{AE} = 180^\circ$, or 0° Lib
F	The Southern face starts to " <i>flare up</i> " and " <i>die out</i> "	$\lambda_{F,S} = 44.874683^\circ$, or $14^\circ \text{ Tau } 52.5'$
	The Southern face stops to " <i>flare up</i> " and " <i>die out</i> "	$\lambda_{F,A} = 135.125317^\circ$, or $15^\circ \text{ Leo } 7.5'$
SS	Summer Solstice	$\lambda_S = 90^\circ$ or 0° Can

Note, that with an average error of $\delta_F \approx 0.2\%$ the events **F** approximate the well-known Zodiacal points

$$\begin{aligned} \lambda_{F,S} &= 44.874683^\circ \cong 45 \text{ (viz. } 15^\circ \text{ Tau)} \quad (\delta \approx 0.27\%); \\ \lambda_{F,A} &= 135.125317^\circ \cong 135 \text{ (viz. } 15^\circ \text{ Leo)} \quad (\delta \approx 0.093\%). \end{aligned}$$

For clearness, present the obtained values on the Circle of Ecliptic Longitudes (or Tropical Zodiac) as shown in Fig. 7.5.

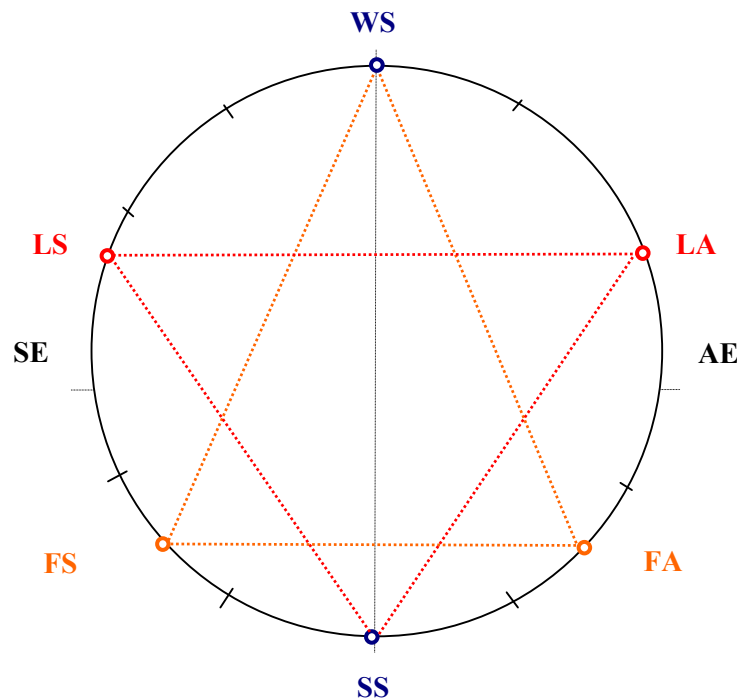


Fig. 7. 5. Ecliptic positions of the Sun at its Critical culminations over the Great Pyramid

7.4.3. Mathematical Constants in the Critical Culminations of the Sun

Golden Section Φ . Consider the Ecliptic angle λ_L between the L events

$$\lambda_L = \lambda_{L,S} - \lambda_{L,A} = 138.0911^\circ. \quad (7.17)$$

The complement for λ_L is $\lambda_L^* = 360 - \lambda_L$, and their ratio makes

$$A_\Phi = \lambda_L / \lambda_L^* \approx 1.606\,975.$$

Comparing of the latter value with the **Golden Section** yields

$$A_\Phi \cong \Phi \quad (\delta = 0.68\%).$$

With the same accuracy, we obtain

$$\frac{360^\circ}{\lambda_L} = \frac{180^\circ}{\lambda'_L} \approx 1 + \Phi = \Phi^2, \quad (7.18)$$

where $\lambda'_L = \lambda_{L,S} - 270^\circ$ - is the angle between the WS and LS.

If λ_L is given in radians, the latter relation takes the form

$$\frac{2 \cdot \pi}{\lambda_L} \approx 1 + \Phi = \Phi^2.$$

Euler number e . Find the angle A_{LF} between the events LS and FS

$$A_{LF} = \lambda_{L,A} - \lambda_{F,A} = 65.82914^\circ. \quad (7.19)$$

Its ratio to 180° (or the sum of both these angles to 360°) makes

$$A_e = \frac{A_{LF}}{180} = 2.734\,351.$$

Comparing of the latter value with the **Euler number e** yields

$$A_e \cong e \quad (\delta = 0.59\%). \quad (7.20)$$

Pi (π) and inclination ε of the Earth axis. As a matter of fact, these values arise in (7.17) – (7.20), but implicitly, though the trigonometric transformation of the Sun's height into the Ecliptic longitude. Nevertheless, Pi is also seen in this distribution of critical points.

Thus, the angular length of the arcs (WS, LS) and (FS, SS) makes $A_2 = 180^\circ - A_{LF} = 114.17086^\circ$. If we find this angle **in radians**, we obtain

$$A' = \frac{114.17086}{180} \times \pi \approx 1.9927. \quad (7.21)$$

Therefore, within the same accuracy the angle A_2 make 2 (viz. integer number!) radians and the angle A_{LF} of (7.19) equals to $\pi - 2$:

$$A_2 = 2 \text{ (Rad)} \text{ and } A_{LF} = (\pi - 2) \text{ within an error of } \delta_\pi = 0.37\%.$$

The average error for these relation makes

$$\delta_{F,Const} \approx 0.5\%. \quad (7.22)$$

Last, but not the least are the *Esoteric* considerations.

Firstly, it is clearly seen from Fig. 7.5, that the critical points of the Sun's culminations, together with Solstices presenting the basic points of the yearly solar cycle, form almost a regular *PAIR OF WELL-KNOWN TRIANGLES* [46] with the *Central point presenting the Earth*.

Secondly, the "*flare up*" and "*die out*" positions of the Sun with the average accuracy of $\delta_F \approx 0.2\%$ specify probably THE MOST CRUCIAL POINTS of the *Ecliptic* – *15° Taurus* and *15° Leo*, apart from Solstices, and, what is important, these *FS* and *FA* points *retain their places in the Tropical Zodiac with the precession of the Equinoxes*.

These are the *CENTRAL POINTS OF THE TAURUS AND LEO* signs of the Tropical Zodiac which are well known to the Ancient Wisdom [46] and, symbolically are seen in *The Revelation*, together with their opposing complements – Scorpio and Aquarius.

Resume 7.4.

1. In the above consideration we ignored the visible diameter of the Sun and atmospheric distortions, as well as the time discrepancy between the moments of the respective events and noon. It is clear that the errors that are engendered by the former effects are negligible as consuming several minutes of time. At the same time, the discrepancy caused by the latter effect is to be averaged, since the moments of Solstices and Equinoxes fluctuate around the noon from year to year.
 2. The Ecliptic *longitudes* of the *Critical angles* of the *Sun* at its *culmination* over the *Great Pyramid*, which are associated with transition processes in *illumination* of the *Northern face* of this Pyramid, define all *three mathematical constants*, Φ , π and e in a similar way – as a ratio of respective length of Ecliptic arc to the angular length of Ecliptic. Besides, the angle of the *inclination* of the *Earth*, ε , is also implicitly seen.
 3. It is important that these ratios take place with almost the same accuracy. Though the average error $\delta_{F,Const} \approx 0.5\%$ for these relations is greater than the *primal threshold error*, we must remember that these points present the functional relations between the parameters of transformed objects which have various origins. Besides, the transfer to the Ecliptical positions is influenced by irregularity in rotation of the Earth and other factors of physical nature. For this reason it is natural to expect that these second-order functional dependencies of the principal Great Pyramid parameters are to show greater error.
 4. Note, that the *accuracy* ($\delta_{F,Const} \approx 0.5\%$) in correspondence between the critical points *FS*, *FA* of the *Great Pyramid* and the critical points *15° Taurus*, *15° Leo* of the *Tropical Zodiac* is still higher than the accuracy ($\delta^* \approx 1\%$) in defining the length of the *Solar cycle*.
 5. As far as the estimate 0.5% gives a maximal, in average, error for the typical Giza Artefact relations in which the considered parameters are obtained through transformation of the primal ones (that, in their turn, are attributed with the primal threshold error), call it the *secondary threshold error* $\delta_G = 0.5\%$.
- As in the case of the *primal threshold error*, we may consider it together with its round off $\delta_G^* = 1\%$, the more so that the latter one coincides with the error $\delta^* \approx 1\%$ in the average length of the Solar cycle T_o .
6. Revealing of the direct correspondence between these *critical points of the Tropical Zodiac* and the *Critical angles of the Sun* at its *culmination over the Great Pyramid* is very important from *esoteric* point of view and can be considered as additional evidence to the importance of the revealed events defined by the critical culminations of the Sun.

7. 5. How the Great Pyramid points to the Great Sphinx

7.5.1. Introduction

The *Great Sphinx* (GS) is another miraculous Mystery of the Giza complex. Apart from other amazing features of this object [65], it is important for this study to remind the following.

In her travel notes ("From the grottos and jungles of Hindustan" as they are named in Russian), Helen Blavatsky indicates that:

(1) the ancient Egyptians deified the Great Sphinx under the name of "Gery-Mukkha", viz. "the Sun on the Firmament";

(2) the *Great Sphinx* is the winged lion, and a female.

Besides,

(3) by her appearance, the *Great Sphinx*, as a winged lion with a human face, symbolizes the basic attributes of the four fixed Zodiacal signs – Leo, Taurus, Aquarius and Scorpio (the latter one was once considered as a concealed sign, and denoted as eagle), that are also presented in The Revelation;

(4) at that, special importance was paid to the midpoints of these signs (Quadruplet, for short), that is to the 15.00° of each of them; this points directly correspond to the eight-point cross (See Table 7.1);

(5) together with Capricorn, the constellation Taurus was esoterically associated [46] with the "first-born" Solar gods in various cults.

Therefore, this Quadruplet, and first of all – Leo and Taurus, is closely associated with the Sun and Sphinx.

7.5.2. Relative position of the Main Giza Complex Constructions

Consider how the Giza complex Constructions are positioned (Fig. 7.6): the Pyramids – with respect to Cole and Petrie measurements, and the Great Sphinx – to C. Ross findings [66].

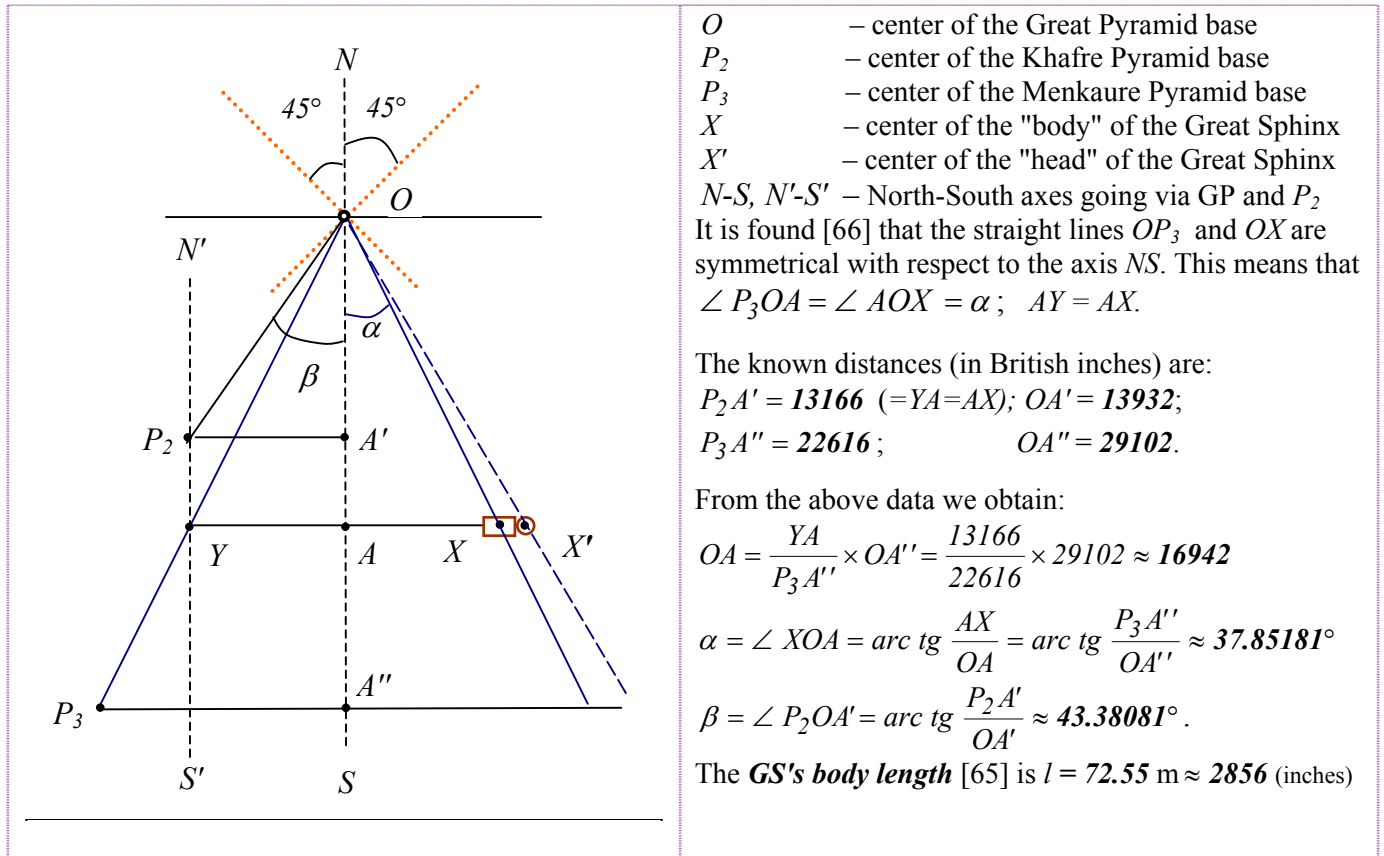


Fig. 7.6. Relative position of the Great Sphinx and Main Pyramids

The deviations of the angles α, β from the Great Pyramid diagonals (viz. from the 45°) are as follows

$$\Delta_\alpha = 45^\circ - \alpha = 7.14819^\circ, \quad (7.23)$$

$$\Delta_\beta = 45^\circ - \beta = 1.619193^\circ. \quad (7.24)$$

For these values we obtain

$$45^\circ \cong 2 \cdot \pi \cdot \Delta_\alpha \quad (\delta_\alpha \approx 0.2 \%), \quad (7.25)$$

$$\beta \cong 45^\circ - \Phi \quad (\delta_\beta \approx 0.07 \%). \quad (7.26)$$

where Φ is considered as 1.618... degrees.

Though the angle α is associated with the angle of 45° , much more intriguing correlation exists.

Thus, draw the straight line OX' through the center of the GP and the "head" of the Sphinx; then the angle $\alpha' = \angle AOX'$ makes

$$\operatorname{tg} \alpha' = \frac{AX + l/2}{OA} = \frac{P_2A' + l/2}{OA} = \frac{13166 + 2856/2}{16942} = 0.861418, \quad \text{and} \quad \alpha' \approx 40.74221^\circ; \quad (7.27)$$

For this direction we obtain

$$\Delta_\alpha = 45^\circ - \alpha' = 4.257787^\circ, \quad (7.28)$$

or

$$\alpha' \cong 45^\circ - \Phi^3 \quad (\delta \approx 0.5 \%). \quad (7.29)$$

Vice versa, if we take in (7.29) the exact equality, the angle to the Great Sphinx "head" must be $\alpha'' = 40.76343^\circ$, which corresponds to the shift of $l/2 = 36.6 \text{ m}$ from the "middle of the body". Due to a negli-

gible divergence of this value from $1/2=36.275$ m and definite uncertainty [66] in the estimate of the position of the point X , we may take (7.29) for a sufficiently exact estimate.

7.5.3. Leo Points to the Lion

Present the circle of Ecliptic at the Summer Solstice, when South exactly corresponds to 0° Cancer of the Tropical Zodiac (it retains this correlation from year to year, in contrast to the precessing 0° Cancer of the Sidereal Zodiac) so as it is done in astronomical maps: as we see the sky when we look upwards (Fig.7.7.a). After then, map this image to the terrestrial plane, as in a mirror (as it is used to present Zodiac in astrology) and superpose the center of the Ecliptic circle with the GP's base center (Fig.7.7.b).

In this case the **F-points** of the **Great Pyramid** (See Table 7.3), viz. 15.0° **Leo** and 15.0° **Taurus**, almost exactly lie on the straight lines being defined by the **GP's diagonals**. (Note, that the same situation takes place for the case on Fig. 7.7.a). **They define the Sacred fixed cross!**

Moreover, at *these moments* the **Sun points**, through the 15.0° **Leo** and 15.0° **Taurus**, to the *S-W* and *S-E* directions from the center of the Great Pyramid, that is to the **Pyramid Khafre** and **Great Sphinx**, respectively!

Indeed, when the actual longitude of Sun reaches the value 15.0° **Taurus** (15.0° **Leo**), the Great Pyramid starts (stops) its daily "flaring up"; and namely these positions, to within the considered accuracy, coincide with both the GP's diagonals and directions to the Pyramid Khafre and Great Sphinx, respectively. By taking account of Sec. 7.5.1, we evidently cannot discard the significance of these cross-correlations between the participating objects, the more so that they have much in common.

Consider the angle $\lambda_L = 138.0911^\circ$ (7.17) between the points of illumination. Its exact approximant from (7.18) makes $360^\circ / \Phi^2 = 137.50776^\circ$. If the arc with this angular length starts at the origin, 0° , its end makes $\lambda_L^* = 17.50776^\circ$ Leo, or

$$\gamma_L = 47.50776^\circ, \quad (7.30)$$

if counting from the point of South.

Note, that this angle also makes the complement to 90° of $180^\circ / \Phi^3$, or Φ^3 -th part of 180° .

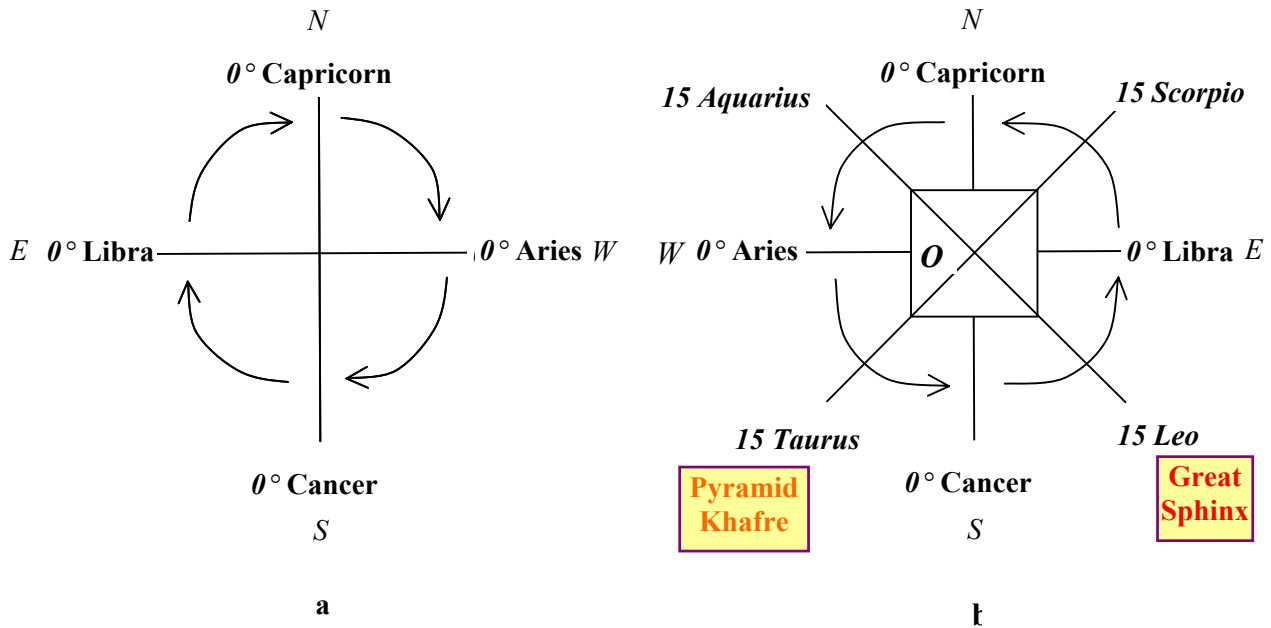


Fig. 7.7. Position of the Pyramid Khafre and Great Sphinx relative to the Great Pyramid
(In this Figure the angles specified in Fig. 7.6 with respect to point *O* remain the same)

Further on, consider now how the situation changes if we superpose not the Ecliptic circle (Fig. 7.7.b) with the GP's base, but its projection to the plane of Equator (as we "actually" percept the Ecliptic being inclined to the plane of Equator at an angle $\varepsilon \approx 23^\circ 26' \approx 23.43333^\circ$). In this case the angle 15.0°Leo (in Ecliptic) corresponds to the angle γ_{Eq} (in the Equatorial system) which makes (counting from the point of South)

$$\gamma_{Eq} = \arctg \frac{1}{\cos \varepsilon} \approx 47.462890^\circ. \quad (7.31)$$

For this angle we obtain

$$\gamma_{Eq} = 45^\circ + 2.462890^\circ \cong 45^\circ + \Phi^2 \quad (\delta = 6 \%). \quad (7.32)$$

Therefore, though the angles γ_L (7.30), and γ_{Eq} (7.31) are not very close to their Φ -correlative, they coincide, and this is much more actual, as they define the same system, but from different aspects. And they are very close; for the right ascension of these angles we obtain

$$\gamma_L + 90^\circ = 47.50776^\circ + 90^\circ \cong \gamma_{Eq} + 90^\circ = 47.462890^\circ + 90^\circ \quad (\delta \approx 0.03 \%) \quad (7.33)$$

Resume 7.5.

As far as the head of the Great Sphinx is evidently more important point than the "middle of the body", the more so since she looks Eastwards, we can conclude that the both angles, α' and β from (7.29), (7.26) *deviate* from 45° , but *intentionally*: if they were equal to 45° we would not have a possibility to discuss, whether they reflected the considered events, or not. This inference is also supported (i) by geographically oriented superposition of the Ecliptic on the Great Pyramid base which results in obtaining of the Sacred positions of 15.0°Taurus and 15.0°Leo as the Pyramid diagonals (they correspond to the moments when the Great Pyramid starts (stops) its daily "flaring up") which point to the *Pyramid Khafre* and *Great*

Sphinx, as well as (ii) by the points of illumination which define the same angles on the plane of the GP's base, as the Ecliptic 15.0° *Leo* projection to the plane of Equator.

Therefore, we can conclude that with the GP's *events* **F** and **L** being revealed in Sec. 7.4, though their symbolic allocation, as well as by their geographic, Ecliptic and Equator projections to the Great Pyramid base **point**, through the Sacred points 15.0° *Leo* and 15.0° *Taurus*, to the *head of Sphinx* and to the *Pyramid Khafre*. This conclusion is obtained with taking account of a system of relevant aspects of the problem and is characterized by a *primal* and or secondary *accuracy* of correlations. What is important, these correlations are described with the use of the *Golden section* and its *powers*.

Indirectly, this gives us *one more evidence* that the concealed properties of the *Sun* are more or less exactly described, but with the use of the *Auric series* I' .

Last, not least is the incredible *coincidence* between the obtained *qualitative* results and the above stated *esoteric concepts* being attributed to the *Great Sphinx*; first of all – these are the Sun-GP illumination events **L** and **F** that (i) define the Sacred points 15.0° *Leo* and 15.0° *Taurus* of Zodiac and, in their turn, *point* to the *head* of the *Great Sphinx* and to the *Pyramid Khafre*, respectively.

7. 6. Time & Space: ATS in the Exterior of the Great Pyramid

In this Section we consider how the Auric Time scale, as a combination of Auric series and average Solar cycle length T_o , as well as some associate fundamental periods, are coded in the Great Pyramid's form, numbers and primal exterior dimensions (in cubits)

Perimeter $P = 4 \times (2 \cdot a) = 1760$, with half a base edge length $a = 220$;
Height $h = 280$.

7. 6.1. Great Pyramid: Primal units of Time and Space and their "Terrestrial" Correlates

TS1. Count of hyper-cycles. As it was discussed in Sec. 7.3, the GP's perimeter amounts to $\frac{1}{2}$ arc minute of Equator/Meridian, which makes the following part of the Equator

$$N_T = \frac{360^\circ}{0.5'} = \frac{360 \times 60}{0.5} = 43\,200 . \quad (7.34)$$

This value presents one of the periods that form the *system of the most Sacred astronomical cycles* [48, I]; it is also considered with its 10-multiple fractals:

432 000 (Kali Yuga);
4 320 000 (Yuga, Maxa Yuga, Manvantara);
4 320 000 000 (Calpa).

TS2. Primal unit of Time. By its direct correlation with the Equator and Meridian, the GP's perimeter, with the use of (7.34), defines the primal unit of time as the part of a day that corresponds to one revolution of Equator or Meridian

$$T_{GP} = \frac{24\,h}{N_T} = \frac{24 \times 60 \times 60}{43200} = 2\,seconds . \quad (7.35)$$

Note, that for this definition it is practically indifferent, whether synodic or sideric revolution is taken.

TS3. Egyptian Cubit. For the evident reasons, the construction purpose included, the GP's perimeter, as the mile, was divided into $N_C = 1760$ cubits. It is important that the multiples that comprise this number include the number 11:

$$N_C = 1760 = 2^5 \times 5 \times 11 .$$

Note, that the multiples of this number present symbolically the Solar cycle length $T_o = \Phi^5$ by its length (11 years), Auric value (Φ^5) and term number (5).

TS4. Cubit-defined time unit and ATS. The elementary unit of time corresponding to 1 cubit equals

$$t_{GP} = \frac{T_{GP}}{N_C} = \frac{2\,sec}{1760} = 0.001\,136\,36\dots . \quad (7.36)$$

Show that this value fits the ATS term $T_o \cdot \Phi^{-55}$ years (for convenience, the power Φ^{55} is substituted by the product $\Phi^{20} \Phi^{20} \Phi^{15}$ of values given in Table 2.1).

$$T_o \cdot \Phi^{-55} = \frac{11.07 \times 365.24 \times 24 \times 24}{15127 \times 15127 \times 1364} \text{ (seconds)} = 0.001119231 \text{ (sec)}.$$

Therefore, within the accuracy being specified for T_o , the **cubit-defined time unit** (7.36) corresponds to the average Solar cycle duration T_o though the ATS term Φ^{-55} , or, in other words, this time unit **fits** the term Φ^{-50} of the basic **Auric series** Γ , since $T_o = \Phi^5$; namely,

$$t_{GP} \cong T_o \cdot \Phi^{-55} \quad (\delta \approx 1\%). \quad (7.37)$$

Besides, the doubled **Primal unit of Time** (viz. 1 arc minute, or $2 \times 2 = 4$ sec.) **also fits this series**

$$T_o \cdot \Phi^{-29} = 3.9969 \cong 4 \quad (\delta \approx 0.08\%). \quad (7.38)$$

TS5. Fibonacci series brings the Great Pyramid Time units into correlation with the periods of the basic phenomena. It is obvious, that through the relations (7.37), (7.38) the GP's time units come to the synchronism with all those periods that were considered in the previous Parts. But it is very interesting (this fact will be seen below in the GP design analysis once again) that the exponent in the relation (7.37), viz. **55**, presents the term u_{10} of the Fibonacci series (See Table 2.1), while the remaining terms of this series (Table 7.4) define a series of fundamental Terrestrial periods which are defined by any integer k as an exponent in the terms of ATS series. Note, that the exponent **29** also belongs to the Fibonacci-like series ν , ($\nu_7 = 29$).

For convenience of further analysis, remind these values together with their products $w_i = 6 \cdot u_i$. The origination of this factor **6** will be clear, but later; note here that this scale factor **6** presents one of the most **important** bases for obtaining the **fractal periods** in the Ancient Time count systems, and that the series w also forms a Fibonacci-type series like ν .

Table 7.4. The Fibonacci numbers which specify the subset of the exponents for the ATS terms

i	1	2	3	4	5	6	7	8	9	10
u_i	1	1	2	3	5	8	13	21	34	55
$w_i = 6 \cdot u_i$	6	6	12	18	30	48	78	126	204	330

Then, the ATS terms $T_o \cdot \Phi^{-k}$, where for the exponent k the values u_i are taken, and their most important correlates are as follows

$$T_o \cdot \Phi^{-55} = 0.001119231 \text{ sec} - \text{the cubit-defined time unit (7.36);}$$

$$T_o \cdot \Phi^{-21} = 3.99 \text{ h,} - 1/6 \text{ part of a day}$$

$$T_o \cdot \Phi^{-8} = 0.236 \text{ yr} - \text{the period of Mercury (0.241 yr);}$$

$$T_o \cdot \Phi^{-5} = 0.9982 \text{ yr} - \text{the period of Earth (1.000 yr).}$$

TS6. GP's Perimeter as the Zodiacal Age for precession of Equinoxes and Apsides. The equinoctial point returns to the same position relative to the line of apsides (Perigee/Apogee) in 20934 – 21128 years [29] (different estimates exist for this value due to fluctuations in these processes). therefore, if the value $N_C = 1760$ defines the duration of one Zodiacal age in years, the total period would make

$$1760 \times 12 = 21120 \cong 21128 \quad (\delta \approx 0.04\%), \quad (7.39)$$

or $1760 \times 12 = 21120 \cong 20934 (\delta \approx 0.9\%)$; however, if we consider the Jovian period, we obtain

$$1760 \times 11.862 = 20877 \cong 20934 \quad (\delta \approx 0.3 \%). \quad (7.40)$$

This establishes a close correlation between the **Great Pyramid perimeter** (as time in years), **precession of Equinoxes**, precession of **Apsides** and Jovian period or Zodiacal ages.

TS7. The Great Pyramid Face Area as the duration of Kali Yuga and Precession of Equinoxes. As the **Perimeter** of the GP's had been postulated (See (7.B), Sec.7.3.2) through a **linear** relation, so the **faces** are defined via the **squared** measure of the height (7.A). Therefore, as the area of one face makes $S_1 = 280^2 = 78\,400$, the total Great Pyramid face area makes

$$S_{GP} = 313\,600 \text{ (yr)}. \quad (7.41)$$

Hence, the **Great Pyramid Face Area**:

makes **12** cycles of **Precession of Equinoxes**

$$\frac{313600}{12} = 26\,133.3 \cong 25920 \quad (\delta \approx 0.8 \%); \quad (7.42)$$

approximates the duration of Kali Yuga

$$313\,600 \cong 324\,000 \quad (\delta \approx 3 \%). \quad (7.43)$$

7. 6.2. Great Pyramid: Primal units of Time and Space and their "Extra-Terrestrial" Correlates

As the Great Pyramid base (as *horizontal*) correlates, first of all, the parameters of the Globe, so we may expect that its height (as *vertical*) correlates the Globe, first of all, with its upper world – with the Sun and other planets. In other words, if the base units define the "harmonical" relations (as we see them in our life, viz. in "horizontal"), we may expect that the GP's "height" parameters define the "vertical", or the evolutionary Time as it was called in the previous Parts. For testing this hypothesis we assume that the height of the limestone core of the Great Pyramid, as well as the number of their courses, are not taken at random.

TS8. The height of the Great Pyramid and the mathematical constants. Consider the product

$$M = \Phi \times \pi \times e = 13.817\,580\dots \quad (7.44)$$

and find the height x which divides the GP's height in this ratio

$$\frac{h-x}{x} = M.$$

The result is as follows

$$x = \frac{h}{M+1} = \frac{280}{14.817580\dots} = 18.89647 \approx 18.9 \text{ (c)}. \quad (7.45)$$

$$h-x = 280 - 18.89647 = 261.1 \text{ (c)}. \quad (7.46)$$

By comparing the last value with the existing estimate 262 (c) of the truncated (viz. limestone) part of the Great Pyramid, we obtain

$$261.1 \cong 262 \quad (\delta \approx 0.3 \%). \quad (7.47)$$

As far as each of these three constants is integrated in the design of the Great Pyramid with an error of 0.06%, the error in the product corresponds to $3 \times 0.06\% = 0.18\%$.

A good concordance between the latter error and that of (7.42) gives us a *sound evidence* that the *product* $\Phi \times \pi \times e$ *defines the height* at which the *cap* of the *Great Pyramid* had to be installed.

To this end it is important to note that the height of the truncated pyramid itself (262 cubits) gives a fractal of the *squared* Golden section $\Phi^2 = \Phi + 1 = 2.618\dots$, thus introducing the *power series*

$$2.62 \cong 2.618\dots \quad (\delta \approx 0.07 \%) . \quad (7.48)$$

As to another estimate of 264 (cubits), in contrast to 262, we probably have no sound grounds to choose between them until we would have known whether the Cap was a stone or a frame with the golden plates, and at what height the latter structure started.

This gives one more evidence relative to a multiplicative nature of symbolism that is associated with the vertical in addition to the direct use of the Golden section through the postulating its use for the height and apothem of the GP.

TS9. The Great Pyramid ratio, Solar cycle, Jupiter and Precession of Equinoxes. Consider the *ratio of the principal GP's dimensions*

$$440 / 280 = 1.571\dots$$

Its three-digit integer fractal is 157 – a value being close to the product $N_B = 156$ of two basic multiples (12 and 13) in count of time $156 \cong 157 \quad (\delta \approx 0.6 \%)$.

As we know, the principal extra-terrestrial periods, which exert maximal influence to the Earth, are the Solar and Jovian ones: $T_o = 11.07$ yr, $T_J \approx 11.862$ yr.

The resonant, or synchronistic period for these two is the minimal time interval, within which these two periods repeat integer times. With a very high accuracy it makes $T_B = 166.06$ years:

$$15 \times T_o = 166.05 \cong T_B \quad (\delta = 0.06 \%) \quad (7.49)$$

$$14 \times T_J = 166.07 \cong T_B \quad (\delta = 0.06 \%) \quad (7.50)$$

Note, that *this period* can be considered as *one of the most important* ones for the *Solar System* as specifying the resonance between the most powerful objects of this System.

Then, if we find the product of these two important quantities,

$$T_{GP,B} = N_B \times T_B = 156 \times 166.06 = 25905.36, \quad (7.51)$$

we obtain almost an exact value for the *period of Precession of Equinoxes*

$$T_{GP,B} \cong 25920 \quad (\delta \approx 0.06 \%) . \quad (7.52)$$

Therefore, the *Zodiacal year* of 25920 Tropical years presents, *almost exactly*, $N_{S,GP} = 2340$ ($= 12 \times 13 \times 15$) *Solar cycles*, and each *Zodiacal Age* includes, with the same accuracy, 195 ($= 13 \times 15$) *Solar cycles*.

Note, that through the multiples of the *number* $N_{S,GP} = 2340$ we find a *direct correlation* with the *Mayan Calendar* that considers 1 872 000 days in 13 *Baktuns* (an analogue of Age, 144 000 days each). Among other partitions, we see the *Tun* of 360 days (an analogue of the year) which comprises 18 *Vinals* (months); besides, the Mayan counting system uses the base 20. In general, we see that the duration of the Mayan Calendar makes $N_{S,GP} \times 800$.

It is also important to note, that Maya associated their Calendar with the changes in the Terrestrial life that should be caused by the *Space influence*.

7. 6.3. Great Pyramid: Primal Numbers and their Correlates

It is naturally to assume that apart from numbers which originate from measurements of the Great Pyramid, those numbers that specify the discrete features of this pyramid are as important as the former ones. Among them, the most *evident is the number of the courses* $N_V = 203$ of the GP's limestone core. The more so that they are leveled to a very high accuracy.

Together with these 203 "apparent" courses, consider the Cap, whatever it was, as the 204th course that crowns the structure and, thus, gives us the *complete number of courses* $N_C = 204$.

TS10. GP's Courses: Evolutional Compressing of Time Cycles. Suppose that the courses present a sequence of cycles within a definite hypercycle, whereas their perimeters, by analogy with the base, define the lengths of these cycles.

Let $a = 220$ present, as above, half of the base edge, $b = 14.1$ – half of the top square edge of the truncated pyramid, and h – an average shift of each course at one of the faces

$$h = \frac{a-b}{203-1} = 1.019 \cong 1 (\text{cubit}) \quad (\delta \approx 2 \%). \quad (7.53)$$

Note. This estimate shows that, in average, each step of the limestone core presents the GP's form ratio certificate – the triangle of Fig.7.2 with the sides (in cubits) of 1, Φ and $\sqrt{\Phi}$.

Then, the half-width a_k of the course with number k , ($k = 1, 2, \dots, N$) makes $a_k = a - h \cdot (k - 1)$. With the aim to simplify the subsequent qualitative analysis, by taking the approximate value of (7.52) for h we obtain $a_k = 220 - (k - 1) = 221 - k$.

Then, the ratio of two subsequent periods being reflected by course perimeters a_k and a_{k+1} makes

$$r_k = \frac{221-k}{221-(k+1)} = \frac{221-k-1+1}{221-k-1} = 1 + \frac{1}{220-k}. \quad (7.54)$$

It is clear now from (7.54) that the ratio of subsequent periods follows the hyperbolic trend, as in the case of evolutionary time (See Part 3): as we advance upstairs, the ratio of durations of the subsequent cycles increases. This situation supports the concept of acceleration of time.

TS11. Great Pyramid Course Numbers and their Multiples. Consider now the courses as purely the integers.

The *evident number of the courses* $N_V = 203$ by its multiples 19×7 describe the Earth's System, that is the Globe and Moon (as its satellite), with the use of these integer approximants:

the Sacred number 7, by itself, specifies the 7 planes of the Earth's evolution;

this pair of numbers specifies the basic Moon numbers (in days) – the length of the Moon phase (the week) and synodic month (29.5 days);

the sum of digits for N_V gives 5, the number of the human being, that is also associated with Φ ;

on the upper level, these are the 5th place of the **Sun** and 7th place of the **Saturn** in the ATS series Γ with respect to the term of the Earth; 7 Rays of the Sun, and the period of Saturn.

But much more interesting results can be obtained through the use of the *complete number of the courses* $N_C = 204$ which *correlates the Earth with the Solar System*.

From the viewpoint of its multiples, $204 = 3 \times 4 \times 17$, this number is also actual:

12 presents the Sacred pair of numbers **3** and **7**, the *dodecahedron, Zodiac*, etc.

17 presents the Sacred number of the Sun, both in Egypt and for Mayan people (See Sec. 7.2).

However, it was interesting for me to find a correlation between this number, Solar cycle length and Zodiacal year. To this end, considering this value for the number of Solar cycles gave no evident result: though the following product is close to the length of the precession of equinoxes, the error of 4.6% exceeds significantly the primal and secondary threshold errors

$$(204 \times 11.07) \times 12 = 27099.36 \approx 27\,100 \cong 25920 \quad (\delta \approx 4.6\%). \quad (7.55)$$

But recently I have found a special indication to the number

$$N_m = 19.5, \quad (7.56)$$

the 10-fractal of which, $N_M = 10 \times N_m$ gives the searched relation with the primal accuracy

$$(N_M \times T_o) \times 12 = 2158.65 \times 12 = 25903.8 \cong 25920 \quad (\delta \approx 0.06\%). \quad (7.57)$$

Special attention is paid to this number $N_m = 19.5$ in the Section "19.5 - Judgment Past & Future" of [67] with respect to its importance in description of the Cydonia complex monuments (considered as *direct analogue of the Giza complex*), Zodiac and some other objects.

Notes.

1. The 100-*fractal of this number* is engendered by the *direct and most simple ratio* of the two basic mathematical constants which *define the form of the Great Pyramid*:

$$\frac{\pi}{\Phi} = 1.9416... \cong 1.95 \quad (\delta \approx 0.4\%). \quad (7.58)$$

2. The number $N_m = 19.5$ makes $\frac{1}{4}$ of the number **78** as a 6-multiple of the Fibonacci number **13**, that may originate the value N_m .

3. In this integer series the latter one, **13**, stands for $\Phi^5 \approx T_o$ (See para.TS12), viz. for the Solar cycle length, whereas the exponent **5** of this Golden section power presents the Fibonacci number which is reflected in the GP's courses by **30** = 5×6 and presents the lesser part of the number **78** being divided in the Golden section ($8 \times 6 = 48$ and $5 \times 6 = 30$, in integers). The product of these two numbers makes the searched *number of Solar cycles* within a cycle of precession of Equinoxes

$$(78 \times 30) = 2340 = 195 \times 12 \quad (7.59)$$

4. The following interesting relation also takes place. From the one hand, consider the product

$$N_C \times T_o = 204 \text{ (courses)} \times 11.07 \text{ (years)} = 2258.28.$$

From the other hand, the latter value presents *10-fractal* of the Golden section inverse value ($\varphi = 1/\Phi$) of the exact duration of the year (in days) $365.25 \times 10 \times \varphi = 2257.31$, or

$$N_C \times T_o \cong T_{Earth} \times (10\phi). \quad (7.60)$$

TS12. ATS in the Great Pyramid Course Number. Now, look, once again, in the Table 7.4. We see from it that $N_C = 204$ presents the Fibonacci number w_9 of type $6 \cdot u_i$. But more important that it can be expanded into the terms of the basic Fibonacci series as shown in Table 7.5.

The more so that these expansions reflect, on the level of integers, the sequential dividing of the initial value in the Golden section: this means that with respect to (2.8) the ratio u_{i+1}/u_i quickly converges to Φ ; e.g. $55/34 = 1.617647... \cong \Phi$ ($\delta \approx 0.02\%$)! In the same way, u_{i+2}/u_i converges to Φ^2 , etc.

This, as well as other unique correlations between the Fibonacci numbers and Auric series, had allowed the Ancient Egyptians to quite exactly describe the continual properties in integers.

Thus, present the Fibonacci numbers by the segments of respective length (Table 7.5.a). After then, expand the lesser part to its own parts (**b**) with respect to the definition of the Fibonacci series $u_{n+1} = u_n + u_{n-1}$, and so on (**c** – **f**). The right part of this Table illustrates the correspondence between these parts as it is asymptotically specified by the Golden section powers Φ^k .

It is now clearly seen from this Table that the Fibonacci-partitions of the complete number of the GP's courses $N_C = 204$ presents an integer analogue of the Golden section power series, viz. the ATS series Γ .

Indeed:

if b_2 ($c_3 = b_2$) presents the period of the **Earth**, then $b_1 = b_2 / \Phi$ – gives the period of **Venus**, and $c_1 = c_3 / \Phi^3$ – period of **Mercury**.

On the contrary, if d_1 (or f_1) presents the period of the **Earth**, then $d_4 = d_1 \times \Phi^5$ (or $f_4 = f_1 \times \Phi^5$) gives the length T_o of the **Solar cycle**, whereas the term $f_5 = f_1 \times \Phi^7$ – period of **Saturn**.

Table 7.5. Distribution of the Course Number $N_C = 204$ over the terms of the Fibonacci series u and w

Expansion of Fibonacci numbers into components	Comments
$N_C = 204$ (34) 	a – Initial set of 204 courses b – Two subsets: 78 and 126 from 204 $b_1 \xrightarrow{\Phi} b_2$ c – Three subsets: 30 and 48 from 78; 126 $c_1 \xrightarrow{\Phi} c_2$; $c_2 \xrightarrow{\Phi^2} c_3$ d – Four subsets: 12 and 18 from 30; 48 ; 126 $d_1 \xrightarrow{\Phi} d_2$; $d_2 \xrightarrow{\Phi^2} d_3$; $d_3 \xrightarrow{\Phi^2} d_4$ f – Five subsets: 6 and 6 from 12; 18 ; 48 ; 126 $f_1 \xrightarrow{\Phi} f_2$; $f_2 \xrightarrow{\Phi^2} f_3$; $f_3 \xrightarrow{\Phi^2} f_4$; $f_4 \xrightarrow{\Phi^2} f_5$
NOTE: terms u_i are given in bold; w_i – in italic	

Resume 7.6.

We see that the number **11** and the average length of the **Solar cycle** T_o are essentially incorporated in the exterior design of the Great Pyramid. On the contrary, though the number **11** is specially marked by many researches as such that is frequently met in many correlations pertaining to the GP, it was not clear why such attention was paid to this number which did not belong to the basic time systems, except of its use in one of approximations (22/7) for π .

Therefore, with the due regard to the actuality of the Solar cycle and its average duration, as well as to inclusion of number **11** and Solar cycle length T_o to the basic GP's relations we can conclude that the presented relations give **new evidences** in **support** of the accepted **AW platform** and to the basic concepts that were ascribed to the **ATS**.

As well, a series of important algebraic relations has been revealed which set up quite accurate correspondence between the principal Great Pyramid exterior parameters (form, dimensions, geographical positioning, etc.) and mathematical constants, orbital characteristics of the Earth with respect to the Sun and other planets, a significant part of which use the same multiples incorporated in the GP's design and are described by the Golden section power series or their integer analogue – by the Fibonacci numbers.

Last, not least is the esoterical correlation between the Great Pyramid and the Auric Time Scale: the evolutionary concept of time with respect to the direction of our future development – to the Sky, to the Spiritual Sun as the centre of our Solar System, finds its support in the revealed **relations between the vertical and horizontal elements** of the geometrical and algebraic design of this Pyramid. And what is important, this is clearly seen in the relations of the principal GP's parameters of various nature (form, dimensions, number of courses) which are dominantly described by the Golden section power series and associate Fibonacci numbers. To this end, the **GOLDEN SECTION** can be considered as the **PRINCIPAL CERTIFICATE** of the **GREAT PYRAMID**.

These relations provide us with the systematic indications to the multiplicative nature of this development, or evolutionary Time. Thus, by its ratio to the **base** (viz. horizontal element of the GP), the **apothem**, as the basic measure of the "visible element" of the vertical design, relates the "Cosmic" (or spirituality) to the "Earthly" (or materiality) as Φ , whereas the **height** of the **truncated pyramid**, Φ^2 , directly shows that this development (viz. Time) follows the **geometrical progression** with the **Golden section** ratio. This is apart from the apothem itself, with its Fibonacci structure of the courses, which sets up direct correspondence between the **algebraic** properties of the **limestone courses core** of the GP and the **ATS**.

To this end, remind the statement (See Sec. 7.2) that "**EVOLUTION**" in Manvantara takes place in cycles and strictly on the basis of **GEOMETRICAL** [mathematical] **PROGRESSION** scale... [46, II, Addenda, Sec. V].

7. 7. The Geometry of the Ankh

7.7.1. The "Primal" Ankh

With respect to the above description of the basic types of Crosses, the *primary* symbol of the *Ankh* (P-Ankh, for short) can be geometrically described as *Tau* in combination with the *circle*. Tau is presented by two perpendicular segments BC and AD of *equal length*, say l , and the circle O of diameter l with the centre O being tangent to the horizontal segment in the point A (Fig.7.8). It is obvious that this construction is inscribed into the orthogonal *rectangle* $EFGH$ being composed of two *squares* $FGCB$ and $BCHE$. In this sense, call the length of segments BC , AD the *basic dimension* of the Primal Ankh, or Tau; respectively, call the ratio of the P-Ankh overall dimensions 2:1 the *P-Ankh Basic ratio* and denote it as follows

$$N_{PA} = 2. \quad (7.61)$$

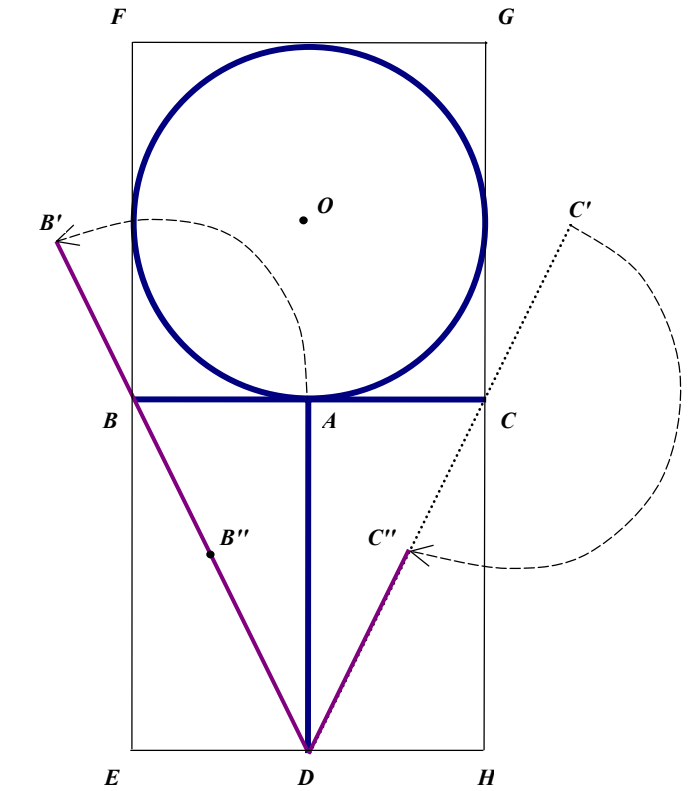


Fig. 7.8. The geometry of the Primal Ankh

On the straight lines that go through the segments BD , CD lay the segments $BB'' = BB' = BA$ and $CC'' = CC' = AC$. As far as the length of the segment BD makes

$$BD = \sqrt{\left(\frac{l}{2}\right)^2 + l^2} = l \frac{\sqrt{5}}{2},$$

for the lengths of the respective segments we obtain

$$DB' = DB + BB' = l \frac{\sqrt{5}}{2} + \frac{l}{2} = l \frac{\sqrt{5} + 1}{2} = \Phi \cdot l; \quad DC' = \Phi \cdot l; \quad (7.62)$$

$$DB'' = DB - BB' = l \frac{\sqrt{5}}{2} - \frac{l}{2} = l \frac{\sqrt{5}-1}{2} = \varphi \cdot l; DC'' = \varphi \cdot l. \quad (7.63)$$

Therefore, in terms of the *basic dimension* of the Primal Ankh:

the sum of the Tau's diagonal BD and half-base AB makes Φ ;

the difference between these segments makes φ ;

the length of the circle O makes π .

Moreover, as far as any power n of the Golden section number can also be obtained with the use of the following formula

$$\Phi^n = u_n \times \Phi + u_{n-1} \quad (7.64)$$

where u_{n-1} , u_n are the Fibonacci numbers, we obtain that *any power of the golden section number* (in the basic units of the Ankh or Tau) *can be obtained geometrically, as the sum of u_n segments DB' and u_{n-1} segments BC .*

Together with (7.61) this means that *with the use of the P-Ankh any term of the Auric Time Series Γ, Γ^* can be obtained geometrically.*

Note 1. For obtaining the *profile* of the *Great Pyramid* it is sufficient to draw an arc with radius DB' around the point D till the line PQ that is parallel to AD and l distant from it (Fig. 7.9). The resulting triangle $B''A''D$ gives the upturned GP 's half-profile where $A''B'' = l \times l$, $DB'' = \Phi \times l$, $A''D = \sqrt{\Phi} \times l$.

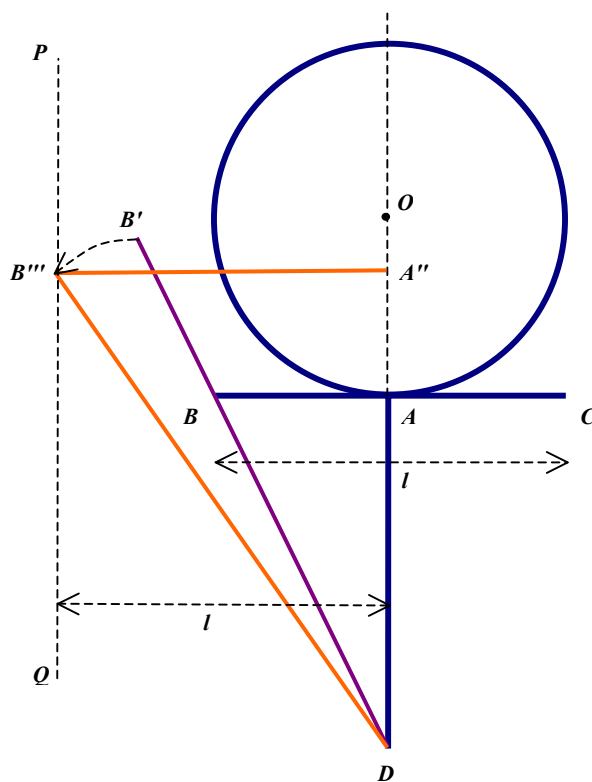


Fig. 7.9. The Ankh (Tau) as a template for the Great Pyramid Profile

Note 2. All the **below illustrations** present the fragments of photos of the Ancient Egyptian frescos and carvings that are copied from [68] by the kind permission of the **Casa Editrice Bonechi** publishing house. To this end, I express my deep gratitude to **Dr Alberto Andreini** for his prompt reply and hope that enlarging of the required details would not cast a shadow on the high quality photos of that album.

All the images of the Ankh were copied from those photos where they were (i) seen full face, in order to exclude linear distortions, and (ii) allocated in the significant places (near the faces of Gods and Pharaohs, etc.), as within the hieroglyphical context they are frequently distorted to follow the font.

Making use of (i) – (ii) gave me an opportunity not only to estimate the proportions of the delineated Ankh and, on this ground, to support the proposed hypothesis, but also to enliven these considerations.

Note 3. An interesting resemblance also exists between the *Ankh* with its Φ -segment horns (viz. segments BB' , CC' of Fig. 7.8) and typical Egyptian symbols of *solar disk* and *waxing moon* between the *horns*. These images are presented in Fig. 7.10.

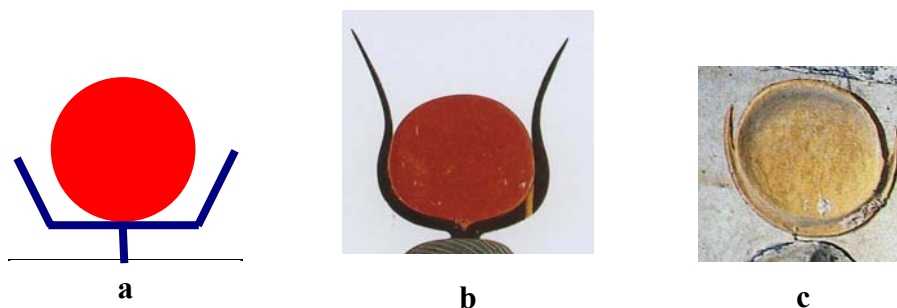


Fig. 7.10. The Ankh and the symbol of Hathor and Thoth

- a** – Φ -horns of the Ankh (according to Fig. 7.8);
 - b** – the bovine horns and the solar disk of Hathor (mural decoration of the tomb of Horemheb);
 - c** – Ibis-headed god Thoth with the waxing moon (decoration of a pillar of the tomb of Ramses VI).
- Photos: credit to Casa Editrice Bonechi [68]).

Resume.

1. By means of simple geometrical construction the *Primal Ankh* engenders, in units of its linear base, both the *constants* π , Φ , φ and 2, and *powers* Φ^n , $2 \cdot \Phi^n$ presenting the *terms of the ATS*.
2. As well, it can be used as a *template* of the *Great Pyramid profile*.
3. With its Φ -horns, the Ankh represents the *ancient symbols* of *Sun* and *Moon* within the horns.

7.7.2. The Delineated Ankh as the image of the Engraved Ankhs

However, if you give a look at the ancient images of the Ankh (Fig. 7.11) being frequently met in the Egyptian Temples and Pharaohs tombs, you will see another geometry of this type of cross; for definity, call it the "*delineated*" *Ankh* (D-Ankh, for short).

In circumstances being specified by items (i) and (ii) of Note 2, the segments of Tau of the D-Ankh retain their 1:1 proportion, whereas the circle, while retaining its height equal to the segments of Tau, is "compressed" along the horizon into a "loop" with an average compression factor $\kappa_A \approx 0.7$ (it varies from 0.6 to 0.75). However, this tightening, from mathematical point of view, is *not uniform*, but rather presents *another type of geometrical object* with an elliptic top and pointed-end bottom.

This conclusion was firstly made on the grounds of visual analysis of a series of Egyptian artefacts in Cairo Museum, Karnak Temple and some tombs in the Valley of the Kings.

Of course, as far as the "geometrical lines", which have no width, in any physical image of Ankh are substituted by "lines with definite breadth", definite distortion of proportions will always take place in these images. However, within the tolerances being specified by the "line breadth" the subsequent study of these proportions with the use of the enlarged photos of Ankh has also confirmed that conclusion.

The second question that puzzled me was the form of that loop, the shape of which was as stable over the observed sample, as the equality of the height of the loop and Tau segments. As far as the selection of its best mathematical equivalent does not present a mathematical problem due to an insufficient accuracy of

the sample patterns, I was searching for such an algebraic curve that was most similar in its form. With taking account of some extra considerations, I had decided in favour of the *lemniscate* of *Bernoulli*. Shortly afterwards, while looking through the notes in my books, I found the following considerations.








No.	Ankh image	Description
1		GRANITE, the Temple of Luxor
2		LIMESTONE, carving on the hypostyle hall column, the Temple of Amon in Karnak
3		GRANITE, a gilded relief, Red Chapel, Karnak
4		FRESCOES, Burial Chamber of Tutankhamen, Valley of the Kings
5		FRESCOES, the Tomb of Ramses III
6		BAS-RELIEFS, the Tomb of Kheruef Sena'a, The Valley of the Nobles
7		LIMESTONE, the Temple of Hatshepsut, Deir el-Bahari

Fig. 7.11. The images of the Ankh. Credit to: Casa Editrice Bonechi [68]

By considering the meaning of two circles which surround two mutually penetrating triangles, H.P.B. reminds the **Caduceus**, associate **LEMNISCATE** and development of an elementary cell, as well as a **NEUTRAL POINT** which is passed two times a cycle [49, Part I, Sec.5]: ... **lemniscate** for the descending evolution from Spirit to Matter, may be other type of spiral for the ascending evolution [46, I, Part II, Sec. X].

Remind that the segments BC and AD present the Matter and Spirit, and circle – the (cyclicity of) Time. Though the circle O presents an infinite sequence of cycles, each of them has definite origin. To this end we may suppose that **the point A** in the **D-Ankh** in the **explicit** way represents the **origin** of **cycle** which is associated with the conflict (or interaction) between the Material and Spiritual aspects of life that initiates new cycle, and the **nature** of this **cycle**, in this context, is not uniform (as in a circle), but **non-linear**, or accelerating with respect to the form of the loop.

Resume. The **delineated Ankh**, as the *geometrical construction*:

- **reflects** the essence of the carved and painted **images of the ancient Ankh**, and
- **repeats** the *geometrical properties* of the **Primal Ankh** with the only *exception* that the *circle* of the former is replaced (at least, at a qualitative level) by **lemniscate**.

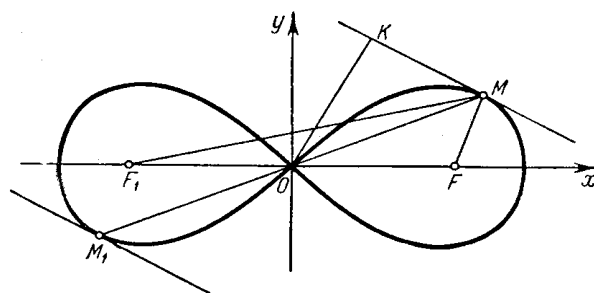
5.7.3. The Geometry of the Delineated Ankh

Thus, the Delineated image of the Ankh differs from the Primal one in the use of lemniscate instead of the circle. Consider what new properties this attributes to the D-Ankh.

The lemniscate of Bernoulli is one of the most remarkable algebraic lines of the 4th order, as it shows a series of very interesting geometrical and mechanical properties [69]. Consider those of them which present basic interest for this study.

Analytically, the lemniscate of Bernoulli (LB) with parameter a is determined as follows (Fig. 7.12)

$$(x^2 + y^2)^2 - 2a^2(x^2 - y^2) = 0. \quad (7.65)$$

**Fig. 7. 12. Lemniscate of Bernoulli. Credit to: [69]**

Geometrically, the LB can be defined as follows. Let F , F_1 be the foci (See Fig. 7.12) with the coordinates $(a, 0)$, $(-a, 0)$, and MF , MF_1 be the distances from some point M to these foci. Then, this curve is formed by all points on the plane such that

$$MF \times MF_1 = a^2. \quad (7.66)$$

In the polar coordinate system $\{O, \rho, \varphi\}$ the equation of the LB is as follows

$$\rho^2 = 2a^2 \cos(2\varphi).$$

Important properties, that were able to attract attention of the Ancient geometricians to LB, are as follows:

- the LB can be used for trisection of angle;
- the LB can be drawn mechanically, with the use of an articulate antiparallelogram;
- the LB can be defined parametrically with the use of number e , by hyperbolic functions.

As we see, this curve is symmetric with respect to both axes and has two leaves; for concreteness, we will consider the right leaf (Fig. 7.13) as the model of the D-Ankh curve (to this end, the left one may be considered as the model of the "*invisible*" cycle).

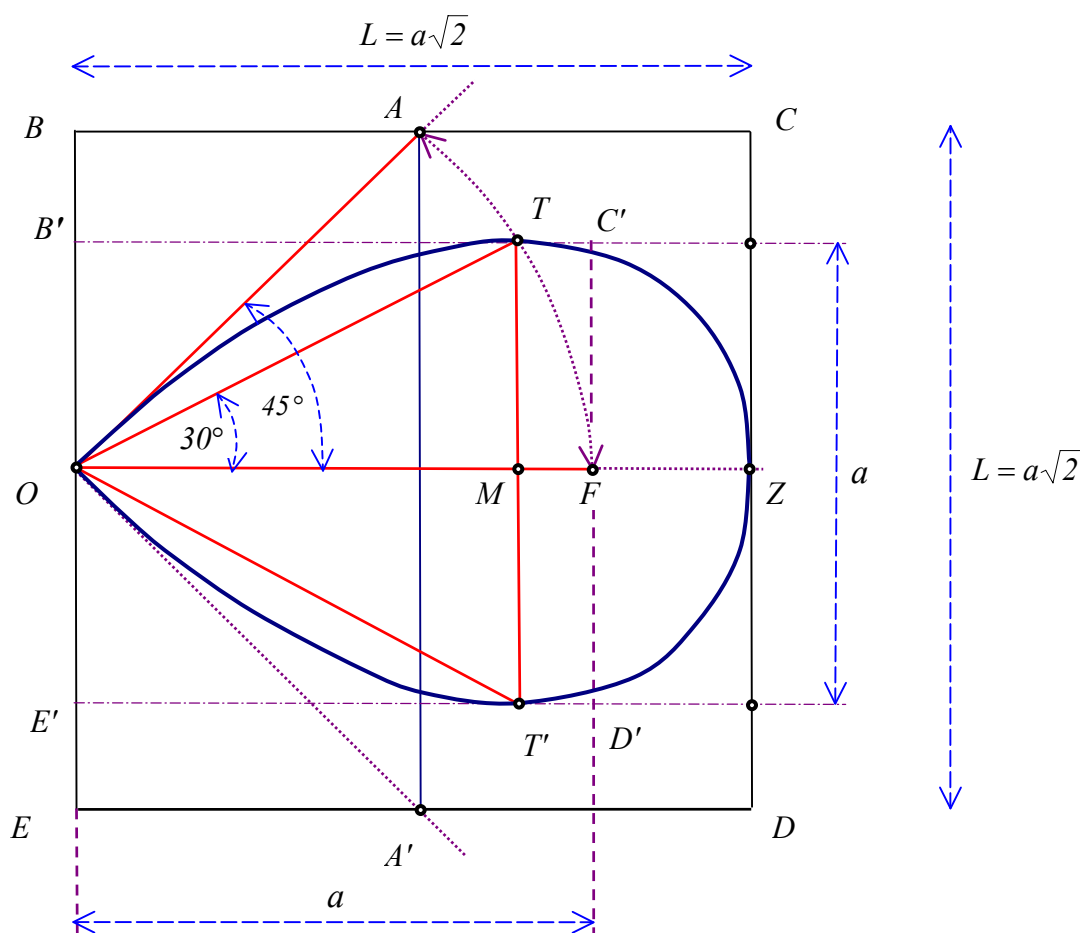


Fig. 7. 13. Lemniscate of Bernoulli with parameter a in the square with the side $a\sqrt{2}$.

An important *properties of the lemniscate of Bernoulli* which present interest to this study are as follows:

LB1. The *tangents* OA and OA' to the lemniscate at the origin O have the tilting angles of 45° and -45° .

This means that these tangents *are* also *mutually perpendicular*. For this reason,

if the LB does actually present the shape of the upper part of the Ankh as it is given in the carvings and frescoes, we can use this LB's property for the criterion of this hypothesis. (7.67)

LB2. The *area* of one leaf of the *lemniscate of Bernoulli* makes a^2 .

This means that the LB' area makes $\frac{1}{2}$ of the area of the square $BCDE$, or equals to the area of both the square $B'C'D'E'$ on the side $D'C'$ of which the focus F lies, and to the square $OAZA'$. Therefore,

The *area* of the *lemniscate* of the D-Ankh (viz. upper part of the Ankh) *equals* to the area of the triangle BCD (See Fig. 7.8) presenting the *Tau*, or lower part of the *D-Ankh*. (7.68)

LB3. The point M where the LB reaches its maximal height makes the larger leg of the right triangle TOM with the angle $\angle TOM = 30^\circ$. Therefore, as far as

$$OA = OT = OF = a \quad (7.69)$$

we obtain that $TM = a/2$, and the *maximal width* of the *lemniscate*

$$W = a \quad (7.70)$$

is reached at the point M , viz. in the point

$$x_M = a \frac{\sqrt{3}}{2} \approx 0.866026 \times a, \quad (7.71)$$

or

$$x_M = a \frac{\sqrt{3}}{2} = \frac{L}{\sqrt{2}} \frac{\sqrt{3}}{2} \approx 0.61237 \times L \cong \varphi \times L \quad (\delta \approx 0.9\%). \quad (7.72)$$

This means that the point M divides the basic segment OZ (viz. the height of Tau) in the Golden section; in other words, the segments OM of Fig. 7.13 and DC'' of Fig. 7.8 are equal.

Hence,

If the *dimension* l of the *Tau* is taken for the *unity* of length, the *height* h_L and *width* w_L of the *lemniscate of Bernoulli* make

$$h_L = l, \quad (7.73)$$

$$w_L = l/\sqrt{2} \approx 0.7 \times l. \quad (7.74)$$

Resume 7.7.

By allowing for clear difference between the geometrical properties of the D-Ankh and artifact images, we can, however, compare their parameters with respect to the specified criteria, but within a reasonable tolerance. For carrying out this analysis, the Ankh images have been selected so as to conform to the evident rules: to be allocated at the significant positions, to present diverse stuff of the artefacts, and not to be notably distorted while copying; a part of these images is given in Fig. 7.11. The results of these comparisons support, at least on a qualitative level, the hypothesis as to the Delineated structure of considered Ankh images. In particular, we may conclude the following.

1. Measurements show that the property **LB1** together with (7.67) is actually noticeable.
2. Though it is hardly possible to use the property **LB2** together with (7.68) as a criterion for testing the proposed Hypothesis on a basis of measurements, they give "theoretical evidence": as for the Great Pyramid, where the Golden section is defined through the areas, in this case the both parts of the **Ankh** are also equated through the areas.
3. The height of the Ankh image loop, in average, is equal to the height and width of the Tau, as the lower part of the Ankh image, whereas the width/height ratio of this loop varies around the value of $\kappa_A \approx 0.7 \pm 0.1$.

Therefore, the Delineated Ankh, the upper part of which is presented by the lemniscate of Bernoulli, may be considered as that geometrical model which was followed by the ancient Egyptians when they depicted the Ankh with an esoterical background.

7. 8. The ATS and the Ankh in the Geometry of the King's Chamber

As far as the King's Chamber presents the place of the Highest Initiations we can expect that it also describes, in its form and dimensions, the basic concepts of Time and Space. To this end, though there exist some correlations being associated with this Chamber, it is nevertheless interesting to see whether this Chamber has something in common with the ATS, or not. As far as the dimensions can speak, but in cubits, they are given in this unit. Note also, that a series of photos of the Great Pyramid premises (See Web references in para. 7.2.2.) may illustrate the below considerations.

7.8.1. The Basic Dimensions of the King's Chamber

The dimensions of the King's Chamber (*in cubits*) are as follows

Length	$L = 20$, exactly	[70], [71]
Width	$W = 10$, exactly	[70], [71]
Height.	Note [71]. There is an anomaly within the King's Chamber. The floor is strangely out of level. It is at a level of 82.06 cubits near the South wall, slopes upwards to 82.16 cubits towards the middle of the floor, and then downward again to 82.00 cubits close to the Great Step.	
	<i>Floor.</i> Lowest level on the floor	82.06 [71] (in the King's Chamber)
		Highest level on the floor 82.16 [71]
	<i>Ceiling.</i> Level on ceiling	93.20 [71] (Table value, p.205)

Because the height is taken off the floor, different heights may be considered. For this reason it makes sense to consider the following values for the height:

Minimal height	$H_m = 93.20 - 82.16$	$= 11.04;$
Maximal height	$H_M = 93.20 - 82.06$	$= 11.14;$
Average height	$H_A = \frac{1}{2} (11.04 + 11.14)$	$= 11.09.$

The *centre of the Chamber* is $l_E = 4.8$ east of the centre axis [70].

The Chamber is entirely made of red granite, in *five courses*.

7.8.2. The King's Chamber, the Ankh, and the Sarcophagus

The most intriguing things that puzzle us in the King's Chamber are its *integer* (in cubits) **length** and **width**, and their exact **ratio** being equal to 2. However, if we see the integer lengths in perimeter of the Great Pyramid and some other basic dimensions, this proportion, viz. **2:1** is probably unique; at least, this **ratio** was *very important* for the *Architect*, if He integrated it in this Chamber.

To this end, remind that respect the Ancient Egyptians paid to the *Ankh*, the basic ratio of which also made **2:1**. For this reason it is naturally to suggest that the superposition of the Ankh on the King's Chamber floor may have definite importance; the more so because in the current position the Sarcophagus is placed in this Chamber so (Fig. 7.14) that *all critical points* of both the *Primal* and *Delineated ANKHS lie within the SARCOPHAGUS*, and on *its axis*.

Indeed, as it is seen from this Figure the parameters of the Ankh (in cubits) are as follows

$$ZT = L/2 = 10 \quad (Z - \text{the centre of the King's Chamber}); \quad (7.75)$$

$$ZO = ZT/2 = 5 \quad (A - \text{the centre of the upper square}); \quad (7.76)$$

$$ZA = l_E = 4.8 \quad (A - \text{Intersection of the King's Chamber long axis an S/N axis}). \quad (7.77)$$

With respect to Sec. 7.7, the critical points of lemniscate for this case make

$$ZF = \frac{10}{\sqrt{2}} \approx 7.07 \quad (\text{Focal distance } a); \quad (7.78)$$

$$ZM = ZF \times \frac{\sqrt{3}}{2} \approx 6.12 \quad (\text{Point of maximum}). \quad (7.79)$$

Besides, as far as the King's Chamber and the Sarcophagus were used for the Initiations, together with the Ankh (See Sec. 7.2), *symmetrical imposing of the Ankh over the Sarcophagus* is also **significant**, since in this case the *horizontal segment of the Tau* covers all these **critical points** *A, O, M, F* of Fig. 7.14.

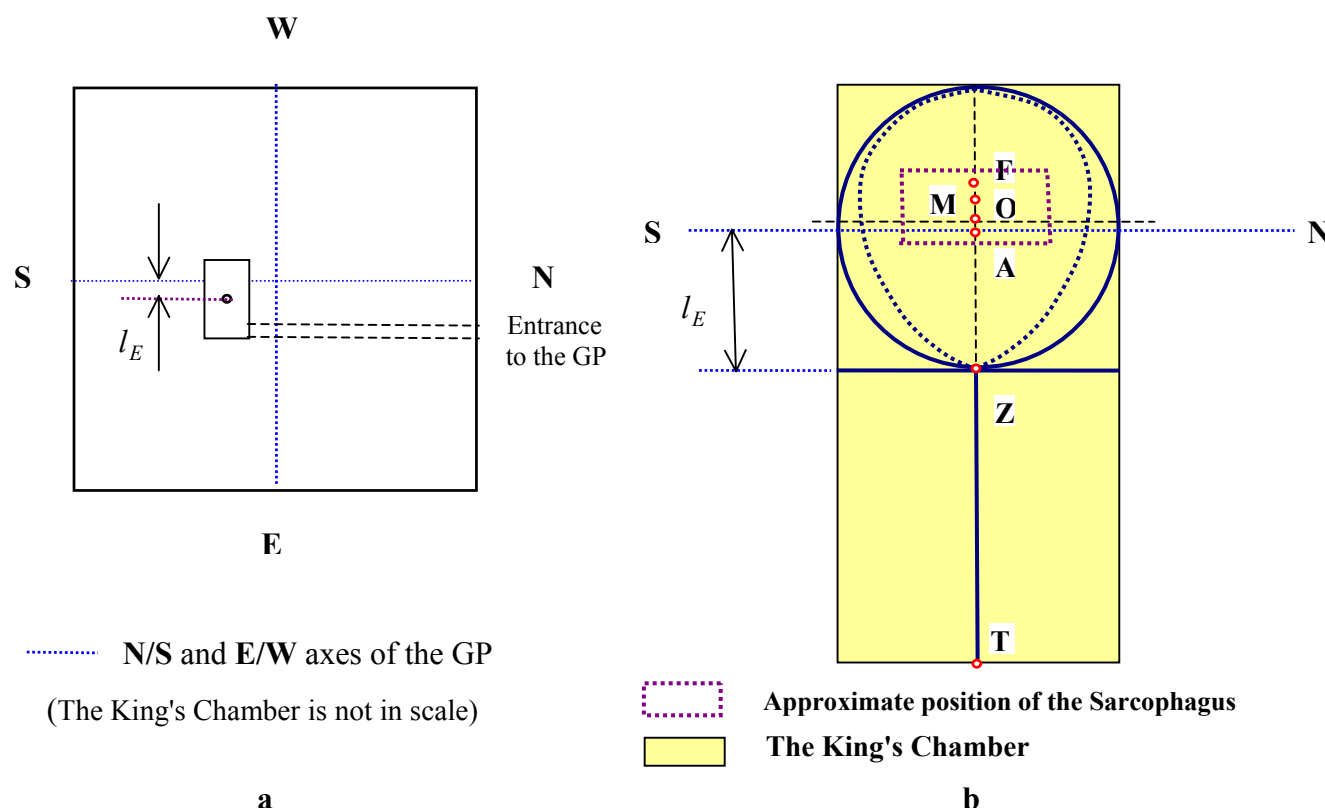


Fig. 7. 14. The King's Chamber, the Ankh, and the Sarcophagus

a – Great Pyramid section on the level of the King's Chamber floor

b – Superposition of the Ankh on the King's Chamber floor and Sarcophagus

7.8.3. The King's Chamber and the Auric Time Scale

As in the case with the Great Pyramid, consider the floor for the Earth parameters, and the upward direction – for the Solar ones.

ATS1. Namely, take **1 cubit** for the **Tropical year**. Then, **the upward** (viz. Sun-associated) period, with respect to the obtained estimates for the height, make

$$\text{Minimal period} \quad T_m = 11.04 \text{ (years);} \quad (7.80)$$

$$\text{Maximal period} \quad T_M = 11.14 \text{ (years);} \quad (7.81)$$

$$\text{Average period} \quad T_A = 11.09 \text{ (years).} \quad (7.82)$$

Though we do not know why the King's Chamber floor was made lenticular, but the **average height** defines the period $T_A = 11.09$ (yr) that actually equals the average **Solar cycle length** $T_o = 11.07$ and almost exactly coincides with the 5th term $\Phi^5 = 11.09017...$ of the ATS series Γ .

ATS2. The *five courses* of the *King's Chamber walls* are concordant with the fifth power of the Solar cycle period in the ATS with respect to the Tropical year.

ATS3. The King's Chamber floor *diagonal* $D = 11.18$ is close to the Maximal height $H_M = 11.14$, which gives one more evidence to the use of the Golden section in the design of this Hall.

ATS4. As the *perimeter* $P_{KC} = 60$ belongs to the floor, viz. to the *Earth*, so the well-known period presents the cycle of *60 years* which is associated with the *Jovian* cycles

ATS5. The approximate (with respect to the value of the height) *Surface* of the *(four) walls* $S_{KC} = P_{KC} \times H_A = 60 \times 11.09 = 665.4$ equals to *four times the Sun/Jupiter period* of $T_B = 166.06$ yr (7.49) with an error of $\delta \approx 0.17\%$.

At the same time, if the respective Solar cycle length $T_o = 11.07$ is used instead of the approximate value of the height, we obtain

$$S_{KC} = P_{KC} \times T_o = 664.2 \cong 4 \times T_B \quad (\delta \approx 0.006 \%) \quad (!) \quad (7.83)$$

ATS6. The *Volume* of the King's Chamber $V_{KC} = 10 \times 20 \times 11.0x$ makes *100 Hale cycles* (of Solar activity), or about $\Phi^{11} \approx 199$ *Solar cycles*, where we find this number, 11, once again.

ATS7. To this end, it is important that this *number, 11*, is so frequently met in the important proportions of the Great Pyramid that this fact was *especially marked in* [71].

Resume 7. 8.

1. The geometric design of all types of the *Ankh* is probably *the only* significant *artefact*, which *exactly fits* the *King's Chamber floor*;
2. The current *position* of the *Sarcophagus* is *not random* in the sense that all *critical points* of the *Ankh* and the *Great Pyramid South-North axial profile* fit its centre line.
3. Therefore, even the *overall dimensions* of the *King's Chamber* define, at the *primal accuracy*, the relation between the *Tropical Year*, *Jovian period* (which is very important for the Earth) and the average *Solar cycle length* (both directly and through the *ATS* – via the Golden section power Φ^5), and *not for the first time*, as these relations were also revealed in the *Great Pyramid* exterior design!

7.9. Conclusions

1. It is shown that the ancient wisdom of many cultures paid special attention to the mystery of the Sun, as well as to its 11-year cycles.

2. An Outline of Esoteric Roots of the Great Pyramid and other Egyptian Artefacts gives us good reason to believe that in their dimensions and proportions these objects reflect the exact knowledge relative to the Earth, Space and Time. Moreover, the Ancient Wisdom even supplies us with the concepts as to the structure of Space and Time, including the indication to the geometrical Scale of Time.

3. With taking account of the above conclusions and the variety of standpoints relative to the Egyptian Artefacts, the Ancient Wisdom Platform (AWP) is put forward which formulates our understanding of these Artefacts and the principles that must be followed in studying these objects. With the aim to heighten the adequacy of the conclusions, it presumes that:

- the polysemy of the artefacts must be taken into consideration; it presumes that a series of heterogeneous, but coordinated concepts may *simultaneously* be presented in the same artefact (e.g. in its geometrical structure), whereas the concepts must correlate in different artefacts, or manifest themselves in a similar way;
- when comparing the artefacts and/or their elements, the comparison error must be estimated, but within a systematic approach;
- when studying the Great Pyramid, the Functional (viz. "energy converting") and Descriptive (viz. "librarian") aspects are to be distinguished.

4. On the grounds of studying of the exterior of the Great Pyramid as a regular pyramid with the square base and equal flat faces, it is shown, apart of other things, the following:

- the Great Pyramid gives virtually the optimal solution to the problem of integer approximation of all three fundamental irrational mathematical constants, Φ , π and e :

the accuracy of this approximation cannot be substantially increased, since the actual GP's form ratio (of height to half-base) differs from it, but insignificantly, with a relative error of 0.000 08, or 0.008%;

no other small integers exist, except of 14 and 11, that provide such an exact approximation for the pyramid ratio;

- for the Great Pyramid the tolerance may be attributed which reflects the highest systematic accuracy for its exterior position and geometry. As far as the respective relations being incorporated in the GP's regular design take place simultaneously and to within almost the same error of $\delta_{GP} \approx 0.06\%$, this value, or its round off $\delta_{GP}^* = 0.1\%$, can be accepted for the **primal threshold error** for the Great Pyramid (for comparison: this accuracy corresponds to a 52 second interval relative to day, 24 hours).

5. The numbers $n = 14$, $k = 11$, and $l = 20$, as the basic multiples of the Great Pyramid design, are very important by themselves.

From Symbolic point of view:

- if the former presents one of the most Sacred Egypt numbers, the latter one is not significantly associated with any significant ancient cycle or other quantity. However, with respect to the great significance of the 11-year Solar cycles, we can suggest that in this important GP's proportion it reflects namely the length $T_o = 11.07$ of this cycle (as the number 11 can hardly have other basic meaning than the length of the **Solar cycle**). In another presentation, $n^* = 7$, $k = 11$, we see not less

significant number 7, which, in particular, is associated with the Moon; in this case we see the direct association with the Moon quarters and Solar cycles.

- this pair of numbers, 7 and 11, seemingly presents the principal numbers of the Sun as the first of them, as the most Sacred one, also specifies the Mystic number of the Seven Sun Rays. Note also, that the latter ratio, 14:22 gives the number 22, which presents, apart from other meanings, the Hale cycle of Solar activity.

- the multiple 20 of the basic dimensions 280, 440 (220) and numbers 14, 11, presents a widely spread base of count, for the Mayan calendar as well.

From mathematical point of view:

the numbers 7 and 11 present the sequential terms of the Fibonacci series $v = \{1, 3, 4, 7, 11, 18, \dots\}$ (See Part 2) which specifies the integer core of the *Auric Time Scale* (See Part 2) (asymptotically, it gives the integer presentation of the Golden Section number power series and, therefore, their ratio v_{i+1} / v_i , gives the Golden section).

6. Comparison of the actual metric and geographical parameters of the Great Pyramid vs. the most probable Earth's parameters that are associated with them allows us to conclude that the Great Pyramid position on the Earth, orientation to cardinal points, and its base length are fixed in its construction with the same, in average, relative error of $\delta_{Ang} \approx 0.06\%$, which, in its turn, corresponds to the maximal error of $\delta_\phi = 0.06\%$ with which the structure of the Great Pyramid reflects the mathematical constants through the integer ratio of 14 to 11 (or 7 to 11).

7. As far as the estimate 0.5 % gives a maximal, in average, error for the typical *Giza Artefact* relations in which the considered parameters are obtained through transformation of the primal ones (that, in their turn, are attributed with the primal threshold error), call it the **secondary threshold error = 0.5%**.

As in the case of the *primal threshold error*, we may consider it together with its round off $\delta_G^* = 1\%$, the more so that the latter one coincides with the error $\delta^* \approx 1\%$ in the average length of the Solar cycle T_o .

8. The legends show that the Great Pyramid was shining as a diamond, with its golden cap. Egyptians called the Great Pyramid the "*Glorious Light*". As it turned out, these external manifestations of reflection of Solar light also characterize the exterior of the Great Pyramid, from the functional point of view as well. It is revealed that the **Critical angles** of the *Sun* at its *culmination over the Great Pyramid*, which are associated with transition processes in *illumination* of the *Northern face* of this Pyramid, are of great importance:

- the Ecliptic **longitudes** of these **Critical angles** define all **three mathematical constants**, Φ , π and e in a similar way – as a ratio of respective length of Ecliptic arc to the angular length of Ecliptic. Implicitly, this also specifies the angle of the **inclination** of the *Earth*, ε ;

- these ratios take place with almost the same accuracy. Though the **average error** $\delta_{F,Const} \approx 0.5\%$ for these relations is greater than the *primal threshold error*, it is natural to expect that these second-order functional dependencies of the principal Great Pyramid parameters are to show greater error;

- the *accuracy* in correspondence between the critical points **FS, FA** of the *Great Pyramid* and the critical points **15° Taurus, 15° Leo** of the *Tropical Zodiac* is still higher than the accuracy in defining the length of the **Solar cycle**;

- revealing of the direct correspondence between these *critical points of the Tropical Zodiac* and the *Critical angles of the Sun* at its *culmination over the Great Pyramid* is very important from *esoteric* point of view.

9. The *Great Sphinx* (GS) is another miraculous Mystery of the Giza complex. To this end it is revealed the following:

- the *Critical angles* (symbolically and by their geographic, Ecliptic and Equator projections to the Great Pyramid base) **point**, through the Sacred points 15.0° *Leo* and 15.0° *Taurus* (they correspond to the moments when the Great Pyramid starts (stops) its daily "flaring up"), to the *head of Sphinx* and to the *Pyramid Khafre*. This conclusion is obtained with taking account of a system of relevant aspects of the problem and is characterized by a *primal* and/or secondary *accuracy* of correlations. What is important, these correlations are described with the use of the *Golden section* and its *powers*;
- indirectly, this gives us *one more evidence* that the concealed properties of the *Sun* are more or less exactly described, but with the use of the *Auric series* Γ ;
- last, not least is the *incredible coincidence* between the **obtained qualitative results** and the above stated **esoterical concepts** being attributed to the *Great Sphinx*; first of all – these are the Sun-Great Pyramid illumination events **L** and **F** that (i) define the Sacred points 15.0° *Leo* and 15.0° *Taurus* of Zodiac and, in their turn, **point** to the *head* of the *Great Sphinx* and to the *Pyramid Khafre*, respectively.

10. It is revealed how the ATS, as a combination of its Golden section powers and average Solar cycle length T_0 (with its integer presentation – the number **11**), as well as some associate periods are encoded, or essentially incorporated in the Great Pyramid exterior form, numbers and primal dimension (in cubits). To this end, it is important that the number **11** is specially marked by researches as such that is frequently met in many relations pertaining to the GP, though it was not clear why such attention was paid to this number which, except of its use in the *ratio* $22/7$ for π , did not belong to the basic time systems.

Therefore, with the due regard to the actuality of the Solar cycle and inclusion of its parameters to the basic GP's relations we can conclude that the revealed relations give *new evidences* in *support* of the accepted *AW platform* and to the basic concepts that were ascribed to the *ATS*. In particular:

- a series of important algebraic relations define quite accurate correspondence between the principal Great Pyramid exterior parameters (form, dimensions, geographical positioning, etc.) and mathematical constants, orbital characteristics of the Earth with respect to the Sun and other planets, a significant part of which use the same multiples incorporated in the GP's design and are described by the Golden section power series or their integer analogue – by the Fibonacci numbers;
- the esoterical correlation between the Great Pyramid and the Auric Time Scale is also quite evident: the evolutionary concept of time with respect to the direction of our future development – to the Sky, to the Spiritual Sun as the centre of our Solar System, finds its support in the revealed *relations between the vertical and horizontal elements* of the geometrical and algebraic design of this Pyramid. This is clearly seen in the relations of the principal GP's parameters of various nature (*form, dimensions, number of courses*) which are dominantly described by the Golden section power series and associate Fibonacci numbers. To this end, the **GOLDEN SECTION** can be considered as the **PRINCIPAL CERTIFICATE** of the **GREAT PYRAMID**;
- these relations provide us with the systematic indications to the multiplicative nature of this development, or evolutionary Time. Thus, by its ratio to the *base* (viz. horizontal element of the GP), the *apothem*, as the basic measure of the "visible element" of the vertical design, relates the "Cosmic" (or spirituality) to the "Earthly" (or materiality) as Φ , whereas the *height* of the *truncated pyramid*, Φ^2 , directly shows that this development (viz. Time) follows the *geometrical progression* with the *Golden section* ratio. This is apart from the apothem itself, with its Fibonacci struc-

ture which sets up direct correspondence between the *algebraic* properties of the *limestone courses core* of the GP and the *ATS*.

To this end, remind that: "*EVOLUTION*" in Manvantara takes place in cycles and strictly on the basis of *GEOMETRICAL* [mathematical] *PROGRESSION* scale... [46, II, Addenda, Sec. V].

11. With respect to the description of the basic types of Crosses, the *PRIMARY* symbol of the *ANKH* can be geometrically described as *Tau* in combination with the *circle*, where the Tau is presented by two perpendicular segments of equal length, the same length (the *basic dimension* of the Primal Ankh, or Tau) has the diameter of the circle. It is shown that:

- by means of simple geometrical construction the *P-Ankh engenders*, in units of its linear base, both the *constants* π , Φ , φ and 2, and *powers* Φ^n , $2 \cdot \Phi^n$ giving the *terms of the ATS*;
- the *P-Ankh can be used* as a *template* of the *Great Pyramid profile*;
- with its Φ - *horns*, the *P-Ankh represents* the *ancient symbols* of *Sun* and *Moon* within the horns.

12. By allowing for clear difference between the geometrical properties of the *DELINEATED ANKH* and artifact images, we can, however, compare their parameters with respect to the specified criteria, but within a reasonable tolerance. For carrying out this analysis, the *Ancient Ankh images* have been selected so as to conform to the evident rules: to be allocated at the significant positions, to present diverse stuff of the artefacts, and not to be notably distorted while copying. The results of these comparisons show that the *Delineated Ankh*, as the *geometrical construction*:

- **reflects** the essence of the carved and painted *images of the ancient Ankh*;
- **repeats** the *geometrical properties* of the *Primal Ankh* with the only **exception** that the *circle* of the former is replaced (at least, at a qualitative level) by *lemniscate of Bernoulli*.

13. As far as the *KING'S CHAMBER* presents the place of the Highest Initiations we may expect that it also describes, in its form and dimensions (in cubits), the basic concepts of Time and Space, the *ATS* included. To this end, the following results are obtained:

- the geometric design of all types of the *Ankh* is probably **the only** significant *artefact*, which **exactly fits** the *King's Chamber floor*;
- the **current position** of the *SARCOPHAGUS* **is not random** in the sense that all **critical points** of the *Ankh* and the *Great Pyramid South-North axial profile* fit its centre line;
- even the **overall dimensions** of the *King's Chamber* **define**, at the **primal accuracy**, the relation between the *Tropical Year*, *Jovian period* and the average *Solar cycle length* (both directly and through the *ATS* – via the Golden section power Φ^5), and **not for the first time**, as these relations were also revealed in the *Great Pyramid* exterior design!

14. In the aggregate, the revealed geometrical and geographical properties of the Egyptian Artefacts including the Great Pyramid, the Great Sphinx, the King's Chamber and its Sarcophagus, and the Ankh, as well as their relations evidently point to the existence of a system of coordinated concepts that are described through the Golden section and its powers. Among other things, in various forms and with a high accuracy this system sets up the correspondence between the Topical year and the average Solar cycle length $T_o = 11.07$ (yr) through the Golden section power Φ^5 .

8. THE EARTH AT THE SIGHT OF THE SOLAR ZODIAC

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On unusual conditions of the Future it would
be impossible to pass by the old ways [79]

Identifying the Zodiacal Age by employing a two-millennium trend in Cosmogoneous influence is a problem that attracts much attention these days. The dominant opinion states that the Earth is coming into the Age of Aquarius, since the TVP (Tropical 0° point) approaches Aquarius in the Sidereal Zodiac. However, due to the absence of a unified definition of this Zodiac, the "birth times" for the coming Age stretch over 1000 years - from 1762 to 3000 [82]. While not calling to reject the concept of the Sidereal Zodiac, which is effectively used now in Vedic astrology (though with various origins) and, thus, reflects some actual Space influence, the author proposes to clarify the situation of the "New Ages" and factors of Space influence on the grounds of facts and recent discoveries in the space science and astrological concepts. On this basis, the concept of the Solar System Zodiac (SZ) is developed as a natural affiliate to the Tropical Zodiac (TZ). By comparing these Zodiacs we see that these days the TVP comes to the sign of Capricorn in the SZ, and vice versa. The obtained conclusion - that we are coming to the Age of Capricorn - is supported by of archaeological evidences and worldwide trends in Nature and society.

Section 1. The Tropical vs. Sidereal Zodiac

1.1. The Concept of the Tropical Zodiac

The sphere of influence of the Tropical Zodiac (TZ) is initially limited to the Earth: it is associated with the aura envelope of the Earth, through which, as via an inhomogeneous filter, different space objects exert their influence on its internal elements - from separate human beings to social structures and natural processes. The accuracy of parameters defining the mathematical model of the TZ is very high and bounded just by the exactness of astronomical measurements that specify the Earth's orientation and orbit by the Equator and Ecliptic planes, respectively. Use of these two planes supplies both astronomy and astrology with a mathematically correct conjugate Ecliptical/Equatorial coordinate systems which uniquely define the Earth's orientation in Space (within the unelectable error, as all stars move with a more or less velocity) for any moment of time and, thus, provides these branches of knowledge with the grounds for stating reproducibility and verifiability pertaining to the basic scientific requirements (See the first issue of this series - World Trends and astrology in the Light of Heterogeneous Resonance).

Remember the definitions of this concept: the *Ecliptic* is the circle on the Celestial sphere along which the Sun appears to travel in its journey around the Earth, taking one year to do so (here, the Sun presents the direct Hierarchy for the Earth). The *Equator* lies in the plane which is perpendicular to the Earth's own axis of rotation. *North (South) Pole* is the point where the Earth's axis intersects the Celestial sphere in the Northern (Southern) hemisphere. Then, the structure of the *Tropical Zodiac* is determined by the plane of ecliptic E_T and the plane of Earth's equator Q_T , whose intersection with the celestial sphere gives two opposite points - the *Vernal* and *Autumn Equinoxes*. The former one, the Tropical 0° point (TVP, or the *First Point of Aries* $0^\circ \Upsilon_T$), is where the Sun's path along the Ecliptic crosses the Equator from South to North.

One can only surmise why preference was given to the North Pole; but this is how matters stand. Maybe these Northern hemisphere stars and constellations (Ursa Major, Pleiades, Sirius, etc.) present particular importance for the Earth; or perhaps it is due to the Secret Doctrine concept [46, Part 6] which asserts: "the magnetism which reaches the Earth from the Sun - physical magnetism, and astral, and mental likewise - enters the Earth through the North Pole".

In its absolute form, the Zodiac is the unity that determines the universal cycle of transformation of energy (along the Ecliptic). This is present in two forms: (1) in static form, when considering separate zones, and (2) in dynamic form, when the origin and the end merge together, thus generating the fulcrum called the First Point of Aries. But the Entity being contained in it could be divided with the use of different numerological keys - 2, 3, 4, 5, 12, and even 360. Each key defines the concept of dividing the entire cycle into phases and their esoteric meanings. These concepts (D. Rudhyar, A. Leo, et. al.) allow us to suggest that the Zodiac comprising 12 signs most properly reflects the evolutionary stages of the Earth, as shown in the production of trinity and quaternary (viz. spiritual and material, etc.). It is also natural to suggest that the key “7” is the most extant to the Solar System with respect to 7 rays, 7 basic planes (H.P. Blavatsky), etc.

1.2. Weak points of the “Eternal” Sidereal Zodiac

However, such clarity is absent in the concept of the Sidereal Zodiac (SiZ): there is no unity either in subject of its sphere of influence (whether it is Earth, Solar System, or Galaxy), or where its origin (viz. $0^\circ \cap$ of the SiZ) is allocated, which presents the basic interest in astrological considerations, or what this Celestial origin means astrologically. As a result, the estimations for the beginning of the Age of Aquarius are spaced over a millennium - from 1762 to 3000 [82]. By taking account that a Platonic month (or a World Age) lasts $1/12$ of the Platonic year, we come to the obvious conclusion, that at least a 1000-year uncertainty in the position of the SiZ's origin, in itself, makes no sense in using this not-commonly accepted SiZ model even for defining the terms of the starting of the 2150-year World Ages.

In particular, a review of the Western SiZ models is given in [83]. There is no standard for the SiZ's origin in Vedic astrology as well; R. Ramakrishnan describes this situation as follows.

Indian astrology considers the fixed Zodiac. The vernal equinox of about a millennium and half ago (around 500 AD), appears to have been considered as point of coincidence of the tropical and sidereal zodiacs. There is much controversy about the exact year resulting in a number of standards being followed by different schools of astrology for arriving at the planetary longitudes. The most widely followed standard is that considering the star Spica – known as Chitra in Indian astronomy, at 180° ecliptic longitude as the reference point for computing the cumulative precession of the equinoxes – termed as *ayanaamsa*, from the time of this coincidence. The current incremental value of the ecliptical longitude of this star should then give the value of the *ayanaamsa*. Most astrologers of today compute the tropical longitudes of planets and reduce it by the value of the *ayanaamsa* to obtain the sidereal equivalents. In earlier times, almanacs were brought out every year giving the sidereal longitudes of planets at certain intervals. Though almanacs are still in vogue, their use for the purpose of casting horoscopes is gradually waning. There are however a sizable number of traditionalists who would go only by the almanacs. The planetary longitudes computed using some of these almanacs differ by as much as a few degrees.

Besides, a series (given below) of actual factors of a physical, mathematical and astrological nature hardly force us to accept the idea that *the current orientation* of the Earth and Solar System reflects the Space influence in a lesser degree than some “fixed” point on the Ecliptic, the more so the latter one also wobbles.

1.2.1. Precession of the Equinoxes and Wobbling of the Ecliptic

Due to this effect, the Earth's axis makes a complete revolution around the Ecliptic over a period of Platonic year (approximately 26 000 Earth's years). However, it does not describe a circle on the celestial sphere, but one inward turn along a spiral. During this period, the Ecliptic's axis travels *several degrees* over the celestial sphere. Over a Platonic month, this shift of the Ecliptic's axis makes about 10 – 20 seconds of arc, and, thus, it ought to shift by *thousands* of degrees over a 200 – 300 million year Solar System revolution period.

Moreover, as far as the Earth's rotation and precession do not follow a uniform law, there is no possibility to reliably estimate the precession for an epoch being spaced far enough from the period of astronomical observations of XVII - XX centuries; even for an epoch being a cycle of precession apart from the present, the existing approximations, lose their sense. Due to this, the duration of the Platonic, or Great, year is estimated with an error of 1%, which gives a sound discrepancy of 35'' for a century. Namely, these are

$$T_{Prec,1} = 25725 \text{ years [29];}$$

$$T_{Prec,2} = 25868 \text{ years [46];}$$

$$T_{Prec,3} = 25920 \text{ years [84];}$$

$$T_{Prec,4} = 26000 \text{ years, as a general estimate [85];}$$

Therefore, since an error of dozens of seconds of arc over a Platonic month is far from being a neglected value, we cannot exactly reference an ancient Tropical or Sidereal Zodiac through the Platonic months (not speaking of a greater time interval), even if its ancient position is known, as we do not know the function that describes instability in the Earth's rotation and precession and the shift of the Ecliptic's axis for millennia. The more so, if we take into account the Pole shifts, which are considered below. We may call this situation a "loss of correlation with ancient Zodiacs", both with Tropical and Sidereal ones. *However, this course of events has nothing in common with the current TZ, as it reflects the current Earth's orientation by the essence of its nature.*

1.2.2. "Fixed Stars"

When considering or postulating a correlation between the SiZ's origin and some star, rarely does an author take account of the proper motion of the stars, which was discovered by Halley in 1718. This motion is much more less than the widely known correction for the stars coordinates that is used for taking account of the precession of equinoxes and makes about 30° per Platonic month, or about $50''$ a year. However, a proper motion may be relatively large even for a human being's period of life, not speaking of the cycle of precession.

The proper velocity μ of a star is measured in seconds of arc per year; its vector is tangent to the Celestial sphere and points to the direction being specific for this star. The maximal proper motion, $\mu = 10.3''$, has been registered for the "flying Bernard's star". In 1970, more than 330 stars were known with a proper motion exceeding $1''$ a year. Average μ for the stars of magnitude of up to 6^m is about $0.1''$. For example:

$$\mu \text{ (Regulus, } \alpha \text{ Leo)} = 0.24'' \text{ a year;}$$

$$\mu \text{ (Pollux, } \beta \text{ Gemini)} = 0.625'' \text{ a year;}$$

$$\mu \text{ (Sirius, } \alpha \text{ Canis Major)} = 1.32'' \text{ a year;}$$

$$\mu \text{ (Spica, } \alpha \text{ Virgo)} = 0.05'' \text{ a year.}$$

Over a Platonic year, the total motion that the majority of stars make is an average of up to 1° , and 7° to 70° for several hundreds of the most rapid ones, or $5'$ and 0.5° to 5° over a Platonic month. Therefore, not only a Platonic year, but even one zodiacal age presents significant variations in the constellations and the coordinates of the stars, which makes no sense to consider the stars as "fixed"; and less sense the present boundaries of the constellations, that are defined conventionally and, frequently, follow the Equatorial meridians and parallels being associated with the TVP for the specified epoch. Much more significant variations in the firmament would take place after the Solar system completes even a single revolution around the Galactic Centre, viz. over 8846 Platonic years.

Hence, if some star is chosen to present the "ancient" SiZ's origin, in addition to the uncertain correction to an irregular precession and wobbling of the Ecliptic, we must take account of its proper motion, or, otherwise, to seek empirically where this point is disposed at the current moment, if it does exist. Who do this?

Though this is not the last argument for considering a structure for the Solar System which, as the TZ, reflects its current position, it adds one more reason in favour of validity of such structure. Thus, the Sun shines in your car from the direction where it currently is, no matter where it was when you took your seat in the morning, though you could try to compute where it ought to be with respect to your route and current position.

1.2.3. Geometry of Space Influence

As we may see this from the examples given below, Space matter and objects exert their influence *anisotropically*, first of all - from definite *directions* and within definite *planes*. Within the Solar System, these are basically the plane of Ecliptic E_T , and its axis that passes (on the Celestial sphere) through the North Pole of Ecliptic. For the Earth, the similar objects are: the plane of Equator Q_T and the Earth's axis of rotation, A_E , that passes through the geographical North Pole (NP) being also the NP for the Equatorial coordinate system. Note, that these axes are perpendicular to the respective planes.

The axis A_E and the plane Q_T define the basic elements of symmetry both for the Globe and for its Space shield - electromagnetic envelope and radiation layers (Van Allen belts). In particular, the Geomagnetic field directs the charged Space matter to the Poles (this supports the Secret Doctrine concept as to actuality of the Poles in the Space-Earth interaction, See Part 6), which makes the Equator the centre of symmetry of this inflow (or, in other words, the centre of equilibrium of the Space influence).

Within the Solar System, the Earth and the other planets interact between themselves and the Sun in the plane of the Ecliptic. At the same time, all these Heavenly objects experience the same influence, the Galactic Centre and other Galactic objects exert on them, e.g. from the Southern Pole of Ecliptic (See below). From this point of view, the Solar System (SS) as a whole is called the Heliosphere [73]. Hence, the plane of Ecliptic E_T , and its axis also present the basic elements of symmetry for the SS, through which the outer Space exerts its influence on the interior of the Heliosphere.

Example 8.1. The inconsistency of the statement that astrology has no physical background is illustrated by a number of physical facts. Prof. G. Piccardi is probably the first who scientifically proved that definite physical properties do explicitly depend on the Ecliptical longitude and geographical latitude, though from the physical point of view they mustn't. Thus, in a series of experiments being conducted in 50's by Prof. G. Piccardi and his colleagues [2, 74], the rate of definite chemical reactions was continuously measured for ten years at different latitudes. On the basis of 250 thousand experiments it has been definitely shown that this rate depends on the level of Solar activity, continuously increasing with latitude by 2.5 times as the laboratory position is changed from *South to North Pole*, and presents the yearly minimum around the *Spring equinox* when the Earth moves in the direction of the *Galactic Center*.

Then, after a series of observations in 80's and 90's has evidently shown the actuality of the chosen planes and axes as this is seen from the examples below.

Example 8.2 [73]. "It has become clear in the mid-90's, that large scale events in the Solar System, including planetophysical transformations, *are being caused by material and energetic non-uniformity's in anisotropic interstellar space*. In its travel through interstellar space, the Heliosphere [solar system] travels in the direction of the Solar Apex in the Constellation of Hercules. On its way it has met (1960's) non-homogeneities of matter and energy containing ions of Hydrogen, Helium, and Hydroxyl in addition to other elements and combinations. This kind of interstellar space dispersed plasma is presented by magnetized strip structures and striations. The Heliosphere transition through this structure has led to an increase of the shock wave in front of the Solar System ... which has led to a plasma overdraft around the Solar System, and then to its breakthrough into interplanetary domains. *This breakthrough constitutes a kind of matter and energy donation made by interplanetary space to our Solar System*. In response to this "donation of energy/matter," we have observed a number of large-scale events: a series of large Planetophysical transformations, a change in the quality of interplanetary space in the direction of an increase in its interplanetary, and *solar-planetary transmitting properties*. ...This newly changed quality of interplanetary space not only performs the function of a *planetary interaction transmission mechanism*, but it (this is most impor-

tant) *exerts stimulating and programming action upon the Solar activity both in it's maximal and minimal phases.* The seismic effectiveness of the solar wind is also being observed”.

Though the basic interactions within the Solar System is realized in the plane of Ecliptic, the actuality of the Southern direction for the Solar System is also emphasized:

Example 8.3 [73]. “The most important Heliospheric role of coronal holes has now become clear; to regulate the magnetic saturation of interplanetary space. Additionally, they generate all large geomagnetic storms, and ejections with a *southerly directed magnetic field* are geo-effective”.

As to the Earth, pay attention to its electromagnetic and gas/plasma envelopes and their foci - the Polar regions through which the radiation material (plasma) inflows and discharges, and the electrical nature of the basic interaction mechanism which is actual for the subsequent considerations.

Example 8.4 [73]. “*Tendencies may be traced in the direction of planet energy capacity growth (capacitance), which is leading to a highly excited or charged state of some of Earth's systems.* The most intense transformations are taking place in the planetary gas-plasma envelopes to which the productive possibilities of our biosphere are timed. ... The material composition of the gas-plasma envelope is also being transformed.... A report already exists of two new populations of cosmic particles that were not expected to be found in the Van Allen radiation belts, ... and the emergence of a new belt consisting of ionic elements traditionally found in the composition of stars”.

Example 8.5 [73]. “We also have to take into account the factual growth of the polar cusp's angle (i.e. the polar slots in the magnetosphere; North and South), which in the middle 1990's reached 45 degrees (by IZMIRAN data). [Note: The cusp angle was about 6 degrees most of the time. It fluctuates depending upon the situation. During the last five years, however, it has varied between 25 and 46 degrees.] The increasing and immense amounts of matter and energy radiating from the Sun's Solar Wind, and Interplanetary Space, by means previously discussed, has begun to rush into these widened slots in the polar regions *causing the Earth's crust, the oceans, and the polar ice caps to warm.*

And *additional signs of the inversion of the magnetic field* are becoming more intense in frequency and scale. In the last 100 years this magnetic pole has traveled almost 900 km towards, and into, the Indian Ocean. This significant shift by the magnetic poles begun in 1885. The most recent data about the state of the Arctic magnetic pole (which is moving towards the Eastern Siberian world magnetic anomaly by way of the Arctic Ocean) reveals that this pole “traveled” more than 120 km during the ten year period 1973 through 1984, and 150 km during the same interval, 1984 through 1994. This estimated data has been confirmed by direct measurement. We must emphasize that this documented polar shift acceleration (3 km per year average over 10 years), and its travel along the geo-historic magnetic poles inversion corridor (the corridor having been established by the analysis of more than 400 paleoinversion sites) necessarily *leads us to the conclusion that the currently observed polar travel acceleration is not just a shift or digression from the norm, but is in fact an inversion of the magnetic poles; in full process.* It is now seen that the acceleration of polar travel may grow to a rate of up to 200 km per year. This means that a polar inversion may happen far more rapidly than is currently supposed by those investigators without a familiarity with the overall polar shift problem.

Our study of geomagnetic field paleoinversions, and their after effects, has lead us to the unambiguous, and straight forth, conclusion that these present processes being observed are following precisely the same scenarios as those of their distant ancestors.”

Example 8.6 [73]. “The high-energy atmospheric phenomena, which was rare in the past, is now becoming more frequent, intense, and changed in its nature. It is quite natural for the whole biota of the Earth to be subjected to these changing conditions of the electromagnetic field... *The widely quoted, and believed, "Greenhouse Effect" scenario for total climatic changes is by far the weakest explanation, or link, in accounting for this reorganization.* It has already been observed that the growth in the concentration of CO_2 has stopped, and that the methane content in the atmosphere has begun to decrease while the temperature imbalance, and the common global pressure field dissolution has proceeded to grow.

Satellite air surface layer temperature tracking allowed the detection of a 0.22 degrees C global temperature variation that correlated with recorded middle frequency magnetic oscillations. *The Earth's temperature regime is becoming more, and more, dependent on external influences.* The representative regulating processes, or basis, of these general climatic rearrangements are: new ozone layer distribution, radiation material (plasma) inflows and discharges through the polar regions, and through the world's magnetic anomaly locations, growth of the direct ionospheric effects on the relationship between the Earth's meteorological (weather), magnetic, and temperature fields.

There is a growing probability that we are moving into a rapid temperature instability period similar to the one that took place 10 000 years ago. This not so ancient major instability was revealed by the analysis of ice drilling core samples in Greenland”.

Researchers are now insisting more, and more, that the Earth's temperature increases are dependent upon, and directly linked to, space-terrestrial interactions; be it Earth-Sun, Earth-Solar System, and/or Earth-Interstellar.

Therefore, the Equator and Ecliptic planes, as well as their axes, define the conjugate geometric elements that specify the channels through which the Space exerts its physical influence on the Earth, whereas the Ecliptic defines the plane where the physical interaction between the planets and Sun takes place. As far as these elements define the geometrical structure of the TZ, the line of Equinoxes being specified by the crossing of these planes becomes the focus of this structure, whereas the TZ's Solstice line presents the projection of the Solar System axis.

Hence, the cardinal points of the Tropical Zodiac (first of all - the TVP) and the TZ itself are adjusted to the current orientation of the Globe (that makes them the natural reference points for the Earth) and present the objective “channels”, or most sensitive foci of perception, through which the Space and Solar System's objects exert their physical influence on the Earth. Therefore, we may conclude that the analogous structure being adjusted to the Solar System peculiarities may describe the foci for the Solar System, which carry out the same function from both the physical and astrological points of view.

Note 8.1. Magnetic Pole shift and possible distortion of the TZ's function. Let α be the angle between the Magnetic and Rotational axes of the Earth, and β - the Geocentric angle between the directions to the Sun and to the Magnetic North Pole (MNP) of the Earth. Angle β defines how the Earth's magnetosphere polarizes the Solar radiation and distributes the Solar wind charged particles.

(1) If these axes coincide, then $\alpha = 0$ and the angle β varies continuously from the value of $\beta_w = 90^\circ - \varepsilon$, on Summer Solstice, to $\beta_w = 90^\circ + \varepsilon$, on Winter Solstice, where ε is the Obliquity. In other words, from June 22 to December 21 the angle β increases monotonously by the value of 2ε , which makes approximately 46.8° , or $15.4'$ a day.

(2) However, if these axes do not coincide and φ is the latitude of the MNP, the noon-midnight variation of the angle β makes $\Delta = 2 \cdot (90^\circ - \varphi)$. For the year of 1994, the value of φ makes [73] 78.3° North (with the existing trend it ought to reach the value of 77.2 by the year of 2002). Then, the average value $\varphi = 77.5^\circ$ North gives the noon-midnight variation of 25° (!); hence, the daily variation makes 50° .

As far as β may take the values of 0° to 180° , this means, that, *at present*, the Sun/MNP polarization angle noon-midnight variation makes 14% of its maximal variation, whereas *the daily variation 195* ($195 = 50^\circ / 15.4'$) *times exceeds the daily variation for the “normal” case of coincidence of the Magnetic and Rotational axes!*

As far as both these axes are actual for transforming the Space influence, we may conclude that:

(1) *the TZ may work now in other ways than it did a few centuries ago;*

(2) *the more the angle φ differs from 90° (N or S), the more the distortion Δ and, hence, the greater the instability effects which the interaction of the Solar and Geo magnetic fields cause in the Earth processes.*

This situation might be likened to a positive feedback that is described by the rise in mechanical wobbling being caused by irregular wear or a broken rotating part: *the more the wobble, the more the wear* (or eccentricity), *and vice versa*.

Note 8.2. From mathematical and physical points of view, *the SiZ and TZ present the alternative coordinate systems*. The TZ presents a relative coordinate system, which is as accurate as the science allows us to estimate the orientation of the Ecliptic and Equator at the respective moment of time, and its cardinal points reflect the channels through which the actual physical influence comes. The SiZ, with an arbitrary but fixed origin, presents an absolute coordinate system, the cardinal points of which have nothing in common with the sources of Space influence. However, the SiZ is a *temporal* coordinate system, since without taking account of the proper star motions, Ecliptic wobbling etc., it retains its validity within a limited time span only (e.g. for an average human life period), not speaking about taking account of the Pole shifts that took place millennia ago.

However, the situation is the opposite, when we consider development of some process in time. When the SiZ is in use, the difference in ecliptic coordinates at two moments of time equals to the true distance on the celestial sphere between the positions that correspond to these moments; but if we use the TZ, the difference in coordinates at two moments of time equals to the true distance on the Celestial sphere between the positions that correspond to these moments *plus or minus precession*. For this reason, use of a fixed Zodiac may provide higher accuracy in forecasting, if it is used as the coordinate system.

For example, let John be born on Jan 1, 1900 at GMT 0:0:0. His Sun position in TZ is 10 ♊ 9:12, exactly at the star “X”. On Jan 1, 1972, he celebrates his 72nd anniversary, and in terms of the TZ his Sun returns to its natal position around the noon of this day as well; but not to the star X, as due to the precession of $\Delta = 1^\circ 0' 15''$ the star X’s coordinate for 1972 becomes 11 ♊ 9:27. In terms of the SiZ, the Sun returns to its natal Sidereal position (with respect to stars) near the noon of Jan 2, 1972. Denote the respective Zodiacs TZ₁₉₀₀ and TZ₁₉₇₂ and call TZ₁₉₀₀ the Fixed Zodiac for the current consideration.

Therefore, if the conventional Tropical Zodiac TZ₁₉₇₂ is tuned to specifying the current Space influence, the Fixed Zodiac TZ₁₉₀₀ (viz. the direct analogue of the SiZ) allows us to correlate this current influence with that which took place in 1900 when it presented the TZ. And if we would like to use the stars in astrological considerations, we ought to combine such pairs of Tropical and Fixed Zodiacs, as probably Nostradamus did as “a stellar astrologer, by which I mean that he always took full account of the fixed stars and constellations (without necessarily following a rigorous system of “Sidereal” signs of the Zodiac)” [86]. In forecasting, this approach might be called a **Fixed-Tropical/Tropical Zodiac Correlation technique** (or, in short, **FTTZ-correlation**).

1.2.4. Polar Shift and Action at a Distance

The might of the Space influence and, hence, that great part the Earth’s axis of rotation (further referred to as axis) and the Equator plane play in redistributing it over the Globe, are emphasized by those evidences which show that this influence may even cause a shift of the Earth’s axis.

Thus, there exist geophysical, glaciological, archeological and other sources that allow us to conclude that relatively not long ago, approximately 11 – 12 millennia before present, there took place a sudden shift of the axis of the Earth; by some estimates – by dozens of degrees in contrast to its current fluctuations within 0.4” of arc (viz. in a square with a 30 m side [85]). Indirect evidence of the Pole shift is as follows.

Example 8.7 [63]. “Measurements on the Greenland ice core indicated that about 11 700 years ago the climate of the North Atlantic region changed from a dry and cold ice age to the current warmer and wetter Holocene. ... Altogether it took 1500 years for the climate transition to be complete and few thousand more years to melt most ices, but the surprise was that most of the transition occurred in only 40 years... A large part of the change took less than 20 years... The climate in much of the world shifted abruptly from cold to warm... A change in average temperature as great as 10 degrees Celsius may have occurred within 20 years”. To some estimates [73], the annual temperatures increased by 7 degrees centigrade!

Other data allow us to take [46] that cardinal changes in orientation of the Earth's axis had occurred before this event as well, up to the status when this axis was almost parallel to the Ecliptic.

The most convincing explanation to such catastrophes gives Prof. McCanney's theory [40] of action at a distance. In brief, it describes the might of electrical interaction between the Space objects, within which *the comets* (See Part 9) are especially significant as the objects that provide discharge of the Solar capacitor (viz. a system of negatively charged Sun and positively charged periphery of the Solar System), apart from electrical interplanetary interaction.

Example 8.8 [40]. "The only way that Earth can physically have its rotational or "spin" axis poles moved is by the close passage of a large celestial body. The last "ice-age" was accompanied by such a shift. The old "true" North Pole was just North of the state of Wisconsin and Russian Siberia was a tropical climate with rain forests and mastodons roaming the forests. In a single night of total destruction, these areas were blown apart by incredible winds and storms and the Pole shifted an estimated 30 to 40 degrees. Overnight the mastodon herds were quick frozen and buried in what is now the Siberian tundra with the fresh tropical plants still in their throats. This meat was so well preserved that it was used as food (and even sold on the commercial markets) in the last century during the building of the trans-Siberian railway. Even a single day of exposure to a warm temperature would have rendered this meat useless and rancid. The Earth change was so rapid and complete, that this did not happen. The meat was as fresh as the day it froze, thousands of years earlier"... "One thing is clear... whatever the event, it (1) could only have been caused by forces from outside our planet and (2) it was NOT caused by a colliding asteroid (since there is no massive new crater). Earth has been subjected to a close encounter by AT LEAST ONE massive new comet becoming a planet in the time frame of no more than 10 000 years ago".

Meanwhile, the coming of a series of comets in 1996 - 2002 supports this theory, both physically [40] and astrologically:

Example 8.9. The effects of the approaching comets were forecasted [41] independently of [40] and, first of all, by conjunctions of the Sun and comet Hale-Bopp (HB) being much more efficient than the rest of them. It turned out, that these comets were conjugate with respect to their astronomical parameters and foci of influence [42]. The obtained statistic [87] gives evidence to the trustworthiness of the forecast, whereas the astrological considerations had allowed us to reveal [42], why the USA and Afghanistan, as well as Israel and Palestinians were engaged in confrontation, and to predict the terms of the subsequent events. In particular, it was shown [87] that the probability of randomness of the revealed synchronism between the comet HB's Time Foci and local surges of Solar activity made 10^{-12} for the period of Fall 1997 to Spring 1998, and an extinguishly small value of 10^{-50} for 1997 - 2002. This tense synchronism corresponds completely to the McCanney's theoretical statement that a comet, that comes from the periphery of the Solarsphere, on its alignment with several objects including the Sun (for the Earth, this means conjunction with the Sun) causes the rise in Solar activity. To this end we can add, that the powerful HB's comet influence is continued, with respect to the obtained statistics, until now.

To this end, the comet does really "hold some secrets" [40]:

Example 8.10 [40]. "The first is that it electrically pumped up the Sun for a period of about 6 years {the comet HB's Foci are really active since 1997 until present [42, Part 9]}, causing near solar maximum solar weather during the solar minimum as it passed through the inner solar system in the late 1990's. The solar cycle did not end. It continued and the Sun in 2001 and 2002 hit record levels. A new release (March 21, 2002) showed NASA scientists stating that finally the maximum was reached and would turn down at that point. This was wishful thinking as the Sun continued to rise to new and unheard of levels of flaring and powerful storms. In April the Sun looked like a popcorn popper, blowing out flare after flare. Was it reacting to a new incoming comet (since HB was now far on its way out of the solar system)?"

1.3. Preliminary Conclusions

1.3.1. The concept of the Sidereal Zodiac is indefinite in the sense that this is not specified whether it describes the influence of the Earth's, or Solar, or Solar System's Aura.

1.3.2. Neither the origin of the SiZ, nor its position with respect to the current TVP (viz. Ayanaamsa) is commonly accepted at present to be a standard, even in Jyotisha being based on the SiZ. There are three causes that may probably explain this situation:

(1) the point, that was taken for the origin of the SiZ long ago, is misunderstood or has lost its importance at present, as this key-point of Zodiac has nothing (or little) in common now with the most important points of the Solar System and Galaxy;

(2) calculation of cumulative precession, which is required for setting the correspondence between the ancient origin of the SiZ and the current TVP, requires us to take account of the Earth's rotation and precession irregularities and the Ecliptic's Polar axis shift, that might be approximated with the required accuracy but for a limited prehistory only, that hardly exceeds several millennia, since their behaviour is unknown before the XVII century. Besides, if Spica is taken for the SiZ's origin, its own proper motion ($0.05''$ a year, or $22'$ over a Platonic year) must be considered;

(3) last, but not least, are the historical and archaeological evidences [46] including the Dander's Zodiac which show that at least three times the Earth's rotational Poles were parallel to the Ecliptic, and "as the three Pole inversions had, without doubts, changed the structure of Zodiac, each time a new one had to be constructed once again". This is apart from much more frequent geomagnetic inversions (the influence of probable starting of new one we have to survive now -See Note 8.1) that also change the Earth's Aura and, hence, the properties of the Tropical Zodiac.

1.3.3. Therefore, by aiming to obtain a structure that describes how the outer Space influence is transferred to within the Solar System and its objects, we must define, by analogy with the TZ and with respect to the principle of analogy, the geometrical concept of the Solar System Zodiac (SZ) and to find its origin that ought to present the foci that act as the TZ's cardinal points do. In this sense the SZ might be liken to the TZ in its functions: as the TZ defines how the Space influence effects a human being Aura, so the SZ must define how the outer Space influence is "filtered" by the Solar System's Aura before it may come to the Earth through its own, Tropical, Zodiac.

For this, by using the principle of analogy we assume that there exist a geometric structure being similar to the TZ which correlates the planes through which the external influence is exerted and the internal interaction/redistribution of influence is carried out, and, at the same time, is tuned to the basic Galactic elements (viz. to its Hierarchy).

1.3.4. The SiZ and TZ present the absolute and relative coordinate systems, respectively. The TZ is as accurate as the science allows us to estimate the orientation of the Ecliptic and Equator, and its cardinal points reflect the channels through which the actual physical influence comes. However, the cardinal points of the SiZ have nothing in common with the sources of Space influence. On the contrary, for any arbitrary but fixed origin, the SiZ gives the true Ecliptic angle for any time moments (without considering of the long-term corrections for Ecliptic), whereas the TZ gives the true angle being biased by the precession between these moments, which may cause errors in forecasting. For the purpose of forecasting, the best sides of both Zodiacs might be united within the Fixed-Tropical/Tropical Zodiac Correlation (or, in short, FTTZ-correlation) technique.

1.3.5. With due regard to the limited accuracy of the of the Solar System and Galactic parameters (See Section 2), it is reasonable [See Part 1] to seek for both the point and interval estimations for the SZ parameters. The former ones esteem the parameters by a mean value, whereas the latter ones give the bound for the most probable interval containing the true value.

Section 2. The Solar System Zodiac, SZ

2.1. The Concept of the SZ

The whole of the Universe is saturated with the principle of Hierarchy, both esoterically and physically: each system level presents a hierarchical system of being, and retains an element of the whole.

On the one hand, the Solar System presents a vital-mechanical organic entity where the Sun acts as the heart and brain of the Solar World, or Solarsphere. Within our hierarchical Solarsphere chain, which includes the Earth, the Heavenly bodies influence man through the TZ (viz. the Earth's Aura), but in different ways: if the Solarsphere's objects act directly through the TZ, the energies from outside the Solarsphere are filtered or transformed through the Solar System envelopes, or Aura. The Aural Egg of the Solar System rotates around the axis of the Ecliptic like the Aural Egg of the Globe rotates around the Earth's axis, whereas both of them revolve around their Hierarchs - the Galactic Center and Sun, respectively.

On the other hand, the Examples 8.2 – 8.6 of Section 1 and [73, 40] show that the geometry of physical interactions between the Galaxy and the Solar System, and between the latter one and the Earth follow the same structural model the elements of which present the foci of physical influence, where the same plane of Ecliptic presents the governing element for the system of the lower level (viz. Earth) and the internal element for the system of the upper level (viz. Galaxy).

Therefore, with respect to the Hermetic axiom, "as above, so below; as below, so above", we cannot exclude the existence of a Solar System Zodiac (SZ), which carries out the "same" function from the perspective of the Sun, as the TZ does from the perspective of the Earth.

2.2. Solar System's Position in the Galaxy

The general structure of the Galaxy is given in Fig. 8.1. It presents a flattened system being symmetrical relative to the basic plane called the *Galactic Plane*. Intersection of the latter one with the Celestial sphere gives the *Galactic equator*, which actually coincide with the mean line of the Milky Way. The Galaxy rotates around its axis passing through the *Galactic Center* (GC), the *North Pole* (NP_G) of which is projected to the constellation Coma Berenices; its mean position for the epoch of 1950.0 being referred to the Vernal Equinox is as follows [29]

$$\alpha_{NP_G} = 12^h 49^m, \quad \delta_{NP_G} = 27^\circ 24', \quad (8.1)$$

or, in Ecliptical coordinates

$$\begin{aligned} \lambda_{NP_G} &= 179.319\,489\,9^\circ, & \beta_{NP_G} &= 29.811\,923\,8^\circ \\ (29^\circ \, 19' 10.16'') & & (29^\circ \, 48' 43'') \end{aligned} \quad (8.1')$$

When observed from the Solar System, the Galactic Centre is projected to the constellation Sagittarius (♐). Numerically, its position is accepted to be specified by the powerful source of radio frequency and infrared radiation *Sgr-A* with coordinates (for the same epoch, 1950.0) [29]

$$\alpha_{GC} = 17^h 42.6^m, \quad \delta_{GC} = -28^\circ 56', \quad (8.2)$$

or, in Ecliptical coordinates

$$\begin{aligned} \lambda_{GC} &= 266.175\,904\,19^\circ, & \beta_{GC} &= -5.542\,746\,852^\circ. \\ (26^\circ \, 10' 33.26'') & & (-5^\circ \, 32' 33.9'') \end{aligned} \quad (8.2')$$

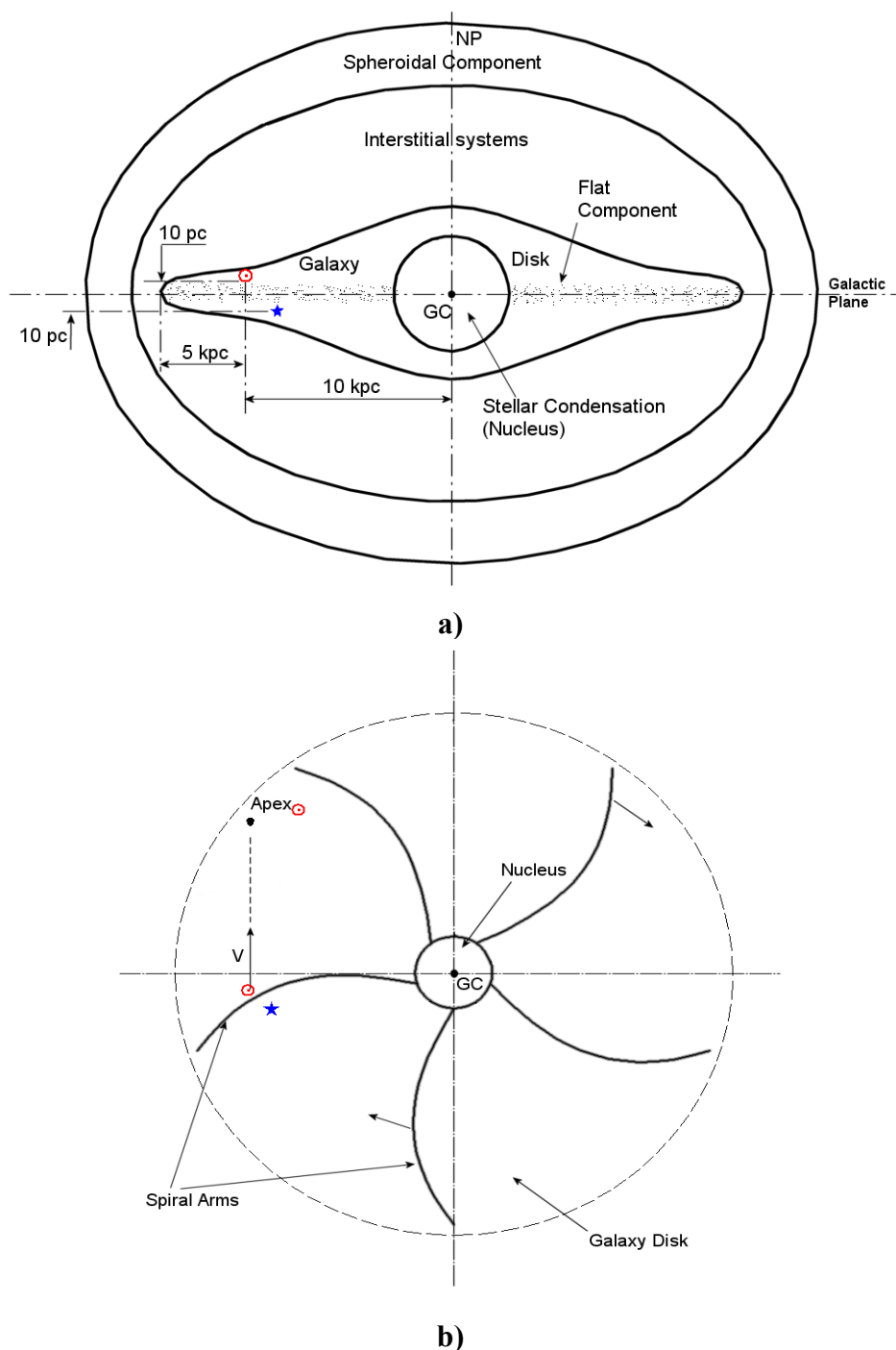


Fig. 8.1. General structure of the Galaxy with Sun ☉ and Eta Carinae ★ (η Car, or Foramen)

- a)** Side view: section through the Sun, Galactic Center (GC) and Galactic Poles axis;
b) Top view from the North Pole of the Galaxy (NP_G).

Notes. (i) $1 \text{ pc} \approx 3.263 \text{ light years} \approx 206\,265 \text{ astronomical units (a.u.)} \approx 30.8 \cdot 10^{12} \text{ km}$;
 (ii) The Sun and Eta Carinae relative to the Galactic Plane are not to scale as they are 1000 times nearer to it than to the GC.

The most part of the *Stellar Condensation*, or *Nucleus* of the Galaxy, is hidden from our view over the dark opaque matter; otherwise, the Nucleus and the Milky Way, where the bulk of the stars resides, would look thousands times brighter. On the Celestial sphere the Nucleus occupies an area with angular dimensions of about $20^\circ \times 30^\circ$, which corresponds to its linear dimensions of $3000 \times 5000 \text{ parsec (pc)}$. Within the 0.8 pc area of the GC, there exist at least five point sources of infrared radiation being weakened by a factor of dozens of million due to the interstellar absorption. A series of other inexplicable phenomena associated with the Nucleus are also observed.

Note, that the declination δ_{NP_E} depends on the Obliquity ε so far as the NP_E is given in (8.4) in Equatorial coordinates; however, this point also moves along the Celestial sphere, but very slowly (Para 1.2.1).

Though the plane of Ecliptic is defined by the Earth's orbital plane, the orbital planes of the massive planets are inclined to the Ecliptic at a relatively small angle: approximately by 0° for Uranus and Neptune, 1.3° for Jupiter and 2.5° for Saturn, and only two small planets - Mercury and Pluto - are inclined at larger angles of 7° and 17° , resp. However, with a much larger accuracy than these $1^\circ - 2^\circ$ we may take the Ecliptic for the average plane of revolution of the planets, because they revolve (as the Sun) around the common centre of mass. As far as the mass of the Sun is 750 times the cumulative mass of the planets, this centre makes spiral turns relative to the centre of Sun and does not go far from the plane of Ecliptic.

Note 8.3. Thus [29], in 1951 it was close to the centre of the Sun, in 1993 it left the Sun's circumference and was travelling at maximal distance from the surface of the Sun within a several year vicinity of 2000, as in 1938 - 1943. This maximal divergence between the centres of masses of the Sun and the Solar System in 1996 - 2003 causes additional excitation and a disturbing of both the Solar System and the Sun itself, which come to resonance with other factors of Space influence. *Thus, it is not strange that the years of maximal mechanical imbalance of the Solar System, which cause the respective disturbances in the SZ, correspond to the W.W. II and the current World War against the terrorism.*

2.3. Basic Parameters of the Solar System's Zodiac

Now, we may describe the structure of the *Solar System's Zodiac* (SZ) (Fig.8.2) in compliance with the properties with which it must comply (Paras. 1.3, 2.1) and the obtained estimations of those parameters (Para. 2.2) that define the one-level-of-hierarchy higher analogs of the TZ's elements.

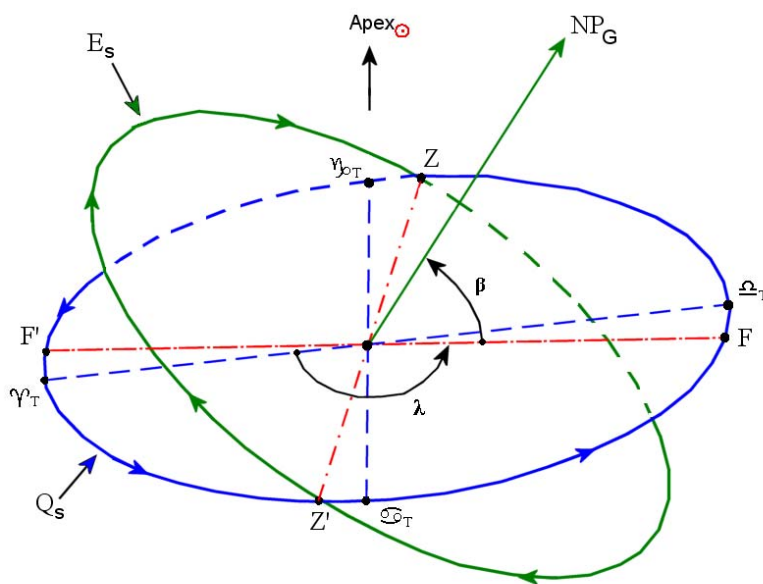


Fig. 8.2. Geometrical Design of the Solar System Zodiac (SZ)

- Solar System's Ecliptic axes and cardinal points of the TZ;
- · - · - Projection of the Galactic North Pole axis (SZ's "Solstice line") and line of intersection of the Ecliptic Q_S and Galactic Ecliptic E_S planes (SZ's "line of Equinoxes"), and the SZ's cardinal points Z, Z', F, F'

Notes. 1. The angle between the axes ZZ' and Solstice axis $\gamma_0 \odot$ of TZ makes minutes of arc for the current epoch; it is grossly exaggerated in the diagram for illustrative purpose

2. Arrows show direction of visual motion over the Celestial sphere for the Geocentric coordinate system; the Sun moves along the Q_S , the GC - along the E_S

3. λ, β – the Ecliptic coordinates of the North Pole of the Galaxy

4. Apex_{\odot} - the direction of the Solar System's motion within the Galaxy (along the TZ's Solstice axis).

These are those planes and directions through which the Galaxy actually exerts its influence (plane of E_S , South Pole of the Galaxy NP_G) and within which this influence is redistributed (plane of Q_S).

Since the planets revolve around the Sun in approximately the plane of Sun-Earth Ecliptic E_T , we take it for the plane of the Solar System's Equator Q_S and call its axis that of the Solar System. Since our Solar System moves in a circular movement around the Galactic Center, we regard the latter the direct Hierarchy for the Solar System and take the plane, in which our Solar System revolves around the Galactic Center, for the "Ecliptic" E_S of the *Galactic Center*.

As in the case with TZ, intersection of these two planes, E_S and Q_S , gives the straight line which, on the celestial sphere, defines the equinoxes Z and Z' for the SZ. To this end, as far as the Zodiac presents the universal cycle, it must retain its initial point, coinciding with the end, which we denote as Υ_S by analogy with TZ. Since the direction to the Galactic North Pole NP_G makes a normal to the plane of the Galactic Ecliptic E_S , its projection FF' to the plane of the Solar System Equator (viz. conventional Ecliptic) Q_S is perpendicular to the line of intersection ZZ' of these planes, and the Ecliptic coordinate λ_{NP_G} of the point F is defined by (8.1').

Note 8.4. Here and below, the coordinates are given in the Ecliptic longitude for the epoch of 1950.0, if not specified otherwise.

This way, the line of the Solstices for the SZ is defined by the points

$$F: 29^\circ \text{ ♎ } 19' 10.16'', \quad F': 29^\circ \text{ ♊ } 19' 10.16'', \quad (8.5)$$

whereas the following points define the line of equinoxes

$$Z: 29^\circ \text{ ♈ } 19' 10.16'', \quad Z': 29^\circ \text{ ♏ } 19' 10.16''. \quad (8.6)$$

By taking account that the actual position of the NP_G is defined by (8.1), but within an accuracy of 0.1° , the interval estimation for Z of (8.6) takes the form

$$Z_1 \leq Z \leq Z_2, \quad \text{where } Z_1 = 29^\circ \text{ ♈ } 13' 10'', \quad Z_2 = 29^\circ \text{ ♈ } 25' 10''. \quad (8.7)$$

It is clear, that that the interval bounds for the remaining cardinal points of (8.5), (8.6) differ from Z_1, Z_2 of (8.7) by multiples of 90° (viz. by $\pm 90^\circ$ and 180°). Therefore, the cardinal points of the SZ are distant from the nearest cardinal points of the TZ (Fig.2) by the same quantity ξ as the point Z from 0° ♈ , that is

$$\xi = 270^\circ - Z = 0.68051^\circ = 40' 50''. \quad (8.8)_p$$

In a similar way, for the interval bounds Z_1, Z_2 we obtain

$$\xi_1 = 270^\circ - Z_1 = 0.78051^\circ = 46' 50'', \quad (8.9)$$

$$\xi_2 = 270^\circ - Z_2 = 0.58051^\circ = 34' 50''. \quad (8.9')$$

Further on, the plane of Galactic Ecliptic E_S is inclined to the plane of the Solar System Equator Q_S at the angle $\gamma = 90^\circ - \beta_{NP_G}$ (See Fig.2) which makes

$$\gamma = 90^\circ - \beta_{NP_G} = 60.18808^\circ = 60^\circ 11' 17''. \quad (8.10)$$

However, the angle γ is not so important, but *the clockwise visible motion of the GC along the Galactic Ecliptic E_S , which is opposite to the Sun's motion along the Ecliptic if viewed from the North Poles of both Solar System and Galaxy.*

Therefore, as the velocity of the TZ's precession of the Equinoxes is by several orders of magnitude greater than that for the SZ (over a Platonic year, the Earth's axis makes a complete circle of 360° , whereas the NP_G shifts by several degrees only), the cardinal points of TZ synchronously approach the obtained cardinal points of the SZ at a speed of the precession of Equinoxes of the TZ.

Hence, by calculating the moment when the true precession (with account of nutation) reaches the values of (8.8) - (8.9'), we obtain that the cardinal points of TZ and SZ coincide on

$$T^* = \text{March 21, 1999.} \quad (8.11)$$

The respective events for the interval bounds are to take place on

$$T_{BEG} = T(\xi_2) = \text{July 4, 1991;} \quad (8.12)$$

$$T_{END} = T(\xi_1) = \text{March 5, 2006.} \quad (8.12')$$

Though the above stated causes specify that the "exact" dates in (8.11) – (8.12') should not be considered "meaningful" by themselves, it is notable that the average date T^* comes to the Spring Equinox.

Thus, coincidence of the cardinal points of both Zodiacs, TZ and SZ, takes place in the Spring Equinox of 1999, whereas taking into account the uncertainty of our knowledge as to the exact position of the North Pole of the Galaxy, it allows us to consider this event to take place within the time span of 1991 - 2006.

2.4. SZ in Reference to the TZ

Now, the principal question arises, whether it is the point Z or Z' that have to be taken for the origin of the SZ, viz. as the First Point of Aries Υ_S . With respect to the above considerations, it is the northern hemisphere that provides dominant influence over the Earth. But the Sun's toroidal field and the Solar System as a whole might be likened to a flat circular aerial, which is tuned to both Northern and Southern Hemispheres. So, the Northern direction might be regarded as true for the Sun too. However, with respect to the Principle of Hierarchy, we assume that the Sun, as the heart and brain of the Solar System, must first be oriented to its Hierarchy, viz. the Galactic Centre. Since the Sun in our Galaxy is located slightly above the Galactic Equator, the Solar System (during its revolution around the Galactic Centre) is constantly observed to be North from this Centre, relative to the point of observation in the Galaxy's North Pole. Besides, physical observations show definite dominance of the Southern direction in the Space influence (See Example 8.3 of Section 1, Para. 1.2.3, and Eta Carinae's influence – Sec 3).

Therefore, the Southern Hemisphere determines the dominating influence over the Solar System. Hence, it is *the point Z*, where the Galactic Centre transits to Southern Hemisphere, that is seen as the origin, or *the First Point of the First Sign of the Solar System Zodiac* (viz. $0^\circ \Upsilon_S$).

Last, but not least is the following. Relative to the point of observation in the Galaxy's North Pole, *the visible traffic direction of the Galactic Centre around the Sun along the Galactic Ecliptic E_S is clockwise, while the visible traffic direction of our Sun around any planet (in the same plane $E_T = Q_S$) is anticlockwise.* This means that ***in the TZ and SZ the longitudes are incremented in the opposite directions.***

As the universal cycle, any Zodiac allows division by the different key numbers – 7, 12, etc. Therefore, while regarding its influence on the Earth, consider the SZ as the 12-sign entity, since it is this key that specifies the level of the human mind and is widely used in the analysis of natural and social phenomena. However, since the Galactic Ecliptic E_S is inclined to the Solar System equator Q_S (viz. Ecliptic E_T) at

an angle of $\gamma = 60^\circ$ (8.10), the task associated with projecting the SZ sign cusps onto the TZ resembles that which takes place with house-division for higher latitudes. Nevertheless, even in this situation the *SZ's cardinal points remain orthogonal*, and, thus, the setting of correspondence between the cardinal points of the TZ and SZ is correct.

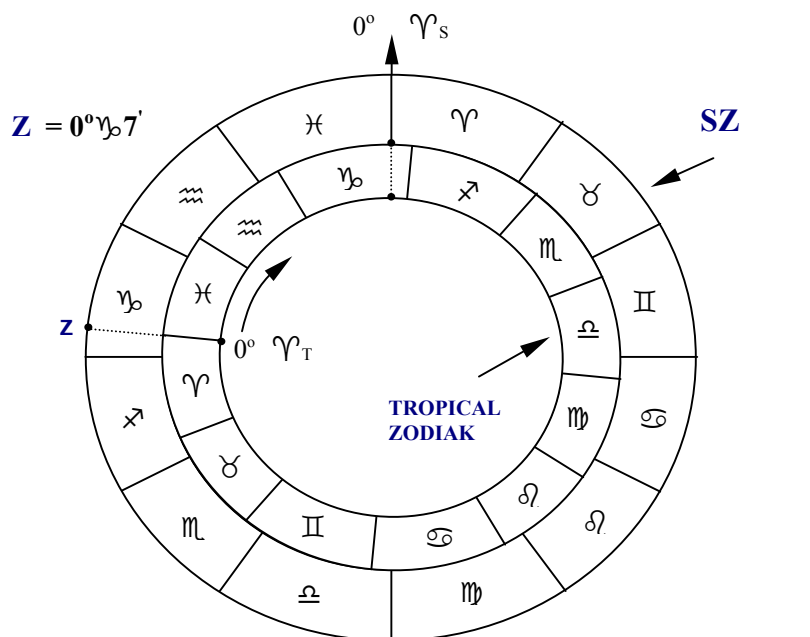


Fig. 8.3. Tropical (internal ring) and Solar System (external ring) Zodiacs

The arrow at γ_T (First Point of Aries) indicates the direction of actual precessional displacement of TZ along the SZ after the conjunction of their cardinal points at the Spring Equinox of 1999.

Note. The angle between the respective cardinal points of the TZ and SZ makes minutes of arc for the current epoch. It is grossly exaggerated in the diagram for illustrative purpose

As a result, we find that under the existing conditions, the situation that follows after this coincidence of the cardinal points of the TZ and SZ on March 21, 1999 is presented in Fig. 8.3. The most intriguing thing here is the symmetry in behaviour of the origins γ_T , γ_s : the First Point of Aries γ_s (γ_T) of the SZ (TZ) has completed its path through Sagittarius of TZ (SZ, Resp.) on March 21, 1999 and started its travel through the Capricorn!

2.5. What Influence does the SZ Exert on the Earth?

In compliance with the conventional astrological approach, coming of the point of $0^\circ \gamma_T$ to the cusp of a Zodiacal sign means starting of the Age named by this sign. Since the cardinal points of the SZ and TZ has coincided in 1999 with respect to (8.10), or have to coincide in the current era of 1991 - 2006 with respect to (8.11), we may conclude that transfer to a New Age is under way, but for what Age? The bringing of the SZ into correlation with the TZ (Fig. 8.3) shows, that the situation is much more surprising than, bluntly speaking, coming to the Age of Aquarius; it rather forces us to submit the following three hypotheses, that present the necessary conditions for the concept of the SZ to be true and, therefore, must be verified.

Hypothesis SZ-1. The vernal points γ_s and γ_T are symmetrically completing their way through the Sagittarius signs (viz. γ_s through the TZ Sagittarius, and γ_T through the SZ Sagittarius). This brings us to the end of the Age of Sagittarius, not the Age of Pisces.

Hypothesis SZ-2. The forthcoming age is the Age of Capricorn, since the vernal points γ_s , γ_T are symmetrically approaching both the TZ and SZ Capricorn signs, and so, the transfer to the New Age is taking place now – with the coming of the new millennium!

Hypothesis SZ-3. The sign of Aquarius takes on special significance for the Earth, since both the Tropical and the SZ's signs of Aquarius overlap. This situation might be interpreted as the undistorted (and, hence, magnified) passing of Aquarian energies to the Earth, enhanced by the present influence of Uranus. To some extent this holds for both the Leo signs.

Section 3. Verification of the Solar System Zodiac Model

3.1. General Considerations

Hypothesis SZ-1 - the Age of Sagittarius is Terminating. The Age of Pisces has been primarily associated with Neptune which does not fully belong to the Solar System [26]. That is why it hardly can be taken as the main Ruler of the Age of Pisces, but rather as a co-ruler with the main Ruler, Jupiter. But is it Pisces, or Sagittarius through which Jupiter has acted? There are forcible arguments to imply that the past two thousand years exhibited a tendency to overall expansion with ("good intentions") to establish a worldwide moral law, which might be regarded as more appropriate for Jupiter and Sagittarius.

First of all, this is reflected in unprecedented global dissemination of new monotheistic religions specifying world outlook, which is in compliance with Sagittarius, (viz. as active and, frequently, compulsory expansion). All this, while establishing guardianship and spiritual values with respect to one's own arrogances - right up to the Inquisition, and the fighting of religious wars. Then, external expansion is followed by an internal one: countless sects and "teachings" are accompanied by hosts of "prophets", and extremists, all alleging freedom from the moral and even officially set-up Church of Satan.

As if emphasizing a duality of Sagittarius's nature (viz. its human and animal principles), the significance of moral standards grows, but in opposite directions. On a low level, this has led to forming of trans national cult of a physiologically based consumers' society. Its power is amplified enormously due to the resonance which electronics provides, by merging crowds into a single passion.

The high level of Sagittarius leads to publishing of esoteric concepts (The Secret Doctrine, Agni Yoga, etc.), which for millennia were passed on only to Initiates. By crowning this Age, they are principally expanding humankind's horizons, providing an evolutionary path into the next Age.

Also of importance is the physical expansion of a man's dominion over the planet, and beyond its bounds. This defines the opening and developing of new continents, oceans and continental shelves, space flights, and telescopic study of the far Cosmos. Flights over the Planet become almost a usual thing.

We may consider variations in social structures as some of the greatest moments in manifestation of the Age of Sagittarius. It is not just the explosive increase in population, but the growth and expansion of empires and colonial possessions throughout the continents, with the subsequent establishing of unified political and economical structures (as well as the standardization of languages all over the world) under the slogan of spreading the culture.

The situation in the science and education can also be regarded as that which corresponds to the desire of Sagittarius to widen its knowledge: impetuous growth of educational levels, increases in the number of branches of sciences, and explosive technology and computerization clear the way for searching for "unknowns" in any conceivable or inconceivable sphere.

The same situation has taken place in economics, industry, etc. The list of commodities (goods and services) has become boundless. Extensive extraction of resources resulted in the littering of the Planet. Atomic power widened the possibilities of society to a great degree.

At the same time, the growth of the spiritual aspect of Sagittarius was not manifested to the same degree as the physical one. So, we may conclude that today the extensive initiatives of Sagittarius have reached some saturation, but, unfortunately, just at the physical level and astral subplanes. So, one may suppose that July of 1994 (the collision of comet Shoemaker-Levy 9 into Jupiter) might be regarded as one of those moments which specify termination of the Age of Sagittarius.

Hypothesis SZ-2 - The Age of Capricorn is Starting. The sequence of Capricorn following Sagittarius is natural for the zodiacal cycle of transformation, and brings to a stop the hypertrophied expansion and crystallization of the achievements of the Sagittarius and Jupiter. If this is true, the influence of Capricorn and Saturn must manifest themselves next. To all appearances this is so, and against the background of the apotheosis of Sagittarius's expansion, the tendency of Capricorn's compression and cutting off has started to manifest itself.

Empires and colonial possessions have come to destruction. Methodical annihilating of populations on an unthinkable scale took place both in peace-time and during wars. Many examples can be seen: millions of human beings lost their lives during World Wars I and II, genocide based on national, religious or ideological grounds even in time of absence of (international) wars, e.g. in concentration camps, and in local armed conflicts; restricting the birth rate. In times of peace, catastrophes of large-scale technical systems (e.g. atomic power plants); and the menace of nuclear warfare. If one remembers the mythology, s/he will recall that the Saturn's governing period was marked by severe treatment of his children.

Energy supply problems, exhaustion of mineral (and other) resources, a surplus of waste products, and large-scale accidents of technical structures necessitate the development of those technologies which accentuate ecological and saving factors. Destruction of morals accompanied by the rise of materialism has resulted in growth of both mental and various incurable viral diseases. Financial difficulties necessitate economizing on previously expanded social, educational and scientific programs.

It is also noted, that the 20th century has laid up very strange events for humanity, and that this century might even be the last one [49]. To this end, the transfer from the Age of Sagittarius to that of Capricorn might be correlated with the following quatrain X-73 of Nostradamus (translated from Russian):

He, Jupiter the Great who judges the Age –
This Age and that bygone one;
The world being vanished will be left by him,
As well, defendant clergy who repelled the God.

Besides, Fig.3 looks as if it is designated as illustration for another quatrain (I-16):

The Scythe in pond to be in highest of the standings,
Toward Sagittarius his turning race,
The pestilence and death from arms and hunger;
Comes to renewal - Age of long duration.

(Capricorn symbolized here by Saturn before the beginning of his Age, stands opposite Pisces and comes up to take the place of Sagittarius. Renovation through destruction of obsolete things with the use of Saturn's power is more visible - the Age of Capricorn comes).

Hypothesis SZ-3 - The Special Mission of Aquarius. *Uranus is traditionally associated with Aquarius. However, the overlap of the TZ and SZ Leos also results in growth of Uranus' influences. Indeed, its symbol, (viz. the Sun and arrow, represents an "active" Sun). In addition, numerologically (4-1), and functionally, Uranus (4) is associated with the Sun (1) and the sign of Leo [88]. In esoteric astrology the Sun, as the symbol of individuality, is regarded as a substitution for the mystical planet, (viz. Uranus), which symbolizes the true will, spirit, atma. The Secret Doctrine [46] states the Sun to be the central star, not a planet, and unambiguously indicates that it replaced the (at the ancient times) astronomically unknown Uranus in respective concepts. This means that Uranus might be regarded as the planetary Ruler of Leo.*

Therefore, the overlap of the Aquarius and Leo signs of the Tropical and Solar System Zodiacs (Fig. 8.3) resembles two sets of filters (when filters coincide in "colour", the might of the passed stream is the highest). This becomes a significant factor in supporting the developed model of the SZ, because it directly reflects the growth of influences of both Uranus and Aquarius. In addition, Fig. 8.3 illustrates the esoteric prediction [79] that the battle between Saturn (the Ruler of Capricorn and co-ruler of Aquarius) and Uranus is on, and the self-destruction principle has been established, while new conditions would show unusual possibilities. As far as it is said much enough about the Age of Aquarius, it is hardly required to continue this paragraph.

3.2. Esoterical & Astrophysical Verification of the Concept of the SZ

“If the Heavenly bodies have affirmed a country the way, then all energies do act; however, if the energies have not been asserted, the global consequences might be not caused by the astrological factors” [79]. Probably, the same idea lies beyond the quatrain VI-100, where Nostradamus warns against the formal use of conventional astrological techniques.

Now, it is known (See Sec. 1, [40, 73]) that several decades ago the Space started to exert a powerful influence upon the Solar System. However, the scientifically proved manifestations of this influence, that can be seen in geophysical, climatic and social alterations, were not so evident (at least to the author) before the middle of 90's when the concept of the SZ was proposed [89]. That is why an attempt was made to find other grounds for checking its validity. For this, the assistance of Lady Marina was asked, whom the author new to be a mediator being able to transmit the questions to the definite Thin Plane's Entities and to return their answers to the questioner. In contrast to many other persons (whom he knew) to be able to use their intuitive perception, her abilities in this sphere had proved to be much more exact. Though the answers were astonishing at those times, the most of them had obtained afterwards the factual and/or physical acknowledgement. The exposition of these answers, as they were firstly published [89], is as follows.

“People do not know all types of the Space influence. That is why this model of the SZ contains some errors¹⁾, though it is quite close to the truth at present, and the hypothesis as to the 7-zone (viz. 7-sign) SZ is true. But, soon, it will be transformed, because in the Space, even out of the Solar System, there will take place significant changes associated with the energy interactions²⁾. Indeed, around the year of 1997 a flash of Supernova³⁾ will take place in the direction of the constellation Orion; however, you will be able to observe this phenomenon in June - July 2002⁴⁾. Within the same period a new comet will arrive and exert its influence upon the Earth⁵⁾. Indeed, that, what is understood as the battle between Uranus and Saturn, will take place at approximately the same time and be accompanied by a colossal energy interaction which I (viz. lady Marina) see as enormous (relative to their might) energy flows or vortices between these planets⁶⁾. These energy flows will cause significant changes in the Solar System⁷⁾, and, in particular, in the SZ structure. As to the Earth, in 2002 - 2005 this energy interaction will be followed by natural catastrophes⁸⁾ of large destructive power with their maximum⁹⁾ in 2003 - 2004. After then, the general situation will somehow come to a definite stability by 2006, as the nature after a thunderstorm. The humankind will not perish, but a lot of victims would take place¹⁰⁾. A redistribution of zodiacal energies will occur, and though the variations in the SZ' structure will probably take place, the TZ, in general, will not be changed drastically”.

NOTES 8.5 (for the publication of December 2002):

1) New data allowed the author to make the SZ numerical parameters more exact with respect to the version of [89].

2) In the recent review [73] it is shown that the highly charged matter and energy non-uniformity in anisotropic interstellar Space have broken in the interplanetary area of our solar System; apart from this “donation” of energy, it is shown that a series of comets, that came to the central part of the Solar System, discharge the Solar capacitor [40], thus causing the distribution of energy between the Sun, planets and comets (See Examples in Sec. 1).

3) In 1997, a rise in activity of the still alive supernova star Eta Carinae was observed [1,35,36,90]. It is still widely discussed until now; for more details, see Part 4 and Sec. 3.3, below.

4) As to Orion, it is noted, that: “since most observers in the Northern Hemisphere cannot see Eta Carina, it is less well known than its famous cousin, the Orion Nebula” [The Home Page Masthead Image <http://www.astro.ufl.edu/sitemap.html>]. We may suggest, that the year 2003 was meant, as namely in June - July 2003 a new rise of activity and the subsequent eclipse were predicted for Eta Carinae.

5) A series of comets with conjugate orbital parameters has arrived in 1996 – 2002, and, firstly, the comet Hale-Bopp that culminated in 1997 [41]. This comet continues to exert its influence since 1997 until present by causing both natural and social effects [42, 87]. For more on comets, see Part 9 and [40].

6) These are observed the auroras on Saturn, Uranus polar shift and abrupt large scale growth of Uranus' magnetosphere intensity [73]. Other examples are given in [40]; they also show the actuality of the comet-planetary electrical interaction.

7) In details, these changes are described in [73, 40].

8) The intensity and frequency of natural catastrophes, climate changes and social events (acts of terrorism, etc.) is rising since the end of 80's until now. This increase might be attributed to other causes as well: to the increased Magnetic Pole variations (See Note 8.1 of Sec. 1) etc. But the collected statistics shows [42, 87] that these events of extremal nature (including the September 11 attack and the subsequent military response [42]) are concentrating around the Time Foci of the comet Hale-Bopp. Besides, synchronously with these Foci, the two-comb 11-year Solar activity maximum, as well as its local surges, has "overheated" the Globe; with respect to [2], this excessive excitation will be "resolving" in the subsequent years, until the next phase of the 11-year Solar activity cycle.

9) This possible maximum might be attributed to the expected Eta Carinae's event in June - July 2003, assumed coming of the comet (or brown dwarf) "Nibiru" [40], possible increase in the Earth's Magnetic Pole shift [73], etc.

10) The possible causes and effects of such phenomena are described in [40] and below.

3.3. The "Celestial Thunderbird", Eta Carinae

"Geophysicists have used the Legend of the Thunderbird to suit their purposes. Now, for the first time, astronomers get into the act. Our conference goal is to read legend of Eta Carinae - "The Celestial Thunderbird". ... There are two scientific agendas ..."
(Meeting Focus for the Eta Carinae Workshop, July 2002, Mt. Rainier WA)

3.3.1. Why Is Eta Carinae Interesting?

Massive stars are key astronomical objects because of their important role in cosmic chemical enrichment and galactic evolution. They mark the end of their stellar lives as *supernovae* whose peak luminosity can equal the entire radiant output of a galaxy of a trillion stars. The extreme members of this class might produce "*hypernovae*", cataclysms hundreds of times more energetic still, and a postulated source of gamma-ray bursts. Such extraordinary explosions require stellar precursors of unusually large mass, and so should be rare. The Milky Way contains *at least one possible member* of this putative class of *hypernova* progenitors, the massive, luminous, and relatively nearby star Eta Carinae (η Carinae) [36].

The name of this star, Foramen, or Eta Car (for short) is derivative from Latin "hole, orifice", which is quite symbolic for its origin. The Eta Car's coordinates are

$$\alpha_{2000} = 10^h 45.1^m, \quad \delta_{2000} = -59^\circ 41',$$

which give the Ecliptic longitude

$$\lambda_{2000} = 22^\circ \pm 9' 29.7''.$$

As the Solar System, this star is allocated almost exactly in the Galactic Plane (10 pc Southwards from this plane). Eta Car is only 2.3 kpc distant from the Sun (See Fig. 8.1). In comparison with the Sun, Eta Car's properties do really impress [35]:

Radiative power:	50 000 000 times of the Solar power
Wind power:	100 000 000 times of the Solar wind
Born masses:	110 + 90-Sun (2 stars)
Present masses:	65 + 70-Sun (after the giant eruption of XIXth century)

Distance (from Sun):	7 500 light years, or 2300 parsecs
Age:	2.56 million years vs. 5 billion years for the Sun
Total Lifetime:	~3 million years vs. 12 billion years for the Sun
Radius:	1 a.u., viz. the distance Earth from the Sun

“Eta Car became interesting 150 years ago, when underwent a giant outburst. It reached magnitude – 1, the brightest star in whole the sky, after Sirius. In 30 years, it released as much energy as a supernova. A dusty envelope made the apparent brightness of the star to fade below the naked eye visibility. The optical/violet light screened by dust, reappeared in the infrared, making Eta Car the brightest object in the sky, outside the Solar System. Actually, the total luminous power, decreased only slightly after the giant burst, remaining very high until now. This indicates that the star survived the event, though such massive objects are not, generally, the long-livers. The source of energy is not related to the nuclear burning core, and its nature is unknown. This is very intriguing, taking into account that it happened other times in the past centuries, as seen by the expanding ejecta outside the Homunculus. Eta Car is an exciting object by many other reasons: a) it is one of the most luminous and massive star known; b) the Homunculus, formed in the great burst of 1840 displays a beautiful bipolar flow; c) several “rays” or “jets” form a very flat structure exactly in the Homunculus’ equator; d) some “jets” are headed by mysterious “blobs”, near the central star, that should have required a huge amount of energy on a very short time scale to be formed; e) a large amount of dust was formed in an ambient deficient in Carbon; f) the size of dust grains around Eta Car is 10 times larger than that normally found in other stars or in the interstellar clouds. Several interpretations have been attempted to Eta Car: slow supernova, pulsar embedded in a supernova remnant, etc.” [35].

“Eta Carinae has the most interesting photometric history of any naked-eye star. Conspicuously unstable during the years 1700 - 1830, it became one of the brightest stars in the sky during its famous giant eruption from 1837 - 1860, then it faded to eighth magnitude, experienced a second eruption around 1890, and faded again. The causes of these great nineteenth-century outbursts are not yet known, even after decades of modern research. A gradual brightening during the twentieth century can be explained by expansion of the dusty Homunculus ejecta nebula without necessarily invoking any major change in the star; Eta Car appears to have been more stable during the past hundred years than it was in the preceding two or three centuries. Aside from the long-term trend, visual-wavelength photometry since 1960 has shown only minor fluctuations of the order of 0.1 mag.” [90].

“However, the Eta Car’s behaviour during the 90’s has been unprecedented in its modern photometric record, which covers the past 40 years, and the sets of data agree that substantial brightening occurred after 1995” [90]. Besides, the recent observations have shown that Eta Car is a strong source of hard, high absorbed X-rays; there is also a mysterious point-like source of hard emission centred on the star itself [heawww.gsfc.nasa.gov/users/corcoran/eta_car/eta_car.html]. These characteristics are extremely unusual for X-ray emission from single massive stars. Even more interesting, the X-ray emission from Eta Car is known to vary by large factors.

In time, the Eta Car’s X-ray emission was developing as follows [36]. In Feb 1996 the X-ray flux showed a slow rise, and starting with Jan 1997, the rate of increase in the X-ray flux accelerated dramatically; in Nov 1997 the X-ray emission reached a maximum, then quickly plummeted to a minimal value, where it stayed for about 3 months. ... *This confirms that the X-ray emission changes with the same period as determined spectroscopically.* ... After then, a new 5.52 year cycle of Eta Car had started. In Mar 1998 the X-ray flux started to rise; this rise was at first rapid, but has slowed somewhat in recent days. HST /Space Telescope Imaging Spectrograph data show that the apparent near-UV, visual-wavelength, and near-IR brightness of Eta Car increased by a factor of two during 1998. Meanwhile, its Homunculus ejecta nebula brightened by about 30%, the largest fluctuation of this type in the past 40 years. These developments were quite unexpected and are not easy to explain. Some dust has probably been destroyed, while the star’s luminosity may have increased even though it was already close to the Eddington limit. Such a rapid luminosity change would be a truly remarkable phenomenon, not predicted by existing models.

A more pronounced brightening, that occurred in 1998, was almost detectable with the unaided eye. This new phenomenon, more extreme than any brightness change seen in Eta Car during the past 50 years, may

be intrinsic to the star, or it may indicate a rapid change in circumstellar extinction, or both; in any case it is a considerable surprise which may have major implications for very massive stars [36].

“In **2003.5** (viz. around *July 1, 2003*, or at the *Time Focus July 4 of the comet Hale Bopp* [42]), Eta Car, one of the most luminous and massive stars in the Universe, is expected to undergo an ***X-ray eclipse***, which is believed to occur every 5.52 years and is thought to be correlated with the 5.52 fading of high excitation lines, and is thought to be produced by the eclipse of a shock around a hidden companion by Eta Car” [heawww.gsfc.nasa.gov/users/corcoran/eta_car/2003.5/]. It is seen from the presented graph, that the moment of eclipse is characterized by an abrupt fall of the X-ray emission from Eta Car after a sharp cycle maximum that precedes the eclipse by a month.

Therefore, by taking account of the great importance of this star, high stability of its 5.52-year cycles and current increase in X-ray emission (in comparison with the trend of the preceding event of 1998), it was declared the International Campaign to monitor the 2003.5 Event in Eta Carinae [op.cit.].

3.3.2. The Effects a Flash of Supernova May Cause

“Extremely massive stars are key astronomical objects, as they play a role in chemical enrichment and galactic evolution. They mark the end of their stellar lives as supernovae explosions in which a single supernova can equal the entire radiant output of a galaxy of billion stars. Recently the extreme members of this class have been suggested to produce the “hypernovae” which might explain the bursts of gamma radiation which have been an astronomical mystery for 30 years. The energy emitted by a hypernova is astounding; perhaps the equivalent to the radiant energy output of an entire universe of galaxies. Such extraordinary explosions require stellar precursors of unusually large mass, and so should be relatively rare. Alarming, the Milky Way possesses one possible member of this putative class, the massive, luminous, and relatively nearby star, Eta Carinae. Eta Car is both an extremely massive star and an extremely unstable one” [op.cit.]. Flashes of supernova are quite actual for this study, since they exert colossal influence upon the Space processes; the more so that *all of them, that have been registered in our Galaxy over the last millennia, are synchronous with the Auric epochs of the Mayan Calendar* [See **Part 3**]. That is why consider their influence at greater length.

More than 300 explosions of Supernovas were photographically observed in other galaxies, but *only three of them (in 1054 AD, 1572 AD, and 1604 AD) were registered in our Galaxy* which in some cases were seen even by naked eye as objects being brighter than Venus.

The Supernova registered in 1054 by Chinese and Japanese astronomers was seen even in the daytime. After then, at this place the Crab Nebula had developed. It was also followed by very long period of high Solar activity – up to the epoch of about 1300 AD (viz. *to the Auric epoch #4, 1287 AD*). At this, the content of radioactive isotope ^{14}C in the natural samples was at the highest level (about 10% above the norm) from 1100 AD to 1250 AD. Besides, this period was marked by the global rise in temperature, that was further called *the medieval climatic optimum*.

The last two flashes of Supernovas in our Galaxy took place in 1572 and in 1604 (they were observed by Tycho Brahe and Kepler, and called by their names) and were followed by a centennial decrease in Solar activity (so called Maunder’s minimum); a small ice-age fell on the Earth. Kepler wrote that the flare was seen even in the day-time and with the naked eye. In Russia it was the Time of Trouble (up to 1605); apart from political confusion, for three years it was a period of extremely cold weather with Summer snowfalls, the “Great Pestilence” when the people ate the grass and bark. At this, the difference in global air temperature between the medieval climatic optimum and small ice-age period was about 1°C only!

“A seldom person had seriously responded to the Cosmic event that had occurred on the February 23rd, 1987 at 2:53 UT, whereas this event will probably go down to history” [38]. At that moment, the Canadian astronomer Shelton who was working in Chili, had registered the flash of Supernova *in the Magellanic Clouds being the satellite of our Galaxy*. This Supernova was assigned the name SN1987A. Registration of the respective splash of gravitational radiation shows that its magnitude was extremely high. As a result, a

vigorous energy flux had struck the Sun and planets, and it was powerful enough to influence even the Solar processes.

Thus, at the beginning of the 1987 the Sun was calm, whereas even in two days after this flash the sunspots had aroused on the surface of the Sun, and, since then, the number of sunspots had begun to steadily grow until the 11-year Solar activity maximum took place in 1989 – 1991, after the shortest inter-maxima period over the 150 years [38]. At this, a series of fierce natural cataclysms took place in that year: unprecedented drought and forest fires in USA and China in Summer and powerful floods in China in Autumn; the Nile had burst its banks and flooded Khartum. The Spring floods on the Rhine and Danube had exceeded all the levels on the record. The tropical thunderstorms and showers were continuing over the European part of the USSR for a month. In Autumn, $\frac{3}{4}$ of the Bangladesh territory was flooded, 30 millions of people were left homeless, the epidemic of cholera had flared up. The typhoon “Gilbert” did damage to the Caribbean Region for about \$10 milliards. All these are apart from the unprecedented natural calamities in Nicaragua, Indonesia, and other regions [38].

Besides, the flash of Supernova stimulates such processes as rising of the average atmospheric temperature which, in compliance with the World Meteorological Organization, could attain the values of 1.3°C in 2000 and 3°- 4°C in 2050. To this end, the greenhouse effect and flash of Supernova act in unison.

3.3.3. Eta Carinae - a Master-Clock for the Solar Activity Cycles?

“The death of Eta Car is likely to be one of the most explosive events ever experienced in the Galaxy” [36], though astrophysics cannot exactly determine neither the current evolutionary state of this star (system), nor the length of time until eventual end as a supernova or hypernova. However, it is expected that: “analysis of the 5.5 yr X-ray cyclic variation, timing of flares, and variations in column density may be the best means to fully determine the physical parameters of Eta Car, and so determine its evolutionary state” [36]. These phenomena show fairly stable periodicity, though is not known whether the duration of this cycle was the same hundreds years ago, or not. The *established* [Part 4, Sec. 4.4] **two-centennial synchronism between the 11-year Solar activity (SA) and 5.5 year Eta Carinae cycles** allows us to assume that it was probably so, at least for the preceding two millennia.

A series of these cycles was observed for the first time in 1948, but it seems that they were present also during the great burst of the XIX century; as far as the last spectroscopic event in Eta Car was predicted to occur around 1998.0 and was actually progressing on schedule, we cannot yet rule out the possibility of a new major eruption in **2003.5**. At that moment Eta Carinae is expected to undergo an *X-ray eclipse*, which is believed to occur every 5.52 years and is thought to be **correlated with the 5.52 fading of high excitation lines** or **2020 day** radiation cycle, and is thought to be produced by the eclipse of a shock around a hidden companion by Eta Car. Therefore, in the below considerations make use of the most exact estimation for this cycle, viz. 2020 days, instead of the preliminary values of 2014 days (that yields 5.51 yr as $2014/365.24 = 5.51418$) or 5.52 yr.

The provided study has allowed us to come to the following [Sec. 4.4].

Conclusion EC1. In terms of cycle duration being inverse to the frequency of the events, the average period $T_0 = 11.07$ yr of the 11-year SA cycle presents the second harmonics of the basic Eta Carinae radiation event cycle period of $T_{EC} = 5.5306$ yr with the accuracy of $\delta_0 = 0.08\%$.

Further on, by taking the accepted estimation 2003.5 for the reference point, we obtain the following model for the Eta Carinae event distribution $\tau_i^* = 2003.5 \pm T_{EC} \cdot i, (i = 0, \pm 1, \pm 2, \dots)$.

Conclusion EC2. Within the existing two-centennial observation data, the 11-year SA cycles and Eta Carinae events present the synchronous processes, cyclic and periodic ones, where the model peaks t_k^* of (14) present the most prominent Eta Carinae events [35] with not less accuracy than the peaks τ_i^* being defined by the accepted Eta Carinae event distribution (15).

On these grounds, the following **Hypothesis** was put forward: a relative stability of the Regular model for the Solar cycles (See **Part 4**) over the two millennia allows us to assume, that Eta Carinae presents a Master-Clock for the 11-year Solar Activity Cycles; namely, that:

- (i) the highly exact coincidence of the average duration T_o of 11-year SA cycles and doubled value T_E of the basic Eta Carinae's period T_{EC} , as well as the *synchronism* between the events they define are **not random**;
- (ii) the huge emissive power of *Eta Carinae*, in comparison with the Sun, assumes it to be **a master generator for the Sun** for this pair of stars;
- (iii) if so, before the Eta Carinae's giant eruption in 1827 *the periods T_o , T_E were also equal*.

3.4. When does the Platonic Year Start?

For any starting point, it takes about 26 000 years for the Earth's axis to complete a circle on the Celestial sphere, viz. for the TVP to pass 360° along the Ecliptic. However, if the cardinal points of the SZ are really have the dominant evolutionary importance for the Earth, the moments when the TVP coincides with them are to present the time markers for the evolutionally important world wide phenomena (as in Prof. Piccardi's experiments, See Example 8.1).

As it was shown above, in Examples 8.2 – 8.10, the current coincidence of the origin ($0^\circ \varphi_{sz}$) of the SZ with the TZ's Solstice axis does actually define a profound world wide changes in society and nature (including the current increase in velocity of the Magnetic Pole shift) and corresponds to the Mayan Predictions (**Part 3**).

In the opposite position, the TVP was half a Platonic year ago, viz. about 13 000 years before present, or at the edge of XI and XII millennia BC. But namely that epoch is especially rich with the pronounced world wide phenomena relative to the subsequent and preceding ages (**Part 3**):

- Epoch of termination of the last glacial era, XII millennium BC;
- The last Ice-Age was accompanied by a radical rotational Pole shift, after which the axis returned to its former place;
- Geomagnetic inversion (second to the last), intensification of earthquakes and volcanic activity (XIII - XI millennia BC);
- Silt sediments rising to fourteen feet around the base of the Great Pyramid in Giza contain many seashells and fossils that have been radiocarbon-dated to be nearly 12 millennia old [52]. These sediments could have been deposited in such great quantities only by major sea flooding... these watermarks are about 400 feet above the present level of the Nile River;
- Change in surface of Central Asia (XI millennium BC);
- Flash of Supernova, etc.

A quarter of Platonic year ago, the TVP coincided with the origin of the SZ, and those times are also attributed with major phenomena [40], though not so much pronounced.

Therefore, as far as the global evolutionary changes of the Earth do take place when the TZ's Solstice axis coincides with the Sidereal origin of the SZ, being also aligned with the Solar apex and close to the GC Celestial position, we may conclude that, apart from physical and astrological considerations, both the current and those remote events also give evidence to the validity of the concept of the SZ, whereas the above specified SZ's cardinal points determine the global resonant points for the Earth, which the TVP now passes on its 26 millennia path along the Ecliptic.

3. 5. Synchronism of the Change-of-Ages Concepts

3.5.1. The Mayan Calendar and the Auric Time Scale

It is well known that the Mayan Calendar (MC) covers the period of 3114 BC to 2012 AD. However, it is not so widely known that: its starting epoch is quite exactly synchronized with the beginning of the Age of Kali Yuga (3102 BC), the Esoteric Teaching of Maya corresponds to that of Vedas and Ancient Egypt, and the ancient Sacred Alphabet of Maya and Egypt are almost identical [46]. But even less known that the entire structure of the MC is permeated with the numbers and relations based on the Golden Section number $F=0.6180339\dots$ and, respectively, associated with the Fibonacci numbers (**Part 3**).

In a form of Auric (as adjective to Golden Section) Time Scale, ATS, being specified by the geometrical progression of the Golden Section number $\Phi = 1.618\,033\dots$, the Golden Section presents the heart of the structure of Time count, both in a relative form, when time is measured in periods (Solar days, Earth's years, etc.), and in "absolute" form, when time is used for referencing the continuous historical process.

In the first case, whatever period is taken for a time unity - either the Earth's year, or an average 11-year Solar Activity cycle duration ($T_o = 11.07$ years), or Mercury, Saturn or some other planetary revolution period (**Part 2**), the obtained geometric progression of the Golden Section number powers (or Auric Time scale being infinite to both ends) defines the *Scale of Periods* that unities, in an algebraic structure, the remaining periods and its values coincide with for the basic phenomena in Nature (including the SA resonant periods), economics, biology and many other spheres, and last, not least, with the Eta Car's 5.5 yr cycles.

In the second case, the ATS describes "historical" or Evolutional Time as a sequence of periods of decreasing duration, where compression of Time takes place in the form of accelerating the course of events. So, the ATS might be likened to the Auric Spiral of Time, the turns of which are described by the Auric structure, wherein at each turn the phenomena are more adequately described by cycles of equal duration, unless this spiral comes to a point of bifurcation in 2012.

Considering of the Mayan Calendar in the light of the ATS has allowed us to reveal the miraculous synchronism of trends and events (the culmination of which we may expect at the termination of the Mayan Calendar, before 2012). This shows that such phenomena as: planetary and natural cataclysms (including seismicity), demographic trends (in the example of China), epochs of the coming of humanity's Great Teachers, epochs of originating calendars, and epochs of creation of Great Books and Ideas are closely correlated with the long dozen of epochs being determined by the Auric partition of Mayan Calendar.

Furthermore, by continuing these cycles into the depth of times (viz. beyond the year of the 3114 BC) we obtain two more separation epochs, 6297 BC and 11447 BC, which correspond to the ruin of the last hearth of Atlantis (by Platon) and the completion of the last Ice Age. Apart from other actual events, these two epochs, together with 3114 BC, are synchronous with the last three geomagnetic inversions (viz. changes in polarity of the magnetic field of the Earth). This means, that the completion of the Mayan Calendar in 2012 AD signifies the termination of 12 (or 13) evolutionary cycles since the ruin of Atlantis (completion of the last Ice Age). These cycles cover, in total, the period of 8.3 (13.5) millennia which include more or less described history of our current civilization, going back to the appearance of definite historical evidences.

Last, not least, is the Mayan concept on the global synchronization of the Earth's life [30] which they expected to take place at the termination of the Mayan Calendar, due to the Galactic influence. As we see this from the above considerations (Examples 8.2 – 8.10 of Sec. 1), strong evidences exist that support this prediction.

3.5.2. Comets and Solar Activity

If the former two factors, the SZ and the Mayan Calendar, provide, first of all, a "theoretical" description of the current epoch as a point of bifurcation for the historical process, the Time and Geographical Foci of influence of the comet Hale-Bopp (HB) can be considered as the "actual" indicators of the planetary-comet

and, what is much more important, of the dynamic Solar influence that was frequently aimed namely to the Earth (for more details, See [Part 9](#)).

These Foci and their factors of influence were obtained [41] in compliance with the conventional astrological analysis of the Sun/HB conjunctions and relevant planetary configurations and Eclipses. As far as these Foci are specified by the dates with an orb of 5 days corresponding to 5° orb for a conjunction with the Sun, they may remain effective in the subsequent years (after the comet's culmination in 1997), though in that year the author did not suppose such a prolonged influence. However, a statistical Summary [87, [Part 9](#)] for these Foci and Factors of influence, that includes the events of record or extremal nature, shows that this influence is effective until now (viz. 2006) and for the whole spectrum of the predicted factors: natural calamities, technogeneous catastrophes (air, car, and rail way crashes, etc.), fires, epidemics, military actions, social, political and economic crises. The events of each class form a logical sequence (or trend) – formerly within the states, but afterwards – on an international level [42,87], as if the sequence of events is developed at these Foci as at time markers.

But the most intriguing thing in this synchronism is that, that from the very beginning of the development of the current 11-year SA cycle, viz. from the Summer of 1997, the local SA surges had started to take place, in general, in the vicinities of the comet HB's Focuses; indeed, even for the period of July 1997 – April 1998 the probability of accidental coincidence of the HB's Focuses and the SA local maxima may be estimated as 10^{-12} . For comparison, this value is about several dozen times lesser than a ratio of a poppy-seed and the Earth radii. In the subsequent years this synchronism not only remained, but had increased [42,87]. And even integrally, we see that the first 11-year SA maximum being more pronounced in the sunspot numbers, comes to orb of the Focus T6, July 2000, whereas the second maximum being more pronounced in the radio flux (at the end of December 2001) fits the orb of the Foci T1, T2.

This miraculous conformity between the comet HB's Time Foci and the SA surges could not be explained until the recent years, except but esoterically. Now, as it is evidently shown in Prof. McCanney's works [40], a comet coming from the outer part of the Solar System possesses a huge electric charge, and alignment of such comet with two or more spatial objects (especially with the Sun and in the inner part of the Solar System) results in discharge of the Solar capacitor. If the Earth is included in this process, in the Geocentric system this corresponds to conjunction of the comet and Sun (besides, square may also have a physical background as the electric and magnetic field strength vectors are perpendicular).

From the one hand, namely these aspects were independently of this theory (viz. in compliance with the astrological considerations) used in obtaining the HB's Foci of influence; from the other hand, the obtained statistic [87] supports not only the significance of these Foci, but the conclusion of this theory as well!

Note, that the second largest monthly maximum took place in September 2001, when the SA growth in time, up to September 9, had almost exactly repeated the similar 2-week growth of the SA up to one of the largest values of the preceding 11-year cycle that took place before August 19, 1991. In a close correspondence with the Prof. Tchijevsky's [2] theory, the after-effects of the destruction of the USSR were seen in the world trends at least until the end of that 11-year cycle. In the same way, the after-effects of the September 11 attack (that took place within the orb of the comet HB's Focus T7 of September 16 [42]) would hardly disappear until the next 11-year SA cycle maximum that might be expected in 2011-2013 (as bringing of the Soviet troops in Afghanistan at the epoch of the 11-year SA maximum in 1979 had led to the delay in resolving of that military action until the next 11-year maximum).

Since 1999 (or, more exactly – with the Focus T5 of March 24 when the bombardments of Yugoslavia had started) the events around the Focuses of the comet HB were more and more marked by an international involvement [87]; it is shown in [42] why the USA, Israel, Afghanistan and some other countries are involved in the military actions and why the forecasted intensification of military actions in March and, especially, in April 2002 took place and would possibly worsen with respect to other factors of influence at Eclipses in June and around July 4, 2002. These forecasts were based on the national charts and Astro*Carto*Graphy maps for the countries being specified by the comet Hale-Bopp's Foci, as well as by their synastries; at this, the influence of the comets Hyakutake, Linear, and Ikeya-Zhang was also taken into consideration.

But it is not a close synastry that astonishes (e.g. the last comet HB's conjunction with the Sun defines the Focus of July 4, which, in its turn, coincides with the Sun of the USA). For the sequence of 12 charts composed for the comet HB's Time Focuses, America's Solar return for 2001 and September 11 attack, all – for Washington, a striking correlation takes place [42] that might be called the *algebraic analogue of the Trutina Hermetis* being well known in astrology; within an average orb of 2° - 3° , the *Asc* or *Mc* of the subsequent event(s) coincides with the midpoint *Asc/Mc* or *Sun/Moon* of the preceding event that lies in the same cross, or vice versa. By taking account of the origin of the Trutina Hermetis, this means that ***each event in this sequence presents the “conception” for the “birth” of the subsequent event!*** The same situation takes place for Kabul, and almost the same situation takes place with the resonant points for the comet Ikeya-Zhang [42]. Isn't this a play of Destination?!

3.5.3. The 11-year Solar Activity (SA) Cycles

As Prof. Tchijevsky [2] has established, the lengthy historical events, that culminated at an epoch of the 11-year SA cycle maximum, showed a trend for settling till the beginning of the next 11-year cycle (for more details, See **Part 5**). After then, with the rise of the SA, new, or unsettled, centers of tension are starting to develop and, generally, culminate at the maximum of that subsequent 11-year SA cycle. Therefore, the growth of terrorism that started to develop since 1996-1997 and continued to grow in 2001-2002 on the level of the world-wide war against terrorism would have a chance to define one of the most acute world trends (apart from financial and other ones) for the forthcoming 5 years. After then, on the phase of the growth of the SA, the new (or old, but unsettled) world wide actual problems would start to develop until their culmination (though not obligatory a resolution) at the next epoch of the 11-year SA cycle maximum, presumably in 2011 – 2012.

However, as far as the SA level is still high, the Eta Carinae eclipse has taken place in 2003, and the comet HB's Focuses are still effective, we cannot exclude that the forthcoming years will manifest themselves with not less significant events than those that took place in 2001 – 2002, with the beginning of the World War against terrorism. The more so the Russian revolution of 1917 took place at a similar astrological situation – at the phase of the 11-year SA maximum when Uranus was to leave Aquarius.

Besides, we must remember that the extremely tense synchronism between the SA surges and the comet Hale-Bopp Time Foci cannot be explained in other way than as the Sun itself has taken the sight at the Earth, as the Sun's influence is very important, both Esoterically, and physically.

A striking synchronism between all these global trends and events in the Nature and consciousness of the known civilizations testifies to the truthfulness of the Hypothesis on the SZ, and allows us to suggest that on entering a new age, the Age of Capricorn, our Earth would actually pass in 2012 a bifurcation point being predicted by Mayans as the time of transformation of the Earth's civilization.

CONCLUSIONS

Analysis of sidereal factors shows that for a lengthy time interval one can relate to an unchanged Sidereal Zodiac associated with some star or constellation with a great doubt. The developed structure of the Solar System Zodiac is free from such rigid fixing, and its parameters are accurate to within the uncertainty of our knowledge relative to the distribution of matter in the Galaxy. However, the existing data are sufficient to provide a qualitative stability of the SZ model, as well as to estimate the moment of ingress of its origin (viz. $0^{\circ} \Upsilon_{SZ}$) to the TZ's Capricorn (and vice versa, of the TVP - to the SZ's Capricorn) as the Spring Equinox of 1999. With account of the precision of the source data, this event takes place within the period of July 1991 - March 2006.

However, though The TZ reflects the actual Space influence for the epoch of its TVP, it still presents a relative coordinate system and, thus, does not take account of the Sidereal shift of the TVP (being specified

by the precession of Equinoxes) for the events being separated by some time interval. Therefore, when correlating several moments of time, a proper account of the Sidereal factors (stars, GC, etc.) is required; for this, *the Fixed-Tropical/Tropical Zodiac Correlation* (or, in short, *FTTZ-correlation*) technique is proposed that allows us to unite the advantages of both Tropical and Sidereal Zodiacs.

With respect to the traditional approach, an ingress of the TVP to some sign means the beginning of a new age named after this sign. The more so, a “double” ingress of the SZ and TZ origins to the signs of Capricorn has to mean that the Spring Equinox of 1999 is to be considered the symbolic beginning of the New Age, while the interval of 1991 - 2006 is to present a transient process of transferring to this New Age, whereas this Age itself is the Age of Capricorn.

This signifies that the New Age has formally started in these days. In particular, this increases the actuality of the first degree of each TZ's cardinal sign and, especially, those of Capricorn and Cancer where the Solstice meridian, Ecliptic and Galactic Equator intersect on the background of significant stars and nebulae. However, this situation specifies not only a symbolic outpouring of powerful flow of Galactic energies through the coincided cardinal points of Tropical and Solar System Zodiacs. The recorded and documented observations cause us to conclude that the global reorganization and transformation of the Earth's physical and evolutionary qualities are taking place now, in front of our very eyes [73, 40]. They are caused by both the direct outer Space influence (“donation” of interstellar Space energy, supergiant Eta Carinae's resonance with the Solar activity cycles, etc.), and by intra-Solar-System interaction and energy redistribution through the miraculously synchronized Solar activity surges, comets and explicit planetary electrical interactions [84, 74, 86, 88, 90].

From the other hand, archeology, physics and esotery give evidence that half a Platonic year ago (viz. about 13 000 years before present), when the TZ's opposite Solstice point ($0^\circ \odot$) was passing the origin of the SZ, a series of huge natural phenomena took place, and it had to be so should the SZ present the Aura for the Solar system with the specified cardinal points.

The presented verification of the Hypotheses 1 - 3 being based on the TZ-to-SZ correlation also show their consistency with the current social phenomena being observed in the world. The use of the SZ in this model shows that we are now transferring from the Age of Sagittarius into the Age of Capricorn. In addition, the fundamental influence of Uranus, present in both TZ and SZ Aquarius, is symbolic of the battle between co-rulers Saturn and Uranus. Indeed, what else (apart from the nature of Saturn and Capricorn, which came into prominence) could explain the existence of extermination camps and wars (that have engendered nothing but hecatombs in the name of one's own “civilized goals”), as well as the widening of the World War against the growing terrorism (viz., actually, the Third WW) during the proclaimed transfer from the sign of universal love, care and tactful attitude towards people (viz. Pisces) to the sign of humanism, fraternity and mutual respect (viz. Aquarius).

The above conclusion as to coming of the Age of Capricorn conforms to the same idea being independently put forth by Dr. T. Landscheidt, and corresponds to the compressing of time before the end of the Mayan Calendar. Of course, the time estimates might be made more precise, but we must not forget that the termination of the last glacial age was manifested by only a 10-20 year period of abrupt warming. Therefore, we may suppose that this inflow of energies can manifest itself physically in the coming years not less significantly than during the previous decades of approaching to this opening of the Heavenly Gates. And we know, that [79] ...When the human spheres require the respective shocks, the Cosmic sendings are transferred accordingly. All dozing energies are awaked, all things liable to destruction are strained. The decision of the Cosmos is stern, but it is full of boundless beauty. These purifying powers will have lit up humanity.

9.1. Comet Page Guide

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Preface

In winter of 1996 I was getting a keen pleasure from watching the aureole of the **comet Hyakutake** that was seen at night near the Zenith by the naked eye. This enchanting sight had stimulated me to develop a forecast of possible influence this comet could exert on the Earthy processes, both natural and social. It was preliminarily reported and included the factors of influence and the time foci. In general, it was confirmed.

Therefore, when it was announced that a new huge comet had to appear in less than a year, I inquired into its trajectory and, on this ground, prepared the forecast for the Earthy manifestations of the **comet Hale-Bopp**. After then, until these days, I am continuing to collect data pertaining to its manifestations with respect to the specified factors, as well as time and geographical foci of influence, which are of record or extremal nature, or concentrate significantly around these foci.

As it turned out, the manifestations of the comet Hale-Bopp (HB) are still as pronounced as its startling appearance on the Western Sky.

After then several more comets have got into the game. The trajectories of the most significant of them were also analysed and it had turned out that they were "tied together" with that of the comet Hale-Bopp by the **star Algol** (See Figures 9.1 and 9.2) and Hale-Bopp's Time and geographical Foci. We can presume that those "coincidences" had prolonged the effectuality of the comet HB's Foci.

Indeed, as far as the Time Foci were obtained, first of all, on the ground of Sun/HB conjunctions (viz. Sun-Earth-comet HB alignments), they potentially retain their effectuality from year to year at the same dates by corresponding to the same Sun positions. But from the Physical point of view these Sun-Earth positions may correspond to the ionization channels engendered by the intensified comet's interaction with these two Space bodies – namely on alignment (See [40] – J.M. McCanney. Planet X, Comets and Earth Changes. Minnesota, 1980 – 2002, or <http://www.jmccanneyscience.com>].

The events that systematically accompany these Foci are actually of paramount importance and stretch from the record natural calamities and fires to air crashes and further on – up to the acts of terrorism (including the September 11 attack (See the forecast in Vol. 145 and Vol. 146 of Sec. 9.7 and Fig. 1.2 of Part 1), Israeli-Palestinian confrontations (up to the last days - Vol. 395, 397) and large-scale psychosis.

The **Factors of influence**, as well as the **Time and Geographical Foci** of the **comet Hale-Bopp** are described in [41]; the replica of this work is presented in Sec. 9.2. It also presents the **Summary** of events for the year of **1997** that are categorized by the factors of influence and, within these sections – by the Time Foci, which were collected with the aim to verify the Forecast.

As far as in 1998 the Foci were as pronounced as in 1997 when this comet was in a close vicinity of the Earth, the collection of records was continued and presented in [75]. The replica of this work is presented in Sec. 9.3; this time, in addition to the **Summary (2)** where the record events for the year of **1998** are categorized over by Meridional Foci of influence and, within these sections – by Time Foci and Factors of influence; the correlation between the **Solar activity maxima vs. the HB's Time Foci** is also presented which supports the previously put forward hypothesis [41] as to the existence of synchronism between them; this analysis can also be used as another acknowledgement to J. McCanney's concept [40] to electromagnetic nature of Sun-comet interaction.

The actual "after-effects" of the comet HB's Foci gave me the ground to predict that they will be still effectual in 2001 as well (See [83], the replica of which is presented in Sec. 9.4). And it was really so, both for

the comet HB's Factors and Foci, and for the Solar activity vs. HB's Time Foci – as the **Summary (3)** shows for the considered period of 2001 (See [85], the replica of which is presented in Sec. 9.5).

This amazing concentration of the natural and social disasters (including the September 11 attack, starting of bombardments of Yugoslavia and other important events) around the HB's Foci could not be disregarded. For that reason a study was carried out for those basic events with the use of Astro*Carto*Graphy and Solar arc progressions of HB's Time Foci Solar positions which had led to not less striking results (See [42], the replica of which is presented in Sec. 9.6). In particular, it was shown that the progressive Israeli Sun was moving, like under the cataclastic escort of four progressive HB's Time Foci Solar positions, until this cluster had been stricken this Summer by hard aspects at Foci July 4 and its doubler – July 16 (See Vol. 395, 397 of Sec. 9.7).

Alongside, since 1999 I was continuing to collecting the evidences of concentration of the records pertaining to the specified HB's Factors of influence over the Time and Geographical Foci. This **Summary (4)** is given in Sec. 9.7, including the bombardment of the comet Tempel 1 at Focus T6 (Vol. 343, Sec. 9.7). It presents the collection of the forecasts and reports that were published in the ISAR International E-mail Letters weakly ezine; for this reason the entries of this Section, for brevity, are referenced by Volume numbers.

Last, not least are the below Figures which integrally illustrate the synchronism of the Algol-type critical points (e.g. **triple cross at Algol** over the Earth) of the most significant comets over the last decade that are considered in this Part.

2. Diagram of Celestial synchronism of the Comets

Hyakutake, Hale-Bopp, Ikeya-Zhang, and Machholz

and their Apexes at Algol and comet HB's Time Focus TB of April 7 -11

In 1997 the comet *Hale Bopp* (HB) had circumscribed an arch over the Northern Hemisphere that made a cross with the path of the comet *Hyakutake* (H). The Apex (viz. the Celestial point of intersection of trajectories) of this cross makes

$$H/HB \text{ Apex: } \alpha = 3h 1m 19.15s, \delta = 39^{\circ} 45' 50'', \lambda = 24^{\circ} \gamma 26' 30.8'',$$

that was passed on:

$$\begin{array}{ll} 11^{th} \text{ April, 1996,} & \text{by } \textit{Hyakutake} \\ 10^{th} \text{ April, 1997,} & \text{by } \textit{Hale Bopp} \end{array}$$

The Apex almost exactly coincides on the Celestial sphere with the star *Algol* (3h 8m 0s R.A., + 40° 56' for the same epoch) and, in R.A., with *Menkar*, whereas the Sun at this moment conjuncts *Baten Kaitos*.

In 2002, the comet *Ikeya-Zhang* (IZ) made a resembling cross with the trajectory of the comet *Hale-Bopp* with the Apex

$$HB/IZ \text{ Apex: } \alpha = 0h 32m 56.19s, \delta = 45^{\circ} 48' 55'', \lambda = 28^{\circ} \gamma 39,$$

that was passed by the IZ on 7th April 2002.

This Apex almost coincides with the Great Nebulae M31 of Andromeda, While the comet IZ conjunct Solar Arc Sun of the H/HB Apex at 25 γ 18.

In 2005 the comet *Machholz* comes to the game which was "considered to be the first significant comet to grace our skies since comet *Hale-Bopp* in 1997, before which the comet *Hyakutake* was seen in 1996". Its trajectory is not less intriguing (See Vol. 322 of Sec. 9.7): on January 16, 2005 it passes the close vicinity of *Algol* namely there, where the paths of the comets *Hale-Bopp* and *Hyakutake* intersect.

This **triple cross at Algol** is schematically presented in Fig. 9.1 and in a larger scale – in Fig. 9.2.

Besides, its birth data longitude makes 26 Tau 35, or 20 minutes distant from *Algol*. The comet Machholz' converse Sun conjuncts *Algol* at the disastrous *tsunami* in December 2004, its Perigee on January 5 fits the comet HB's Focus of Jan 3 in a close Ecliptic vicinity of *Algol*, and it traverses the comet Hyakutake's path near *Algol*, several days before its Perihelion on January 24.

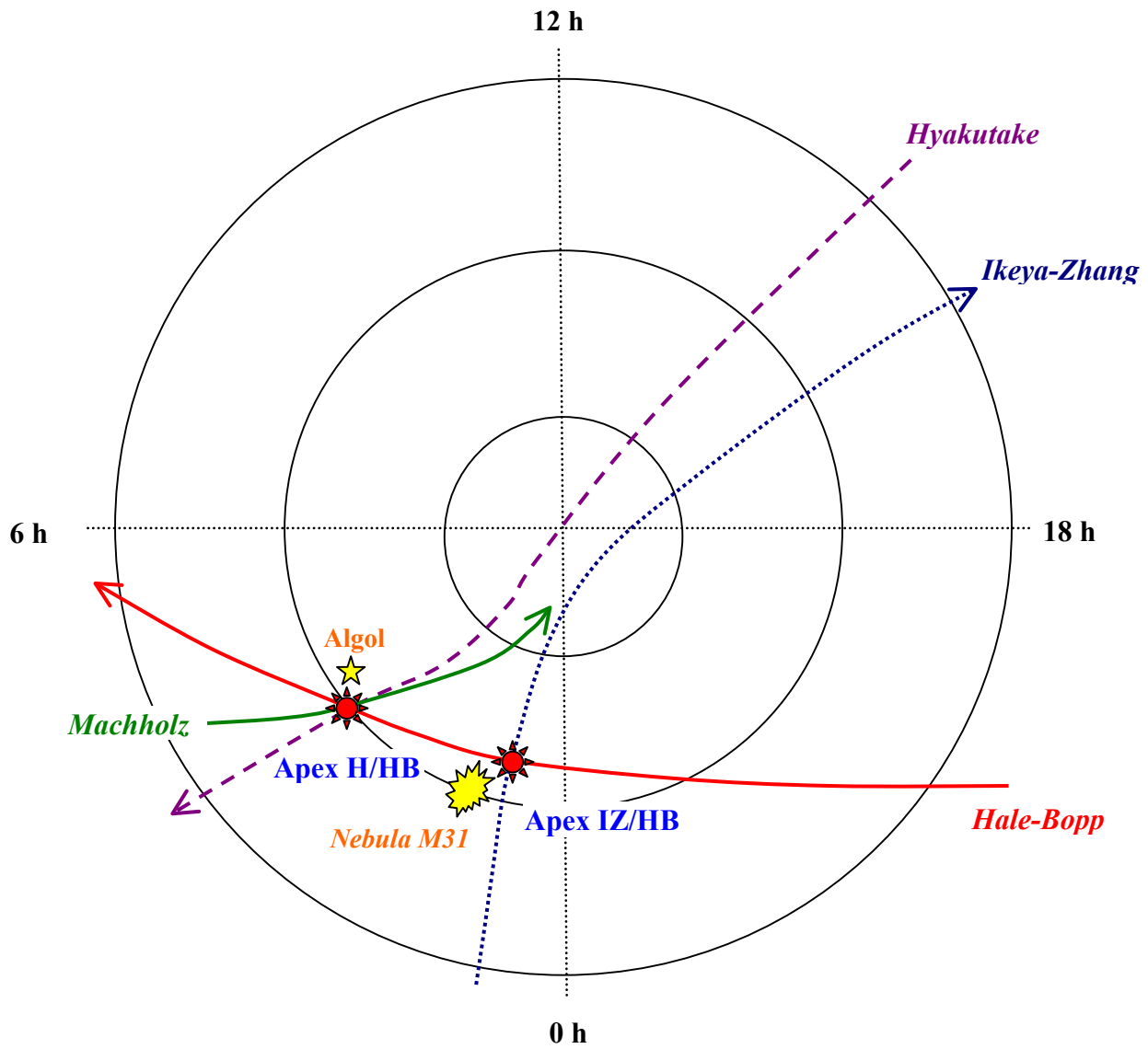


Fig. 9.1. Celestial paths (with years of perigee) of the comets:

Hyakutake (1996), *Hale Bopp* (1997), *Ikeya-Zhang* (2002), and *Machholz* (2005)

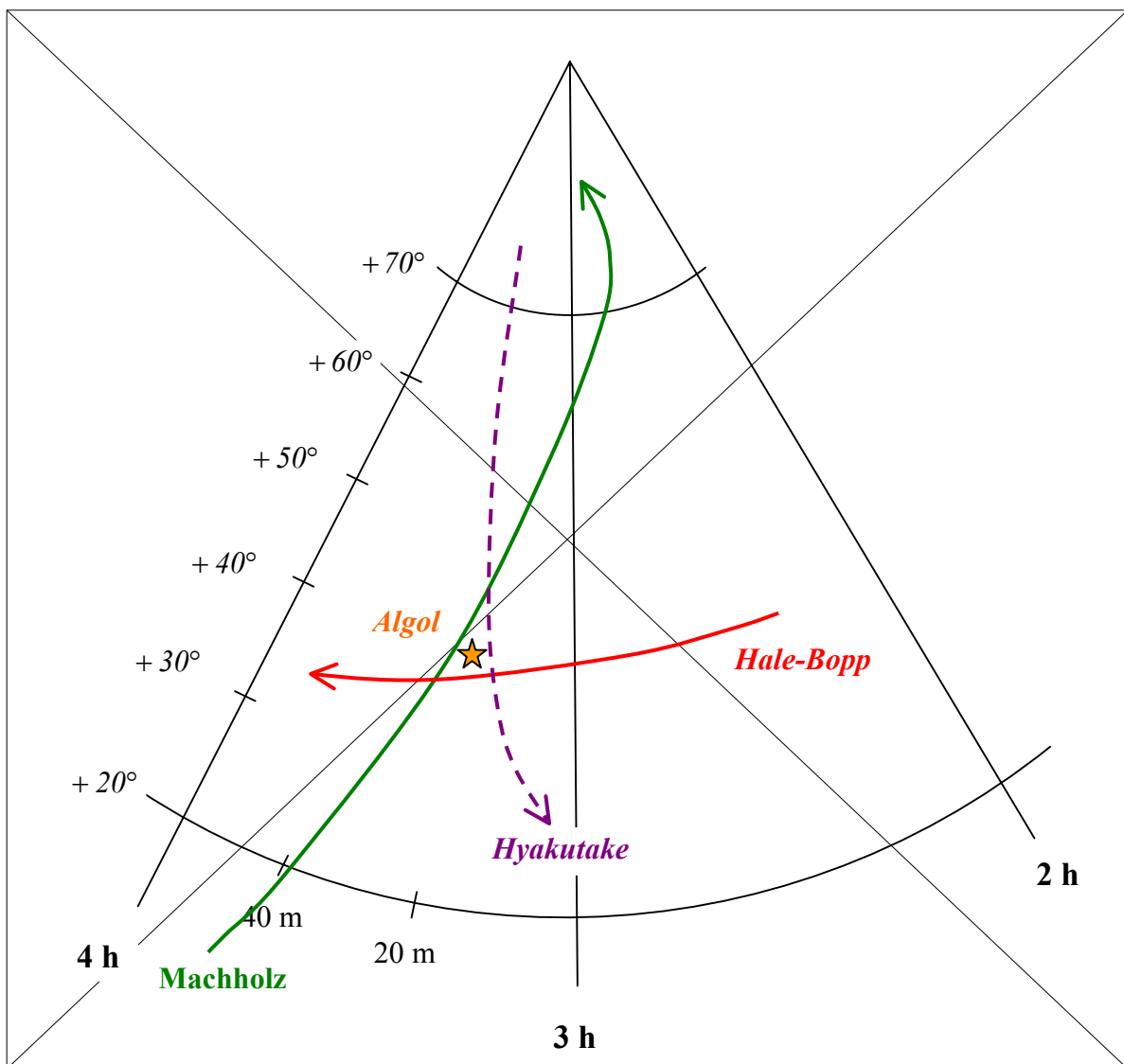


Fig. 9.2. Large scale Celestial paths of the comets *Hyakutake*, *Hale Bopp*, and *Machholz* in the vicinity of *Algol* where they make triple cross over the Earth with the **Apex** on this star

3. Conclusion

A striking correlation with the conclusions of Part 8, isn't it?

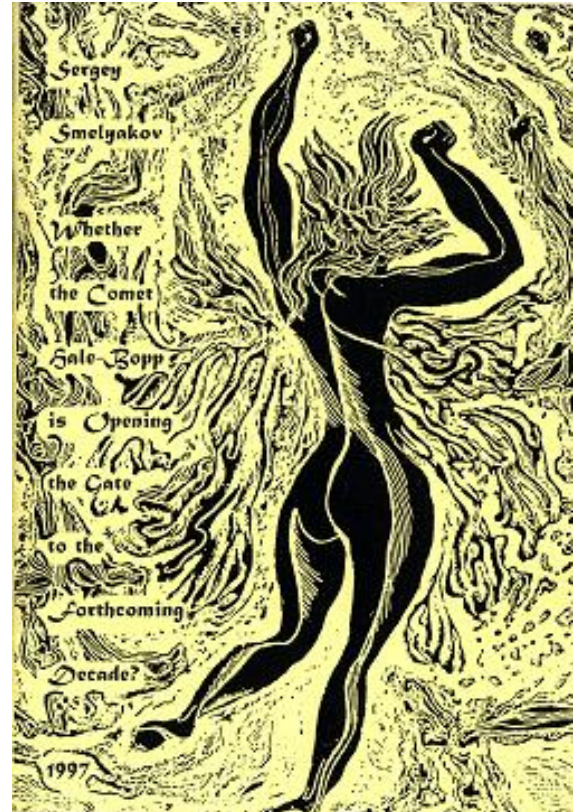
9.2 Whether The Comet Hale-Bopp Is Opening The Gate To The Forthcoming Decade ?

© Smelyakov S.V., 1997 [41], 2006 (Preface)

Sergey Smelyakov

*Whether the Comet Hale-Bopp
is Opening the Gate
to the Forthcoming Decade?*

– Kharkov: Ukr-Sib AB-Center,
1997. – 28 p.



Also available at <http://www.isarastronomy.com>

Whether The Comet Hale-Bopp
Is Opening The Gate
To The Forthcoming Decade?

Written by Sergey V. Smelyakov, Ph.D

Dr. Sergey V. Smelyakov is a Professor at Kharkov Military University in the Ukraine. He has researched Sunspot activity for many years and has written Regular Model for Sunspot Maxima Forecasting. For this work, he had been offered a German grant.



On preparing the article [41] for publication at this site, the ISAR's e-text is taken that was kindly prepared by Marguerite dar Boggia; only the Table and Diagram from the original booklet were inserted and several misprints corrected

Synopsis

This study presents the Forecast for the transit of the comet Hale-Bopp and its verification being carried out by correlating the predicted trends of events with the actual ones of an extreme or reiterative nature. Some conclusions are made which seemingly allow us to foresee the manifestations the comets can cause, as well as to show the resemblance in influence between the comets and Solar activity. The Summary is presented where the worldwide events are distributed relative to the forecasted factors of influence and focal time points, which may present a separate interest for further study as well.

Part I: Forecast For The Transit Of The Comet Hale-Bopp

Preface

1. Introduction
2. Timing Factors of Influence of the Comet Hale-Bopp
3. Addition to the Forecast for Transit of the Comet Hale-Bopp (as of Jan. 31, 1997)
4. Qualitative factors of HB's Influences
5. Geographic focuses of HB's influence

Preface

To the full extent this Forecast is presented to ISAR on February 4, 1997, to the Astrological Association of the U.K. on March 2, 1997 and reported at the International Conference "Uranus in Aquarius: by Going to the Astrology of the 3rd Millennium" of the Euro-Asian branch of NCGR in Moscow, March 1, 1997.

The Addition to this Forecast (See paragraph 3 below) is presented to ISAR on March 9, 1997. The second value (viz. July 14, 1997) for the time point T6 is entered as a resonance complement to the base point July 4 in compliance with the same considerations. More exact hours and minutes of Sun/Hale-**Bopp** conjunctions for time points T2, T3 are given as well. Though the Forecast does not rely upon this heightened precision directly, these values are beneficial for detecting some tendencies in subsequent verification (See Part II).

The first four paragraphs of the Forecast and Addition are hereinafter presented to the full extent. For brevity, the detailed description of the geographical focuses of influence (maps, etc.) is abbreviated *without* loss for completeness to basic quotes, list of critical focal meridians and countries covered by them, since the technique is given which allows restoration of the omitted details.

1. Introduction

Analysis of the trajectory of the Comet Hale-Bopp (further referred to as HB) relative to its astronomical peculiarities and astrological interactions which include consideration of four conjunctions of HB and **Sun** in three cardinal points and corresponding planetary aspects, Fixed Stars and other factors (eclipses, aphelions, perihelions, HB's Perigee, etc.) allow the following conclusion:

The Comet Hale-Bopp might be given the cardinal type and characterized by the element Water and Earth-Fire. The influence of HB is specified by factors peculiar to (a) opposition of Mars and Saturn, (b) difficult aspects of Sun and Moon, (c) influence of a series of Fixed Stars presenting the properties of Mars, Saturn and Uranus, at (d) neutral or easy aspects to Uranus, Neptune, and Pluto. The critical points of the HB's

trajectory closely correlate with definite critical points of transit constellations for the Earth. Since these factors are rather stable in the sense of their recurrence, it makes sense to use them for the purpose of forecasting.

The goal of this Forecast consists in (I) detecting the moments of time and respective geographical regions where maximal concentration of Space and Earth energies sharply increase the probability of coming into existence of cataclysms with the aim of using these data for both (II) detailing them and (III) averting the consequences of these possible cataclysms. For this purpose, the *planetary* situations corresponding to time points of maximal tensions are mapped on the Earth's surface where the MC is set up to the key planets.

2. Timing Factors of Influence of the Comet Hale-Bopp

The time points listed below were detected as critical for HB's transits. Conventional *astrological* data (including conjunctions with Fixed Stars) could be obtained by using the presented time data.

T1	December 21, 1996	GMT 14:06	The Sun enters HB's origination area
T2	January 3, 1997	GMT 07:51	The Sun passes HB at perihelion of Earth
T3	March 3, 1997	GMT 21:38	HB passes Sun. Starting of HB's activity
T4	March 20, 1997	GMT 13:55	HB is at perigee and culminates at the Sun's meridian while the Sun enters Aries
T5	March 24, 1997	GMT 04:45	Moon eclipse. HB culminates at meridian of Saturn which is in parallel with the Sun
TB	April 7-11, 1997		See Preface and Paragraph 3, below
T6	July 4, 1997	GMT 18:40	On New Moon, while the earth is at aphelion, the Sun passes HB at Sirius and for the last time
T6'	July 14, 1997		See Preface
T7	September 16, 1997	GMT 18:51	Lunar eclipse near the eclipse of point T5
T8	March 13, 1998	GMT 04:34	Lunar eclipse near the eclipse of point T5

Astrological analysis of these time-points allows the supposition that T1 defines the pre-history, T2-T5 - the basic properties of HB (aspects, etc.), and T6-T8 - the after-effects of the comet's influences, namely: the influence of the comet HB grows in time-points T1-T3, where it could be regarded as gathering forces by repeating the same aspects. Its force reaches culmination at the key points T4, T5 where almost all factors being associated with this comet are working in conjunction. Should the comet HB actually present itself at T4, T5, we can assume that the respective after-effects would take place at T6 and be continued by T7 and T8 (*though* in a less degree), as it was in 1996 with the Comet Hyakutake whose transits highly resemble those of HB, namely: the forecasted [1] air crashes as well as social and political uncertainties that took place (e.g. in Russia) at its culmination were actually continued for a year by eclipses. Hence, the apotheosis of HB's action is to be expected at points T4, T5. The former of them might be regarded as energetic inhale or a threshold of the effects to be developed at the latter one. Therefore the analysis hereinafter mentioned is devoted to time-points T4 and T5.

3. Addition to the Forecast for Transit of the Comet Hall-Bopp of Jan. 31, 1997

It seems that we may just suppose how to estimate the energetic potential of comets which adds a dynamic feature to traditional astrological analysis dealing with kinematic factors. That is why the basic time points of HB's influence have only been declared. In particular, the point T3 was regarded as a moment of *preliminary* HB's influence before T4 and T5.

However, those powerful and tremendous events that took place before and at the point T3 (viz. earthquakes, floods; train crashes, orbital station damage; bloody disturbances in Albania, etc.) might be put in close correspondence with factors (1) - (3) specified in the Forecast presented (See Paragraph 4), and, thus, be attributed to the influence of the comet Hale-Bopp. So, we may conclude that energetic influence of the comet HB exceeds the level suggested and, hence, it makes sense to declare one more critical time belt which might manifest itself drastically (especially as an after-effect of the key period T4-T5. Namely, it is the intermediate **time belt TB** of April 7-11, 1997 with focal points TB1 (April 8, 1997), TB2 (April 10, 1997), and TB3 (April 11, 1997) when the comet HB covers Algol at Moon's conjunctions with Nebula Andr. (M31), Spiral (M34), HB, and Algol and Sun's conjunctions with Baten Kaitos, thus provoking a prolonged stress characterized by HB-Algol-Nebula-Saturn type influence.

5. Qualitative Factors of HB's Influences

Astrological study of time moments T1-T6 allows us to attribute to the comet Hale-Bopp the following influences:

(1) Natural calamities

- 1a. Tsunamis, gales, hurricanes (including those spreading onto shores and continents)
- 1b. Earthquakes, eruptions of volcanoes
- 1c. Deaths on a mass scale from destruction, drowning, fire. Loss of dwelling, immovable property. Epidemics.

(2) Engineering disasters

- 2a. Accidents at sea; train, airplane, car crashes
- 2b. Destruction and fires at engineering sites (mines, bridges, etc.)
- 2c. Damage to agriculture

(3) Social effects (Political and social disorders, mental and psychological collisions at all levels caused by vagueness of goals, arrogance, rash decision making)

- 3a. Instability, irritability, illusions
- 3b. Aggressiveness, cruelty, obstinacy, terror
- 3c. Loss of relations, disturbances, revolutions, violation of both physical frontiers and legislation.

6. Geographic Focuses of HB's Influence

Though the above groups of influences may develop throughout the world both at approaching and leaving T4-T5 time interval, the regions could be specified where these influences *can* manifest themselves in a more acute way by considering both conventional astrological techniques and HB's influence factors.

The regions mentioned below are not the only ones where the comet can act.

Since Providence is beyond our understanding, we also have to register those *regions*, where the comet would actually manifest itself, as it can have after-effects on them as well.

Narrowing of the Earth's surface to a few small regions which present significant danger could be done by taking into consideration the negative astrological factors. The more they act simultaneously, the more energy concentration we can expect. From this, we obtain the following natural *sequence* of focalization: total Earth's surface; meridian belt(s) B as the focus of the former one; central (focal) meridian MB as the focus of B; focal points p1, p2, ... located at the meridian MB as its focuses.

For example, mapping of the eclipse horoscope for point T4 onto the Earth's *surface* and subsequent contracting it, gives us the focal meridians M3, M4 listed below (specified by setting the Moon and the Sun onto MC, respectively) disposed in the belts B3, B4 the bounds of which are defined by meridian projections of the close planets (Mars, Saturn). Considering the transsaturnian planets on the axes Ascendant, Vertex gives the focal points at these meridians. The same procedure for the time point T4 gives the meridian belts B1 and B2. These meridian belts Bi (i=1,2,3,4) and their focal meridians Mi are as follows, where the basic focal point concentration areas determine the enlisted regions:

TIME FOCUS T4 (viz. March 20, 1997)

B1: Longitudes from $19^{\circ} 48' W$ to $33^{\circ} 15' W$; Focal meridian M1= $28^{\circ} 45' W$.

N and S-W parts of Atlantic, the Azores, N-E shore of Canada and USA, N-W *shore* of the UK, Europe, S.E. shore of So. America.

B2: Longitudes from $146^{\circ} 45' E$ to $160^{\circ} 12' E$; Focal meridian M2= $151^{\circ} 15' E$

Okhotsk Sea, Kurils, Kamchatka, Hokkaido, East shore of Japan and Pacific area 900 km Eastwards, Indonesia, New Guinea (junction of three platforms at M2), etc.

TIME FOCUS T5 (viz. March 24, 1997)

B3: Longitudes from $65^{\circ} 27' W$ to $80^{\circ} 45' W$; Focal meridian M3= $71^{\circ} 15' W$.

Atlantic shore of USA and Canada, Haiti, the Bahamas and N-E continental part of Canada and USA. Ecuador, Peru, Chili, resonance along the platform to Pacific shore of the USA.

B4: Longitudes from $99^{\circ} 15' E$ to $114^{\circ} 33' E$; Focal meridian M4= $108^{\circ} 45' E$.

China; Indonesia and S.E. Asia on the whole; Australia, etc.

Part II: Verification Of The Transit Of The Comet Hale-Bopp

1. Introduction
 2. General Trends of the Comet Hale-Bopp's Influence
 3. Summary
- Conclusion Forecast For The Transit Of The Comet Hale-Bopp

1. Introduction

2.

Verification of the Forecast is understood here as establishing the presence of *synchronism* between the predicted trends of events and the actual ones.

Data Acquisition Approach

Since the troubles pertaining to the Forecast occur daily in the world, preferably those events which present in a definite sense an extreme or systematic nature were included in the *Summary of events* (hereinafter referred to as Summary). It must be noted, however, that this Summary might not be considered as complete, since collecting the respective data was hampered by the following obstacles:

Firstly, the international press presenting the worldwide data is *practically* absent in the region in which the author lives, except for the July-October file of the International Herald Tribune which miraculously emerged at the City's library, and Radio Liberty and VOA Russian services.

Secondly, systematic access to WWW is drastically restricted to the *author* due to the known circumstances of protractedly unpaid salary and economic depression.

Thirdly, until the HB's ephemeris, exact to within seconds of arc has been obtained, the available divergent versions permitted qualitative forecasting only. This is the main *cause* the author had abstained from specifying the Sun/HB conjunction focal meridians for time points T2-T8 in the earlier Forecast. Just obtaining the proper ephemeris has permitted the preparation of the grounded quantitative forecast, viz. to correctly specify the hours and minutes for the T2,T3 time points, and subsequently, their focal meridians (See Table, below). Nevertheless, in compliance with the conclusions it is hardly to be taken that we are late with these corrections.

Establishing of Synchronism

Though the events of the current year might present a subject to more profound examination (including statistical analysis), we are always required to stop somewhere, as nobody could envelope immensity. Thank God, the analysis of the collected data definitely shows, at least in the opinion of the author, a relatively high degree of synchronism for the Forecast to be considered verified. In order to avoid excessive enumerating of facts, the Summary is not discussed below in a per-event way. Instead, the conclusions relevant to the peculiarities of this synchronism are made which could be easily tested by searching the Summary through, since it presents the distribution of the events in compliance with the forecasted factors of influence and focal time points. The diagram, as well, presents distribution of focal meridians.

The events, which set up the records in respective spheres and/or are *synchronously* developing in compliance with the forecasted time and space trends, make this testing a captivating business.

Generalizations

The established synchronism not only supports the suggested comet influence and forecasting approach, but the resulting statements also give grounds for (or even requiring) further study, because even the pre-

sented data, as we may see, lead to far-reaching conclusions pertaining not only to understanding the factors of influence of both this comet itself and the comets in general, but, probably, to mundane astrology on the whole, due to the Solar activity factor. At least, in those fields where, as in meteorology, the *cause* of variations in dynamics of the phenomena is observed.

3. General Trends of the Comet Hale-Bopp's Influence

4.

The Comet influence is understood, as it is accepted in astrology, as a synchronism between some kinematic parameters pertaining to the comet and various physical and social phenomena (although some dynamic aspects will be considered hereinafter, as well). Of course, this external correlation does not reject physical studying of the phenomenon, but in this work, an attention is concentrated on the former aspect and, this way, we are interested not only in affirming the Forecast itself, but rather in corroboration and developing the forecasting technique.

Indeed, though the coming and influence of a comet in some way could be *attributed* to a sporadic factor, this fortuity is rather reflecting our low level of knowledge, and the more we know about effects and after-effects produced by such objects, the more definite a prognostic model we can compile for them without knowing the physical nature of such interactions, just by their kinematics and dynamics.

2.1. Kinematic Aspects of Comet HB's Influence

The forecast of the comet HB's influence is based on conventional kinematic approach, viz. on detecting the peculiar points T-T8 on its trajectory. These focal time points specified by HB/Sun conjunctions and attendant planetary configurations determine the moment when the comet's influence could sharpen as a result of unified concentration of energies of the heavenly bodies. Apart from an energetic point of view, each of these configurations is described by peculiar factors of influence which could be reflected in comet manifestations, and the more these configurations reiterate, the more pronounced they are expected to be in HB's manifestations. It is namely the stability of these reiterations of planetary configurations and their resonances (e.g. T2/T6, See the Table) which had allowed the specification of the factors of influence (1)-(3), as well as focal time points T1-T8.

TABLE. Concentration of Influence of the Comet Hale-Bopp
over the Focal Time Points and Meridians

Focal Time Point			Focal Meridian			
Des.	GMT	Key event	Western Longitude		Eastern Longitude	
			Des.	Value	Des.	Value
T1	14:06	☉ → ♃	w3	31.5°*	e3	148.5°
T2	7:50.6	☉♂HB(12458.8)	w12	118°	e12	62°*
	22:23	Resonance, T6	w15	165°*	e15	15°
T3	21:38	HB♂☉	w13	144.5°*	e13	35.5°
T4	13:55	☉ → ♀	w2	29°*	e2	151°
T5	4:45	Eclipse	w8	71°	e8	109°*
TB	11:02, Apr7	New Moon	w16	165.5°	e16	14.5°*
	0:34, Apr10	♂♂HB	w1	8.5°	e1	171.5°*
	3:45, Apr10	♂♂Algol	w5	56°	e5	124°*
	3:32, Apr11	HB♂♂Algol	w4	53°	e4	127°*
	16:12, Apr11	HB♂♂Algol	w6	63°*	e6	117°
T6	18:40	♂♂Sirius	w9	100°*	e9	80°
	19:18	☉ Aphelion	w11	109.5°*	e11	70.5°
	22:03	☉♂HB(12557)	w14	151°*	e14	29°
T7	18:51	Eclipse, See T5	w10	103°*	e10	77°
T8	4:34	Eclipse, See T5, T7	w7	68.5°	e7	111.5°*

NOTES. Each of the events defining the Forecast's focal points T1, T2, ... , T8 specifies the respective focus by GMT time of the key conjunction in the configuration determining the event, and two focal meridians (viz. E. and W. geographic longitudes) onto which this conjunction is projected (viz. Zenith and Nadir); an asterisk marks that meridian of each pair where the respective conjunction culminates.

Further on, it is natural to expect that these factors will be manifested in the most *pronounced* way in those regions where the respective planetary objects culminate. This had allowed the detection of the geographic meridians for the points T4, T5 specified in the Forecast, which are now replenished below by the focal meridians e_i , w_i , ($i=1,2,...,16$) obtained by the use of time points as described above (the former ones, M1-M4, being among them).

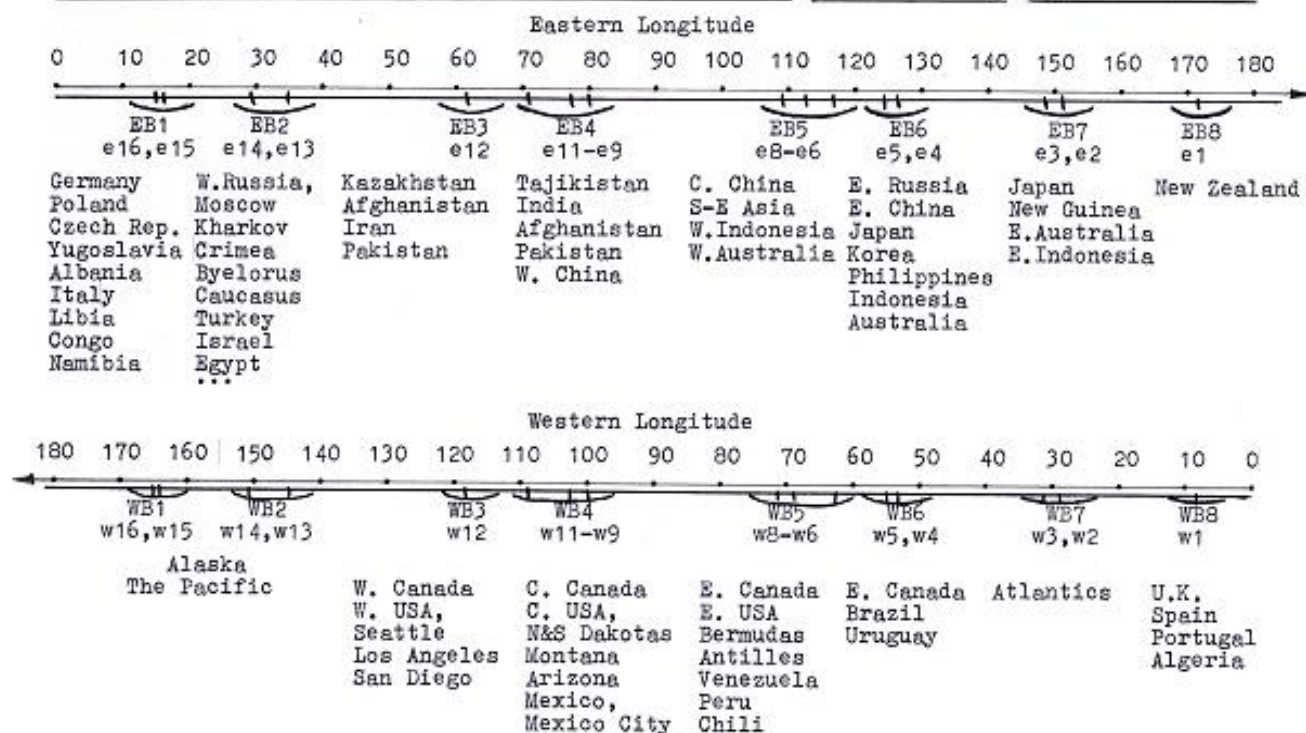
These focal meridians are presented in the Table below; however, although "exact" *point* estimates (viz. time and longitude values accurate to within seconds) are actual, they do not specify the only time/space area of comet manifestations. As usual, we have to consider the interval estimates which present the point ones taken with some orb. These orbs could be selected, for instance, by:

a) Duration of developing of physical phenomenon specifying the respective event (conjunction, eclipse, etc.); thus, if it takes for an eclipse an hour to develop until the greatest obscuration, the time orb D_t (in hours) might be selected within the range of 0-1 hours, and, then, this value would define the respective meridian orb $D_m = (D_t/24) \times 360^\circ$ (in degrees), that gives $D_m = 15^\circ$ for $D_t = 1h$, or $D_m = 5^\circ$ for $D_t = 20$ min.

b) Conventional horoscope orb. Thus, if the planetary orb (in degrees) used in a horoscope is D_p , the same value (but in geodetic degree) remains for meridians. For example, if planetary *configurations* are analyzed with the orb $D_p = 5^\circ$, the meridian orb for longitudes makes 5° too.

c) Ecliptic remoteness to adjacent effective body (ies), as it was done for the points T4, T5 (See Paragraph 5, Part I).

Hence, if some meridians are mutually at a short distance (viz. form a cluster), within a definite orb they determine virtually the same region. This way, by using a 5° orb we can specify a meridian *belt* as continuous meridian zone which is obtained by unification of 5° vicinities of focal meridians belonging to the cluster. These belts and respective clusters are given in the Diagram, below.

DIAGRAM. Scaled scheme of respective pairs of Eastern EB_i and Western WB_i meridional belts

NOTES. Each belt comprises 1 to 3 adjacent focal meridians from the Table, above; their 5°-vicinities, complying to usual 5° horoscope orb, are shown by horizontal arcs. As well, those regions and countries covered by these belts are listed for which significant events are given in the Summary. W,C,E - denote Western, Central, or Eastern part of a country, resp.

As a result of analysis of the Summary relative to emergence of significant events pertaining to factors (1)-(3), focal points T2-T7 and focal meridians (See Table and Diagram) we may conclude the following.

(A) In the sense of synchronism, the comet Hale-Bopp's influence might be considered as affirmed on a world-wide scale of events. The intensity of these manifestations during the active phase (viz. T3-T-7) and the after-effect starting period (viz. from T7 until November, 1997) can be considered as significantly exceeding that level which could be given to the comet Hyakutake, or was a priori suggested by the author.

(B) In regions and/or focal points, where some event pertaining to factors (1)-(3) reiterates several times, each subsequent repetition may take place, as a rule, at larger time intervals (viz. to occur either earlier, or later); at this,

(C) The chain rule frequently takes place, which tells that the following emergence might be manifested as an event of other factor of group (1)-(3). For example, such "warming-up" is seen in the USA, where transfer from factor (1) at T3-T6 to factor (2) at T7 and after it took place. Such reiterations and chainings are clearly seen for other regions, as well.

(D) The HB's influence manifestations are focused not only at the forecasted time points, but within the meridian belts being specified by them. These belts had manifested themselves significantly and, practically, at all points T3-T7 (though not starting everywhere with the first one).

It might be a resonance engendered by clustering of the focal meridians that is *responsible* for this, because at subsequent focal time points the same region is, so to say, "warming up" as a result of the exciting of the meridians within the same meridian belt, since the comet's energy is probably insufficient for provoking each effect from the first attempt.

Like with eclipses as well, manifestations of the comet's influence within the *regions* located in some meridian belt may take place both in the time point specifying this belt, and in the other time points T3-T8 associated with the former one by likeness of the planetary configurations where the comet HB is actual.

(E) If a focal meridian presents an axis of symmetry for some geographic region or country (the more so, if it crosses the Capital and/or is duplicated by adjacent focal meridians), this *increases* the risk for this region, or inclination to heightened damage. For example, Mexico City, Prague, Rome, Tel Aviv, Delhi, Jakarta, and so on.

2.2 Dynamic Aspect of the Comet Hale-Bopp's Influence

Both kinematic parameters of the comet Hale-Bopp, and its factors of influence allow us to consider [1,2] it a follower of the comet Hyakutake, as the former continues and deepens those tendencies which were forecasted and actually took place during the transit of its predecessor the year before, and first of all - in social conflicts, fires (See Summary), etc. But it is the Solar activity (SA) which we seemingly have to consider as the most important dynamic [3] factor (viz. a factor, specifying the energetic influence in addition to the kinematic one being conventional for astrology) accompanying the comet HB influence. Thus, on January 10-11, 1997, the central part of the Sun-engendered gigantic magnetic cloud with the diameter about 26 million km had enveloped the Earth and flew away at a speed of 450 km per second. This time corresponds to focal point T2, which might so be understood as the moment of energetic "turning on" of the comet HB's influence by the Solar energetic pulse during the comet's approaching the origin of its active phase, viz. to the point T3.

On the other hand, the sharp splash of Solar activity at the beginning of September, 1997 that reached (on the background of the current minimum of the 11-year cycle of Solar activity) the Volf's numbers *of* about 100 units being typical to some years of Solar activity maximum, had taken place directly before the time focus T7. This might be accepted not only as a dynamic factor of energizing the comet HB's influence, but as a fragment of the "relay-race" Hyakutake-HB-Solar Activity, when after the comet's action during the Solar activity minimum period (viz. implicit Solar activity influence) the comet HB "passes on the baton" to the Solar activity itself that approaches the phase of growth of its 11-year cycle.

In some way this situation corroborates the hypothesis, put forward by the author, implying that the comet's influence in a definite sense could be likened to that of the Solar activity, though which is *issued* by a point-like object (in the sense the planets are considered as points in Astrology) and in a pulse mode. From this, due to incommensurability of the energetic potentials of a comet and the Sun, the former being supported by planetary influence of the respective configuration may initiate just the "ripened" situations, whereas the prolonged influence of the Solar activity provides warming up of the Earth on the whole including people at large, thus driving them to the state of instability.

For example, on March 12, 1989, during Solar activity maximum epoch a powerful Sun-flash had resulted in disconnecting some electric and computer networks in Quebec. Another sharp rise in Solar activity is closely synchronized with the historical tensions in Moscow in August 1991.

The likening of the comet's influence to that of the Solar activity is also confirmed by *correspondence* between the known [4] Solar activity influence factors and the above factors (1)-(3) obtained from studying those planetary configurations the comet HB passes through.

Therefore, we may expect this likening to increase the importance of Sun/HB conjunctions, and as it is seen from the Summary, these conjunctions do manifest themselves significantly. But almost directly this hypothesis is confirmed by the Earthy response to that abrupt splash of Solar activity on the eve of the time *focus* T7. Indeed, it was marked by powerful manifestations and prolonged after-effects (at least, until November) relevant to factors (1)-(3) and focal meridians, which continue to develop the prehistory determined by the points T3-T6 and respective meridians as if by using this resonance for infuriating the world.

Therefore, the above considerations in common with Summary suggest the following:

(F) After-effect manifestations could take place about time point T8 (viz. March 13, 1998) and be *focused* primarily at meridian belts WB5, EB5.

(G) Actually low level of Solar activity during the previous two years (until September, 1997) *seemingly* does not denote absence of "warming-up" relevant to Solar activity, since the comet's action in 1996, 1997, might be likened to it.

(H) In order to forecast properly since September, 1997, apart from the above trends (A) - (E) the splashes of Solar activity, as well as its current level, should be taken into special consideration for the point T7's powerful manifestations to be properly understood, as well as their prolonged after-effects marked by extensive propagation of cataclysms over the previously manifested regions.

For instance, these are the financial and forest conflagrations engendered in SE Asia - right *up* to record stock market slump that reached even other meridian belts (New York, London, Moscow). Reiteration of events and after-effects develops in other regions, as well. The Israeli/Palestinian relations, that started to worsen at point T3, was then marked by each focal time point, until November. Changes at highest ranks and other difficulties in Russia, NATO-expanding negotiations might also be associated with T3. The same synchronism is clearly seen in spacecraft failure and airplane catastrophes, fires, natural calamities, and other events the Summary describes in details.

3. Summary

March-September Statistics of Events Pertaining to Factors (1)-(3)

The world-wide events corresponding to the Forecast by type and time are distributed over the rubrics of qualitative factors of influence (1)-(3), in which the events are ordered by time focuses T3 (March 3, 1997), T4, T5 (March 20-24, 1997), TB (April 7-11, 1997), T6 (July 4, 14, 1997), and T7 (Sept. 16, 1997).

Since this event-reference report is neither a novel, nor an official declaration, the author considers it pardonable to use, for short, the headline telegraph style both literally, when he quotes the newspapers (in most cases - The International Herald Tribune), and when referencing the well-known names without titles, whereas most events are referred to in compliance with the following pattern:

Ti date event (victims), country

where Ti denotes one of the above time points (It is omitted if it remains the same). "Date" relates to the month specified by the focal time point. "Victims", if they are, denotes the number of human beings that died directly at the place of the event, without mortally wounded and those who went away later.

For example:

T6 4 Air catastrophe (3), Orel, Russia
 7 Air catastrophe (25), Columbia

denotes, that on July 4, 1997 (as T6 relates to July) in the vicinity of Orel city an *air* catastrophe occurred which had taken 3 lives. On July 7, 1997, as a result of air catastrophe, 25 human beings were killed in Columbia.

Orb for the focal points Ti is several days, except for the events which are prolonged by their nature (floods, etc.) or fall under the influence of the trends (A) - (D).

3.1. NATURAL CALAMITIES (FACTOR (1))

(Gales, Hurricanes/ Earthquakes, Volcanoes/ Drowning, Epidemics, Hunger (including sea catastrophes from Factor (2))

T3 Hurricanes, floods (victims, heavy damage), Tennessee, USA Gales, Australia
 Feb. 28-March 3, 1997 Earthquakes (great victims, large scale destruction of dwelling), Iran, Afghanistan, China

T4, 5 Great floods, Queensland, Australia
 20 Gale in Adriatic: Italy saved 350 Albanian refugees
 28 Hurricane, the largest over the decade: Germany, Poland
 17, 27 Earthquakes, 6 on Richter scale, threat to APS, Japan
 28 up to 80 Albanian refugees have drowned near Italy

TB 6 Floods, China
 5-14 Heavy floods, snowfalls. Record of XX century. Rivers raised by 6 m. N. & S. Dakotas, Minnesota, USA
 19 Destructions, fires, 50000 evacuee's from Grand Forks, USA
 12 Hurricane, strong wind (28 m/s), 4 ships run aground, Novorossisk, Russia
 19-24 Floods in Crimea: Unprecedented in XX century, victims, destructions, landslides, heavy damage. Ukraine
 6 Heavy earthquake (6.6 on Richter scale), victims, China
 8 Declaration on hunger threat, N. Korea
 14 Iraqi barge went down, UAE

Note: Sharp heightening of allergic sensitivity in March-April: heavy burns from *standard* medicines (tincture of iodine, etc.), sharp intensification of standard dose influence (private comm. of G. Fourman)

T6, T6' Beginning of July (Peak about 13) - end of July: Record floods over the century: rains, collapsing of bridges, large-scale evacuation, hundreds of victims, damage to agriculture, Germany, Poland, Czech Republic, Italy

Beginning of July: catastrophic floods, China

13 Flood (hundred of victims, hundreds of thousand lost their dwelling), India

Beginning of July: Heavy showers, floods in Andes. The Government declared a "State of Catastrophe".

More than 50,000 left their dwelling. The catastrophe zone: from Atacama Desert in the North to 800 km southwards from Santiago, Chili

6/25 Earthquake, eruption (19). Montserrat, the Caribbean Sea (See 9/22/97)

6/30 Mexico's volcano Popocatepetl erupted suddenly. It was the first ashfall in Mexico City in 73 years. Officials believe the last major eruption occurred about 1,200 years ago. Mexico

9 Earthquake (more than 67), the worst in 30 years. Venezuela

8/1 Landslide (20), Debris, Australia

2 Tanker damage in the bay, near Yokohama, spill of oil - repetition of the January accident, Japan

14 Gale turned over an Iraqi barge; 3 thousand tons of diesel oil flowed out in the Persian Gulf near UAE

14 A ship turned over (54), India

15 A ferry-boat turned over (60) Indonesia

16 A ship turned over (victims), Turkey

T7 Hurricane (120), thousands homeless, millions of dollars in damage - the worst natural disaster to hit Mexico since another hurricane in 1988, Acapulco, Mexico, Sept. 11, 1997

15 Typhoon, heavy damage, Japan

Destruction of 8-story building (victims), Bombay, India

21 Volcanic eruption, fire, destructions, Montserrat (See T6)

26 Two earthquakes (5.7 on Richter scale) hit central Italy. More than 10 victims, destructions. The worst serious quakes to hit Italy since 1980.

28 Earthquake, 6.0 on Richter scale, (14), Sulawesi Island, Indonesia

15 Thousands of fish in the Chicamacomio River have been stricken with a microbial affliction, Maryland, USA

Hantavirus has killed 13 people in Chili in recent months. In the middle of September 1997 the Government announced a national health emergency, Chili

Cholera epidemic in Kenya is estimated to have killed more than 200 people in September-October, Kenya

16 A ferry-boat turned over (250) Haiti

After-effects:

Nov. 6 Earthquake (3.7 on Richter scale), Rome, Italy

Oct.-Nov. Continuing of epidemics

Nov. Strong floods, victims, Spain, Portugal

Nov. Snowslide kills more than 50 people, Tajikistan

3.2 Engineering Disasters

3.2.1. Transport catastrophes (for sea accidents See paragraph 3.1)

Air Crashes (A)

T4, 5 14A, Iran. 18 A(50), Cherkessk, Russia. 27 A, Russia

TB 1 A (victims), USA's C-130, Honduras

9 A: miraculous disappearance of A-10 in Arizona, USA

19A (dozens of victims), Indonesia

T6, T6' 4 A (3), Orel, Russia. A, Japan

7 A (1), USA. A (25), Columbia

8 A (3), India

9 A (8), USA. A (3), Indonesia. A (victims), Brazil

12 A, USA. A (3) USA's plane in Saudi Arabia. A (44), Cuba

13 A (1), U.K.

14 A (9), Rio de Janeiro, Brazil. A (3), Germany

16 A (12), Indonesia. A. Japan

Note: Over the first six months of 1997, the number of aircraft crash victims all over the world equals 231 people (ITAR-TASS, Flight Int.). The above data (evidently not complete), shows that over the period of

July 4-14, 1997 no less than 114 people were killed in the crashes; viz. About 40% of the total of the first half-year, or the daily death rate is 7 times higher (in average) than that for the first six months.

- T7 13 Disappearance of USA's C-141 (9) and German's Tu-154 (24) over the South Atlantic off Namibia. It was believed to be the second worst air disaster for Germany Military Forces since World War II
- 17 UNO's helicopter (12), Bosnia
- 14 A, F-117A, Baltimore USA
- 15 The US Air Force temporarily grounded its fleet of F-117A "stealth" fighters
- 19 Two Boeing 747 had a near-collision close to New York, USA
- 20 A (4), US AF B-1 bomber, Montana, USA

Note: "Air Force officials began an investigation Sept 20, into *six* crashes of a US military aircraft in a week. In all 16 Americans have died in U.S. military crashes since Sept. 13"

26 A: Crash of A-300 airbus (234), Jakarta, Indonesia

Note: Over two weeks (Sept. 13-26, 1997), not less than 315 *people* have been killed in air crashes; most of them in the focal regions. Apart from the above sorrowful records, their victims make 140% of the first half-year amount!

Spacecraft Failures

- T3 Beginning of March: Oxygen supply system failures at the "Mir" Space Station
- 4 Transport ship "Progress-33" missed the Mir (See T6)
- TB 6 Electrogenerator failure on board the Columbia
- 7 Due to the power supply unit refusal, the Columbia is to return 12 days ahead of schedule
- 9 Fire, smoke on board the Mir
- T6, T6' 6/25 Collision of the Mir station and transport ship Progress-M34 after unsuccessful attempt of March 4, 1997 (See T3). The resulting de-pressurization and power system damage present the "worst trouble in its 11-year history"
- 1 New failures at Mir after collision
- 1 Columbia is expected to be launched after it fails in April
- 6 After not responding to the commands from the Earth in previous days, the Pathfinder spacecraft's robot rover stood up from a crouched position
- 7 After two tense weeks, the transport Progress-35 slid into contact with Mir
- 17 Crewman aboard Mir station mistakenly disconnected a critical cable, disabling the guidance system
- T7 9 Computer on Mir shuts down again, sending orbiter into slow spin. Battle is on to keep solar panels pointed at Sun for electricity; crew is in no danger
- 14 Mir's creaky computer fixed again within 24 hours
- 15 US military satellite passed within 470 meters of Mir on September 15, 1997 at night - its closest brush with unrelated spacecraft in its 11-year in orbit, which forced the crew to flee into an escape capsule for 30 minutes
- 22 The main computer on Mir broke down again, although it was quickly repaired.

After-effects: Russian and American spacecraft failures are continuing to occur until November

Motor (M) and Railway (R) Catastrophes

(The information is desultory, except for T6 from Elvisti)

- T3 2 R (150), Iran
- T4, 5 17 A bus fell in abyss (victims), Azerbaijan
- 30 Collision of two trains, Mexico
- 31 April 1, Two railway catastrophes (victims), Spain
- TB 6 M (21) Honduras
- 9 R (21) Spain
- T6, T6' 2 M Belgian bus turned down with Byelorussian children (victims)
- 7 R (victims), Germany. M(30), India. R/M (20), India
- M (20) Iran
- 9 M (62), Sudan
- 12 M (50) China
- 14 M (14) Mexico
- 15 M (6) Italy

16 M (20) Venezuela
T7 16 M (33) Turkey

3.2.2. Destructures and Conflagrations at Engineering Objects (Mines, bridges, etc.)

Fires and conflagrations (C)

- T3 Feb. 23 C in Baripada, Orissa. The second largest over the last few years in India
- T4, 5 18 The university library, one of the largest between the Balkan States, is burnt during the mutiny. Albania
- TB 1 About 100 paintings by Shemiakin are burnt out and 200 injured by the fire at exhibition in Israel
- 11 Saving of Turin's shroud at Turin's Cathedral fire, Italy
- 12 C (177) Mexico
- C (343) more than 2000 wounded, Mecca, Saudi Arabia
- 19 C in Grand Forks destroyed almost all buildings, North Dakota, USA
- 26 C (27) Kotabato, Philippines
- T6, T6' 3 Shipyard fire in Valencia (19), Spain
- 7 C (27) heavy damage, Volgograd, Russia
- 10-12 C at plant, Canada
- 12 C near Manila (78), one of the greatest in Thailand's history
- 12 C (2) Derby, U.K.
- 14 C Moscow, Russia. C, Saint-Petersburg, Russia

Note: The ITAR-TASS Elvisti of 7/15/1997 specify 18 largest conflagrations on the planet over the 90's; 8 of them were in 1996 (the first two of the below) and in the first half of 1997 (the remaining ones); these are:

1. March 19, Philippines - directly corresponds to the comet Hyakutake forecast [1]
2. July 17-18 (New Moon at Pollux as after-effect?)
3. Feb. 23, India, (See T3)
4. April 14, Mecca, Saudi Arabia (TB)
5. April 26, Philippines (TB)
6. June 7, Tamil Nadu (60) India
7. June 13, Delhi (60), India
8. July 11, Thailand (T6)

By their actuality, we may relate to this list the conflagrations in Albania (March 18, 1997), Turin (April 11, 1997), and Israel (April 1, 1997), as well. As a result we obtain that out of 11 largest conflagrations in the world over the 1996 and first half-year of 1997, only June fires in India do not directly synchronize with the comet HB time focuses, though they do with the focal meridians. However, the frequency of calamities in India does not destroy this tendency drastically due to factors (A)-(D). The following statistics continue to confirm the synchronism.

- T7 14 C at oil refining plant (35), 100,000 evacuees, India

The forest fires in Indonesia has acquired the catastrophic character by mid September: 16 President Suharto apologized for a series of uncontrolled fires that had blanketed a large part of Southeast Asia in smoke that traps pollution and threatens the health of millions of people. The officials believe that the problem could worsen and could extend well beyond the dry season and possibly into 1998. Smoke had afflicted up to 20 million people in Indonesia alone, with throat inflammations and diarrhea. The pollution threatens Malaysia, Singapore, Brunei, etc.

19 Malaysia declared a State of Emergency in the Eastern State

24 The fires have caused health alarms in Singapore, Malaysia, Brunei, Southern areas of Thailand and Philippines

After-effect: might be due to the trends specified by (A)-(G), *meridian* belts passing S.E. Asia, and other factors, fires and smoke were continuing until November.

Engineering Objects, Mines, Bridges

(Except for July, systematic information was not gained)

- T6, T6' 1 Explosion at gas pipe line near Moscow, Russia
 3 Leakage of several tons of carcinogenic product, Cologne
 4 Explosion at ammunition plant, Turkey
 9 Explosion at ammunition depot (victims), Equador

Destructions (D)

- 4 D of building, many victims, Karachi, Pakistan
 7 D of bridge (4), Tehran, Iran
 13 D of bridge (2) Israel
 14 D in a mine (victims), Makeevka, Ukraine
 15 D at factory (40) China
 16 Two catastrophes (not less than 3 victims) at American mines. These are the 1st case in 1997. USA
 17 D of building (victims), Tomsk, Russia
 T7 Methane-explosion at mine in Spitsbergen, where Russian and Ukrainian miners were working (13)

3.3. Social Effects

3.3.1. Socio-Political and Mentally-Psychological Collisions (Overcoming of psychological bounds)

- T3 February Cloning has been carried out in Scotland, UK
 3 Bloody shooting of people by maniac-soldier, Far East, Russia
 T4, 5 24 Ritual self-immolation, Canada
 26 Large-scale self-murder: 39 followers of the "Heaven's Gate" cult committed suicide. Their expectations were partially relied upon the comet Hale-Bopp. San Diego, USA
 TB April, Governmental hearings on the UFO, USA
 T7 20 A man killed seven in potato field, was found dead by suicide, Latvia

3.3.2 Terrorism, aggressiveness, cruelty, obstinacy

- T3 2 Explosion, Budennovsk, Russia
 4 Four press-men are kidnapped for \$3 millions, Chechnia, Russia
 T4, 5 14 Jewish centre is burnt, Kharkov, Ukraine
 21 Explosion of Mercedes (1), Moscow, Russia
 General Director of Look-Oil Corp. is shot, Tajikistan
 3 teenagers are shot down, Chechnia, Russia
 3 policemen are killed and 2 wounded by mine, N. Ossetia, Russia
 22 Seizing of Zaire Embassy in France

- 23 Two wreckers were exploded while setting the mine, Abkhazia, Georgia (in Caucasus)
 29 Explosion at bus station (dozens of victims), India
 Former driver-orthodox shot down 6 children, teacher & director, Yemen
 30 Terrorist three 3 grenades in demonstration; 11 killed, 100 people wounded, Pnom Penh, Kampuchea
- TB 1 A monument to Nickolas II (installed in 1996) is exploded, Moscow, Russia
 \$20 million are stolen by collector, USA
 5-7 up to 114 people are killed by terrorists, Algeria
 7 Explosion, India
 Explosion in house of a State leader, Burma
 8-9 Prison riot, Columbia
 10 The chief of Belgrade police is murdered, Serbia
 12 23 bombs are discovered under the bridge on the route of the Pope, Bosnia
 13 22 people are murdered by terrorists, Algeria
 14 Hijacking a bus for \$100,000. The terrorist is seized alive, Makhachkala, Russia
 16-17 Tens of thousands of people are killed and wounded, Zaire
 22 Japan embassy in Lima being retained by terrorists for 126 days is taken by storm; all terrorists are killed.
 This is the 123rd day from the point T1! Peru
 22 Brother of President, deputy minister of Internal Affairs is murdered, Ingushetia, Russia
 23 Explosion at railway station, 2 killed and 20 wounded, Armavir, Russia
 22-23 42 people are killed with axes and sabres, Algeria
 30 Act of terrorism, Piatigorsk, Russia
 Unsuccessful attempt upon the President's life, Tajikistan
- T6, T6' 2 Prison riot, Manila, Philippines. Armed collision (30) of soldiers and insurgents, Philippines
 2,9 Kidnapping of Frenchman and Slovak, Ingushetia, Russia
 6 Attempt to blow up the monument to Peter the Great, Moscow
 7,8 Two kidnappings (2 Englishmen & policeman) Chechnia
 8 Explosion in a train, Pakistan
 8 New wave of violence in Ulster, UK
 11 Explosion in a train (30), India
 12 Explosions in hotels, Havana, Cuba
 22 Robbery of European mission in Grosny, Chechnia, Russia
- T7 10...."The undeclared war in Algeria has changed in recent weeks. The massacre of more than 100 people in the previous days and other acts show that the scale of the killing were new even in the conflict that has already taken tens of thousands of lives since 1991"
 23 Near Algiers gunmen murdered about 200 civilians. The attack, the second deadliest in five years, was thought to be the work of Muslim radicals.
 16 Bomb explosion in a car, Northern Ireland, UK
 18 Shooting (10) of a tourist bus, Cairo, Egypt
 19 Explosion (victims) of arms depot, Afghanistan

After-effects are seen till November in Chechnia, Tajikistan, Egypt etc.

3.3.3. Discords, Loss of Relations, Disturbances, Revolutions (violation of both physical frontiers and legislation)

Israeli-Palestinian Relations (IPR)

* denotes the key events in the opinion of the International Herald Tribune on 7/31/97.

- T3 *7 "Israeli Cabinet approves handover of more of the West Bank to self-rule. Palestinians voice disappointment that they are to get only a third of what they had expected"
 7-8 Sharp worsening of IPR, new victims (3 killed, 100 wounded)

- T4, 5 *18 "Israel defies world opinion by breaking ground for the Jewish settlements of Har Homa on a hilltop - at the edge of Arab East Jerusalem"
- 19-21 Collisions of Palestinians and police in East Jerusalem on account of the settlement
- *21 Bomb explosion in a Tel Aviv cafe kills the Palestinian attacker and 3 Israeli women and wounded 42. The responsibility is taken upon by Hamas.
- 22 Collision of Palestinians and police wounds about 100
- 23 Four Palestinians are wounded on illegal penetrating into Israel
- Hamas notices about new acts of terror, unless Israel stops building Israeli Government discusses whether to stop the negotiations with Autonomy
- 24 The Autonomy's Officials terminated relations with Israel because of building
- Collisions of Palestinians and soldiers continue till April.
- TB 7 Netanyahu-Clinton talk results unsuccessfully due to uncompromising position of Netanyahu
- 17 Netanyahu is accused of corruption
- T6, T6' 1 New worsening of IPR; drastic measures are taken, up to a weapon
- 7 "Jerusalem Prime Minister B. Netanyahu ended a coalition crisis"
- T7 8 "Three Arab leaders consult as Mideast tension rise"
- Explosion of a bomb in Israel
- 10-12 B. Netanyahu-M. Albright talks: "No success in Mideast"
- 12 "Netanyahu has frozen all major economic projects with Russia because he believes Moscow is helping Iran develop ballistic missiles"
- 15 "Militant Jewish settlers moved overnight into a house in Arab East Jerusalem, raising a new focus of tension along the volatile Arab-Israeli divide"
- "Albright can't predict renewed peace talks"
- Due to sharp worsening of situation in Jerusalem, Netanyahu postponed his departure to Europe.

After-effects:

Oct. Israel is planning to continue building on the West Bank

Nov. Powerful anti-Israeli and pro-Iraqi demonstrations of Palestinians

One Jewish student is killed and one is wounded.

ALBANIA

- T3 1-3 Bloody disorders in Albania
- 2-3 Imposing the State of Emergency, censorship, curfew
- T4, 5 ...18...Large-scale panic flight to Italy. During riot a great library is burnt (see Fires)
- 20 Saving of 350 Albanian refugees during a gale (See paragraph 3.1)
- 27 Italy and other countries voice a readiness to enter the troops in Albania
- TB 30 Explosion (22) of ammunition depot
- T6, T6' 6/27-7/4 "UNO's armed forces try to put out the wave of violations arisen 5 months ago" (viz. at T3)
- 22 The President of Albania resigns
- T7 18 Exchange fire at Albanian Parliament. A deputy was seriously wounded.

Unexpected and Cardinal Socio-political Changes of Unforced Nature

*denotes the origin of events with non-trivial continuation

- T4, 5 20 *Chernomirdin opens the first sitting of the renewed Government of Russian Federation
- * Summit Yeltsin-Clinton; discordance relative to joining of the former SU republics to NATO: "error to expand"/"will be expanded" -Ukrainian Foreign Office Minister started the negotiations with NATO
- General Secretary relative to special status of Ukraine in NATO
- 22 Dalai Lama pays a visit to Taiwan
- 24 Implementing the new, more complicated immigration law, USA Declaration on possible forming of World number 3 steel concern

28 Sharp worsening of diplomatic relations between Byelorussia and USA

TB 2 * The "Union Agreement" is signed between Russia and Byelorussia, which is not determined completely.

Note: This event almost literally repeats the last year analog *that* was also synchronous with the time and event focuses, but of the comet Hyakutake [1]!

7 Disagreement on Concordat between Poland and Vatican

9 Political scandal in connection with corruption in Administration, Australia

10-11 Germany accuses Tehran of State terrorism. The European Union states recall their Ambassadors (See T7)

16 Scandal in connection with Korzhakov's interview relative to corruption in the Yeltsin's encirclement

17 Discordance in Yeltsin-Kohl dialogue as to NATO

19 At the Congress of the Communist Party of Russia, its leader declares the transfer to uncompromising advance

22 French Parliament is dissolved

T6, T6' 8-9 NATO Summit in Madrid: France refuses to continue its integration into military structures of NATO; Spain does not enter these structures, too.

*Alliance votes to accept Poland, Hungary and Czech Republic

"Historic expansion is approved with some discord"

T7 11 Scotland votes on creating first parliament in 300 years

15 The European Union agreed in principle to send its ambassadors back to Iran (See TB)

15 "Yeltsin insists the new capitalists should not make a damaging political war against his government"

26 "Yeltsin signs curbs on religions"

After-effects:

Oct. A threat of Duma to pass a vote of distrust in the Government Oct.-Nov. Resignations (with & without official scandals) of the members of the highest administration of Russia continue to take place.

Demonstrations, Strikes, Crises, Revolutions

T3 3-4 Large-scale ecological demonstration, Germany

T4, 5 21 Two great bankruptcies, S. Korea

22 Dry hungry strike (20 Chernobyl repairmen for paying them their salaries), Tula, Russia

23 Anti-governmental demo, collision with police, Byelorussia

23 Anti-governmental demo, collision with police, Indonesia

23 General strike; Bangladesh

24-28 Pan-European action of protest against closing of Renault plant in Brussels

27 General strike in Russia grows into political one. Participation is estimated as 1 to 20 millions of people. Considered as the largest strike over the post-soviet time

29-30 Congress of National Front, demos, scuffles with police, robberies, vandalism. Participation - up to 35 thousands, France

TB 4 Continuation of anti-governmental demos, Byelorussia

7-9 Sharp worsening of situation, riots, robberies, Zaire

T6, T6' 1 Chinese flag is hoisted in Hong-Kong

1-5 Crisis that led to coup d'etat in Cambodia

7 Disorders, victims, Kenya

T7 Middle of Sept.: East Asia's financial turmoil: "Southeast Asia: Domino effect? Thailand, Indonesia, Philippines; economy slows sharply, protests and social unrest, job losses...a chain reaction that could spread to other parts of S.E. Asia"

After-effect:

The Southeast Asia stock-market crisis becomes world-wide. After the crash of Hong-Kong stock market (October) and subsequent bankruptcy of bankers and shareholders by thousands of millions of dollars all over S.E. Asia, it propagates to New York, London, and Moscow, where the third decade of October was

marked by reaching a series of records. It continues to act as well in November; thus, the largest bankruptcy since World War II had occurred in Japan.

Unprecedented Legal Overcoming and Violation of Frontiers

- T3 End of February Polish trawler is seized in Russian Territorial waters
- T4, 5 21 Polish trawler released for the fine of \$100,000
 - 23 Concentration of foreign troops around Zaire
 - 25 Ukraine charged Russian with unsanctioned flight of Russian Tu22 within the Ukrainian zone of responsibility (See TB)
 - 29 Many Kurd victims, Turkey
- TB 4 Incident in the Strait near Seattle between the Russian ship, Canada's helicopter and USA submarine of Ohio type
 - 5 Ukraine enters and cancels the restrictions for Russian aircraft flights over the Ukraine (See T5)
 - 10 Skirmish in the demilitarized zone, Korea
 - 7-12 Pakistan's shelling India, Victims
 - 18 Shelling at Armenia-Azerbaijan frontier
 - 23 Governmental order to shoot down any strange aircraft, Chechnia, Russia
- T6, T6' 3 New Chinese demands on joining Taiwan
 - 9 Attempt to put ashore Abkhazian troops at Georgian frontier
 - 1-7 N. Korean exercise: "Mortar shells sailed across the border, and N. Korea said several of its soldiers were wounded in the ensuing exchange of fire"
- T7 9 "S. Korean soldiers killed a N. Korean soldier who had crossed the border, rifle in hand...But since last September have there been any fatalities"
 - 15 3 Kurds are killed and 11 wounded when they were attempting to enter Greece illegally, at Greece/Turkey border
 - 15 500 US para-troopers jumped in Kazakstan, -"Unprecedented display...a week-long exercise (with Russia and Turkey) has been billed as the longest air-born military expedition in history."
 - 26 Turkish troops pursued Kurdish guerrillas deep into Northern Iraq. 44 rebels and 3 Turkish soldiers had been killed.

After-effects:

(October): "Turkey has killed 242 Kurdish rebels since the **beginning** of its campaign in Northern Iraq (viz. after T7)". "President Kabila has yet to gain military control", Uganda, Burundi are also touched by the events in Congo. Civil war in Sudan continues.

Conclusion

At present, the things pertaining to different aspects of the phenomenon known as the "New Millennium Approaching Syndrome" (NMAS) attracts more and more attention. Even academic science does not avoid this theme. Thus, the International Conference SPE-94 **devoted** to scientific problems of protecting the Earth from collision with Dangerous Space Objects (DSO) had accepted the resolution that stated the necessity to conduct appropriate studies. Rise in the rate of natural calamities as well, also worries both scientists and statesmen.

This study and some other researches being closely correlated with physical observations (e.g. Solar activity influence over the large scale systems [4,8]) allow us to state **that** there exists grounds to consider the phenomenon of NMAS seriously from an external, or a synchronistic viewpoint, as well.

Firstly, because even now, in the last years of the XX century, the axis of Tropical Zodiac (viz. the equinox line) scans a very important area [5] of the Celestial sphere, **through** which absolutely new influences could overshadow the Earth.

Secondly, the Solar activity (SA) is now starting to grow; and apart from being a mighty factor of Space influence [4] on the whole, it performs a specific function of evolutionary Space-Clock [6], since via the Golden Section rhythms the 11-year Solar activity cycles define and synchronize a lot of basic periods in the Earth's phenomena [op.cit.] within the range of seconds to million years.

Thirdly, in compliance with their manifestations, the comets could be likened to Solar activity, thus making the sequence Hyakutake - Hale-Bopp - Solar activity a "Chain *reaction*" which leads to widening and intensifying of the forthcoming Solar activity influence.

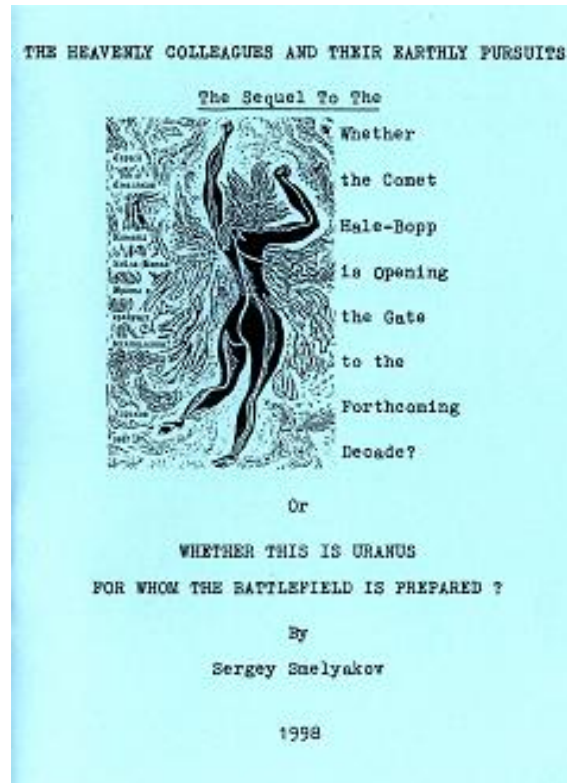
Therefore, the approaching phase of growth of the Solar activity might be followed by many very special manifestations, and, maybe, these could touch us more *seriously*, than the DSOs, should the Solar activity and comet synchronism be taken into account. From this point of view, the reply to the title of this booklet is rather to be in the affirmative. November, 1997.

References *(The respective Site Reference is given in brackets)*

1. S.V. Smelyakov. Prediction for transit of the comet Hyakutake (Communication to ISAR, March 13, 1996) and its Verification (April 27, 1996).
2. Prudence Jones. The Comet and the Demon's Head.- The article presenting an expanded version of a commentary on the comet Hale-Bopp given on Anglia TV News on 11th March 1997.
3. S.V. Smelyakov. The 7-Plane Nature of a Human Being in Esotery and Astrology. Part 3. Kharkov: Ukr.-Sib. AB Centre,1996.-100p. (In Russian)
4. [2, **Part 5**] A.L. Tchijevsky. Space Pulse of Life.- Moscow,1995.- 768p. (In Russian)
5. [56] S. Smelyakov. Whether the Age of Aquarius Would Strike the Bell? Kharkov, 1996.-27p. (In Russian).
6. [5, **Part 2**] S. Smelyakov. The Golden Section in Synchronism of Solar Activity Cycles and Planetary Revolutions. Kharkov,1997.-80p.
7. A.E. Parker. A Volcano & A Flood.-KOSMOS, 3,1997. pp. 18-19.
8. [17, **Part 1**] S.V. Smelyakov. Interval Approach for Super-long-term Forecasting of Sunspot Activity Maxima.-In: Numerical Methods and Error Bounds. - Math. Res. Vol.89. - Berlin. Akademie Verlag, 1996. pp. 255-260.

9.3 THE HEAVENLY COLLEAGUES AND THEIR EARTHLY PURSUITS

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THE HEAVENLY COLLEAGUES AND THEIR EARTHLY PURSUITS

Sergey Smelyakov

The Sequel To The

Whether The Comet Hale-Bopp Is Opening The Gate To the Forthcoming Decade?

OR

WHETHER THIS IS URANUS FOR WHOM THE BATTLEFIELD IS PREPARED?

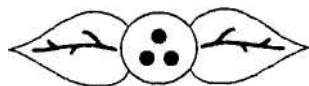
Kharkov: Ukr-Sib Astro-Bio-Centre, 1998. – 32 p.

[75]

S. Smelyakov. THE HEAVENLY COLLEAGUES AND THEIR EARTHLY PURSUITS.

- The sequel to the "Whether the Comet Hale-Bopp is Opening the Gate to the Forthcoming Decade?", or WHETHER THIS IS URANUS FOR WHOM THE BATTLEFIELD IS PREPARED?

Kharkov: Ukr.-Sib. Astro-Bio Centre, Ltd., 1998. - 32 pages



In the first part the Forecast for transit of the comet Hale-Bopp, its verification based on the Summary of world-wide events, and conclusions including the Hypothesis on the comet Hale-Bopp/Solar activity synchronism relative to their Time Focuses/Maxima and factors of influence were presented.

This Sequel includes an analysis of the growing Solar activity period of July '97 to April '98 (which seemingly starts the next in order, viz. 23rd, 11-year cycle of Solar activity) in relation to its synchronism with the comet Hale-Bopp's Time Focuses of influence. It is shown that their miraculous conformity could be explained, but esoterically, as the probability of accidental coincidence of the HB's Focuses and Solar activity maxima might be estimated as 10^{-12} . For comparison, this value is about several dozen times lesser than the ratio of a poppy-seed and the Earth's radii.

As well, the correspondence between the predicted HB's Focuses and Factors of influence, Solar activity effects, and actual events is supported by Summary-2 which continues the Summary of Part 1 and covers the period exceeding the last Time Focus T8, viz. March 13, 1998.

Some conclusions are made which not only acknowledge those ones of Part 1, but also allow to foresee the main mundane planetary factor of influence, apart from dynamic factor of Solar activity, which might be dominant in the forthcoming years - the Uranus, for whom now the "Battlefield" is seemingly being prepared on approaching of the "Small Age" of Aquarius.

S. Smelyakov, 1998

1. Introduction

In the booklet [1] the Forecast for the transit of the comet Hale-Bopp (further referred to as HB) is presented for the period of March '97 to March '98 which includes (1) Factors and Focuses of influence with respect to time (focal time points T1 - T8) and space (focal meridians and their clusters, viz. Meridional Belts).

The development of events over the first part of the forecasting period (March - November '97) has confirmed general rightness of the Forecast and is summed up in the respective Conclusions [1] ; as a result, the Hypothesis has been put forward which suggests that (1) the influence of the comets Hyakutake and Hale-Bopp could be likened to that of the Solar activity (SA), and in this sense they, so to say, (2) "pass on the baton" to the SA by preliminary "warming-up" the situation in the world on the whole, and within the focal regions - in particular, whereas it had been supposed that (3) this was the September SA splash which resulted in powerful manifestations of the HB's influence both at less significant points T6, T7 (comparing to T3 - T5, TB) and during after-effect phase in October - November '97.

The development of events over the second part of the forecasting period (December '97 - April '98) and impetuous growth of the SA [2] since July - August '97 allow not only to propagate the conclusions [1] onto the whole period of forecasting, but to obtain new and substantial acknowledgements for the benefit of this Hypothesis. At this, an extreme synchronism between the HB's Time Focuses and SA maxima attracts great interest by itself, as the probability of fortuity of this coincidence might be estimated as $P_{SA/HB} = 10^{-12}$. From materialistic viewpoint, an event with such vanishing probability can be considered as impossible, though from Theosophical point of view this may denote the only thing, that the Sun being the Brain and the Heart of the Solar System has turned its intent look to the Earth by aimingly participating in the Earthly processes on the phase of raise of its activity within the 11-year cycle through directing complementary energy flow in conjunct with the HB's Focuses.

The conclusions reflecting the peculiarities of established SA/HB synchronism are summed up in the Hypothesis specifying the objects to which the "baton" of global factors of influence will be passed.

2. SA MAXIMA VERSUS HB'S FOCUSES

An influence the Solar activity exerts over human beings and peoples in the whole, as well as on appearing of Natural calamities, is well known [3] and, in general, resembles that of the HB's [1]. For example, we may suppose that these are the SA splashes of the first quarter of 1998 which caused distribution of headaches, electorate's shift to extremes (Ukraine, France, Russia, etc.), and widespread floods and hurricanes. Hence, due verification of the Forecast must include study of SA/HB synchronism for proper discrimination of phenomena presented in Summary-2 relative to their causes.

2.1. Time and Meridional Focuses of the Comet HB's Influence

As long as the comet HB's Time Focuses of influence (further referred to as Focuses) are defined by the comet's conjunctions with the Sun, perigee, and eclipses, that is, finally, by Zodiacal location of the Sun, we may suggest them to retain their resonance meaning - by date (without year) - for the forthcoming period as well. So, call the Focus active if its date T_i complies to the Forecast, and resonance T_i' if the same date is considered for the next year. For example, T3 presents the forecasted Time Focus of March 3, 1997, whereas T3' denotes March 3, 1998, etc.

Then, in compliance with the average Sun's velocity, we obtain that 1° -orb for a Focal point is corresponded by 1 day, 2° - by 2 days, etc. Obviously, the discrepancy between the dates of resonance and respective active Focuses does not exceeds 1° , or 1 day.

2.2. Development of the Solar Activity

In compliance with the Solar data [2] we may conclude that the next in order, viz. 23rd relative to Zurich series, 11-year (in average) cycle of Solar activity (further referred to as SA-cycle) had started since the end of Summer '97 (See the Table and the Figure, below); since then, the SA monthly average has shown a significant growth and in Spring '98 it reaches the values of 80-90 which approach the levels of some SA-cycle maxima (e.g. that of the 20th SA-cycle), and even exceed the yearly average (77.8) for the 16th SA-cycle maximum of 1928.

We would remind that the SA phenomenon is characterized by a series of parameters: Sunspot number (SSN), Sunspot Area, Radio Flux, etc. As these values are mutually correlated (though their daily maxima may differ by several days), consider the former of them as the most studied and conventional one, viz. the SSN.

These active areas on the Solar surface are distributed irregularly, and may appear and disappear. As a result of Sun's rotations, this may lead to abrupt variations of daily SSN. Besides, due to rotation of the Earth the same daily SSN may correspond to two Earthly dates simultaneously (e.g. for Asia and USA). Taking account of all these features makes it reasonable to consider the daily SSN maxima with an orb of up to 1 day as analogue of exact planetary aspects when world-wide events are considered.

Therefore, we may regard the HB's Focus and SA maximum synchronous if their dates differ but not more than one day, and synchronous with a conventional orb of 5° if their dates differ by 5 to 6 days.

Further on, it is the question of principle that the most pronounced effect on the Earth exert those sunspots which are located on the Sun's central meridian (viz. oriented, as antennas, directly to the Earth) regardless, whether it is visible, or invisible side of the Sun [3,4], though only the visible sunspots are directly registered from the Earth. Since it takes about 28 days for an ordinary sunspot to complete a revolution around the Sun, it passes the central meridian (either visible, or invisible, in succession) every 14 days, unless disappeared. This gives a reasonable explanation, for example, for a splash of manifestations pertaining to the HB's factors of influence (See Summary-2) in the vicinity of February 4 '98 at relatively low SA level and far from HB's Focuses: in two weeks (about Feb. 16) one more splash of manifestations took place out of HB's Focus of influence, but this time - in the vicinity of SA maximum; so, we may suppose that both manifestations were caused by the same group of sunspots which passed firstly invisible, and then - the visible central meridian after the Sun's surface made half a revolution.

The SA influence is determined by both average, or background, level and current, or daily, value which may cause a "pulse" impact. These are used different averaging intervals: weekly, monthly, yearly, etc. For the given situation the 5-day and monthly averages suit best of all (See Figure): the former smoothes the daily beats, while retaining their trend, whereas the latter allows to clarify the general trend of SA background development. Consequently, for due regard of current values, the most pronounced daily local maxima are also presented both in Figure (+) and in Table, which present the SA values being maximal within a neighbourhood of not less than 3-5 days (though some close values are somewhere presented in the Table for illustrative purpose).

Since an instability of any system becomes especially evident during an impetuous growth, such transient processes in SA development present particular interest; however, though they are hardly ever being considered in conventional astrology, even this phenomenon frequently allows to reveal the hidden roots of mighty of manifestations. For example, within the SA maximum epoch of 1989-1991 of the 22nd SA-cycle, the SSN daily level had abruptly risen from 75 (on August 10, 1991) to 280 units on August 19, 1991 when the USSR had been mortally wounded at nobody's expectations.

This emphasizes the actuality of local cycles (further referred to as Cycles) of sharp or steady SSN growth by 1.5 - 2 and more times over a relatively short, 1 - 2 weeks, period as they may engender especial strains in Nature and society, at culmination of which we may expect manifestations of respective factors of influence. These Cycles are specified in the Table by min-max-min SSN daily values and their dates. For convenience, it presents the HB's Focuses as well.

TABLE. Synchronism of the Comet HB's Focuses of Influence and the Sunspot Number (SSN) Development* for July '97 - April '98

Cycle 1	SSN minimum -	SSN maxima	- SSN minimum
PHASE 1: BIRTH of new (viz.23rd) 11-year SA-Cycle (July) Raising of monthly SSN to 25 and daily - to 65. <u>HB's Focuses:</u> T6 (July 4, 14)			
Cycle 1	Jul. 1 (0) - Jul. 4 (12),	Jul. 9 (31)	- Jul.11 (0)
Cycle 2	Jul.13 (0) - Jul.14 (11)		- Jul.15 (0)
Cycle 3	Jul.15 (0) - Jul.25 (65)		- Jul.31 (0)
PHASE 2: SPLASH AND FALL (August - September) <u>HB's Focus:</u> T7 (Sept. 16)			
Cycle 1	Aug. 1 (0) - Aug. 8 (65),	Aug.15 (60)	- Aug.24 (0)
Cycle 2	Aug.24 (0) - Sep. 9 (101),	Sep.12 (97)	- Sep.20 (15)
Cycle 3	Sep.20 (15) - Sep.25 (50)		- Oct. 8 (17)
PHASE 3: SPLASH AGAINST A LOW BACKGROUND (October-November)			
Cycle 1	Oct. 8 (17) - Oct.12 (60)		- Oct.23 (0)
Cycle 2	Oct.23 (0) - Nov. 4 (68)		- Nov.12 (26)
PHASE 4: KEEPING A BACKGROUND (December - January) <u>HB's Focuses:</u> T1' (Dec. 21), T2' (Jan. 3)			
Cycle 1	Nov.12 (26) - Nov.23 (70),	Dec. 1 (73), Dec. 8 (97), Dec.11 (99)	- Dec.19 (16)
Cycle 2	Dec.19 (16) - Dec.23 (72),	Dec.29 (79)	- Jan.7-9 (0)
Cycle 3	Jan. 9 (0) - Jan.12 (60),	17 (89),25(104)	- Feb. 2 (23)
PHASE 5: SPLASH AGAINST A HIGH BACKGROUND (February-March) <u>HB's Focuses:</u> T3' (Mar.3), T8 (Mar.13), T4' (Mar.20),T5' (Mar.24), T6' (Apr.7-11)			
Cycle 1	Feb. 2 (23) - Feb. 14,16 (88)		- Feb.21 (28)
Cycle 2	Feb.21 (28) - Feb.24,27 (78),	Mar.2 (105)	- Mar. 5 (42)
Cycle 3	Mar. 5 (42) - Mar.13 (115),	Mar. 14 (119)	- Mar.19 (80)
Cycle 4	Mar.19 (80) - Mar.20 (100),	Mar. 22 (114)	- Mar.30 (66)
Cycle 5	Mar.30 (66) - Apr. 4 (70),	Apr. 6 (82), Apr.7-12 (120,131,192,145, 132,111), Apr.13 (82)	- Apr.18 (28)

*NOTE. The Sunspot development is presented by SSN monthly average Phases and their local Cycles specified by Min-Max-Min variations of daily SSN being given in brackets.

2.3. HB's Focuses Versus SA Maxima Synchronism

In compliance with the above considerations, analysis of correlation between the HB's Focuses and SA maxima allows to conclude the following.

(1) Within an orb of $0 - 2$ days, or $0^\circ - 2^\circ$ (that is almost exactly), the Focuses T6a,b, T1', T3', T8, T4', T5', TB' coincide with SSN maxima of Cycles, the concentration of four Focuses in March '98 is corresponded by sequentially growing records of daily and monthly average of SSN, but even they are exceeded by staggering (with respect to exactness of synchronism) coincidence of new record (up to 192) with the distributed Focus TB'.

(2) Though the remaining two Focuses coincide with SSN maxima with the orb of $4^\circ - 5^\circ$ (viz. 4 – 5 days), their actual synchronism is much more precise; indeed:

- * Focus T2' corresponds to mean SSN level (32) which falls in 4 days to zero, but it is more actual that two weeks before (viz. Dec. 23) and after (Jan. 17) this date the SSN Cycle maxima are located (72 and 89 units, resp.);
- * Focus T7 relates to high SSN level (62) which falls in 4 days down to 15 units, and in seven days before this Focus the record of daily (up to 101) and monthly average maxima took place which had no precedents during the preceding SA-cycle minimum (which was profoundly reflected in splash of manifestations [1]), and that is why this closeness to the SSN record probably makes it indifferent whether the orb is 2° or $4^\circ - 7^\circ$. As well, two weeks before this Focus the SSN daily level has raised from 0 (Aug.24) to 90 (Sept.1).

Hence, each of these two Focuses was almost definitely exerted to the influence of SSN maxima disposed on the central meridian, but on the back side of the Sun, and, therefore, these two Focuses could also be supposed to comply with the "exact" orb of (1).

(3) During the SA growth, the Focuses T6, T7, T8 were the only active ones, and each of them was synchronous with splashes in development of SSN. Thus, if the Focus T6 had marked the starting of significant growth of SSN daily and monthly average (might be this was the cause of simultaneous influence of SA and HB which had manifested themselves in wide-spread natural calamities[1]), and, thus, defined the origin of the next in order 11-year SA-cycle, the active Focuses T7 and T8, as well as resonance Focus TB' were corresponded by three sequential most powerful records of SSN daily and monthly average over the considered period of observations (viz. 9 months and 18 days, or 292 days in total), that is since the SA-cycle minimum.

(4) Coincidence of the comet HB's Time Focuses (both active and resonance) and SSN local maxima might be considered fortuitous just with the probability of order of 10^{-12} , and, apart from other Focuses, the synchronism between the Focuses T7, T8, and TB' and record splashes of SSN daily and monthly average might be considered accidental just with the probability of order of $10^{-5} - 10^{-6}$ (See Appendix).

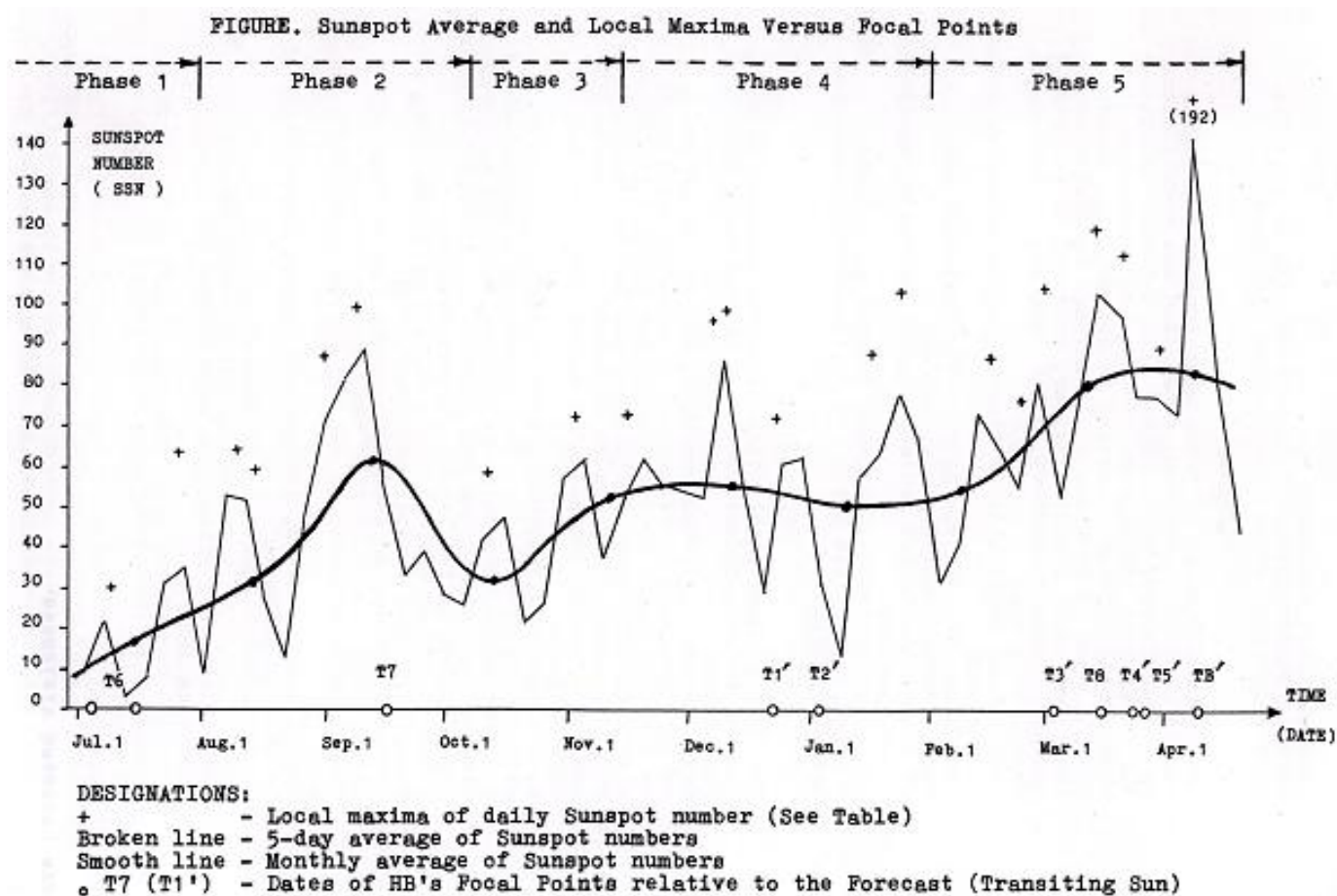
(5) It is worth attention that the most powerful SA splashes correspond to those Focuses which were specified in the Forecast by the eclipses (T7, T5', T8) or New Moons (T4', TB', T6).

(6) Close synchronism between the HB's Focuses and SA Cycle maxima hampers discrimination of the contribution of the former ones to the development of the Earthly events; however, as the Summary-2 shows, this does not anyhow weaken those manifestations which pertain to the HB's factors of influence and still continue to correspond at these moments to the HB's geographical Focuses.

At this, the Summary-2 confirms that once some region belonging to any HB's geographical Focus has been "heated" while the SSN was at low level (viz. before T6), it continues to respond to SSN maxima with respect to HB's factors of influence even out of Time Focuses. For example, such concentration of events is clearly seen around the local maxima (See the Table) of Jan. 16-19, Jan. 24-28, Feb. 14-17 which, in their turn, can explain the following manifestations at low SSN level: Feb. 4-9 (induced by maxima of Jan. 24-28, Feb. 14-17), and Feb. 21-28 (induced by maxima of Feb. 14-17, March 14).

(7) Close correlation between the SA and HB relative to HB's Factors and Focuses of influence manifests itself through the complete 9-month period of SA development which specifies dynamic, or energetic, factor of Sun's influence, and at all (viz. active and resonance) HB's Focuses being also specified by the Sun, but this time - by

its kinematic parameters being conventional to Astrology, viz. geocentric longitudes of the Sun/HB conjunctions.



* * * * *

From materialistic point of view, these conclusions lead to the following PARADOX:

* From the one hand, neither the HB's influence over the Earth, nor synchronism between the SA maxima and comet HB's Focuses specified by its position relative to the Sun, Earth, and Moon is possible due to small size of the comet Hale-Bopp, etc.

* From the other hand, this synchronism could not be rejected since it is practically inconceivable for an event to come into existence with such vanishing probability as $P_{SA/HB} = 10^{-12}$, even if this estimate (See Appendix) be increased by several orders, not speaking about verification provided by Summary-2!

However, from Theosophical point of view this situation is explicable, but, seemingly, in the only way that

the Sun being the Heart and the Brain of the Solar System had turned its look to the Earth (since these are the Sun, Earth, Moon, and comet Hale-Bopp who are engaged in this Earth-centred synchronism) by exerting its raising activity (or dynamic influence) synchronously with the focuses of its own positional (or kinematic) influence specified by the planetary configurations presumably constituting the "channels" through which the raising Solar activity stream could inflow.

Natural generalization of this situation seemingly allows to predict the forthcoming factors and focuses of influence; the synopsis of this Forecast is presented in Conclusions (Para. 5).

3. SUMMARY-2 (CONTINUATION OF SUMMARY [41])

Statistics of Events Pertaining to HB's Factors of Influence (1) - (3) over the Period of December '97 - April '98

By taking account that Factors and Focuses of the comet HB's influence were definitely confirmed [1] by the events that took place in different countries (though the significance of per-country manifestations varied, it generally corresponded to degree of covering of the respective region by Meridional Belt), the structure of this Summary-2 had been changed relative to Summary [1] in order to make it more clear how the tendencies detected during the first period (viz. March - September '97) were developing at the final phase of the forecasting period.

For this, the below statistics is firstly classified over the Meridional Belts of comet HB's influence where the events are listed relative to countries and Factors of influence in order of dates (See table) and Focuses, both resonance T1' – TB', and active T8. Due to this, the events or tendencies being spread throughout the world are given, but once, with the remark WW. As well, those events which directly correspond to points on Focal Meridians which were specified in the initial Forecast (Ref. 1 in [1]) by transsaturnian planets on Asc, etc., are marked by asterisk.

As in [1], the dates relating to any Focus are given, for short, without month, if they coincide. The amount of victims might be specified by a number in brackets. Protracted events are dated by the day of announcement.

For representativeness of the Summary, these are basically those events has been included in it which are marked by the world mass media as records or extremes, or present systematic nature being actual for processes developing in different regions. Besides, as the Summary [1] shows that many processes initiated at the Focal time points continue to manifest themselves synchronously with the subsequent Focuses and lead, generally, to destructive result, in Summary-2 some events are presented that were initiated at Focuses, if they could be considered as engendering some actual process. For instance, these are:

- * opening of the first sitting of the renewed Government of Russia at T4, which was followed by some resignations at T7 - T1' and total dismissing of the cabinet on March 23, '98 (viz. a day before T5);
- * Israeli-Palestinian Relations, which had started to worsen since T3 and were marked since then by different collisions at each Focus;
- * Natural calamities, air crashes, financial difficulties in Indonesia were developing through the Focuses and resulted in resignation of newly re-elected President.

Meanwhile, due to lack of access to world-wide mass media (See [1], p.6) the Summary-2 does not contain systematic data relevant to technogeneous accidents (fires, explosions, air crashes, etc.) except those which were generally announced (might be due to their significance). Besides, the author apologizes for possible inaccuracy in dates which might not be excluded, but seemingly do not exceed 1 or 2 days, as the most events were recorded by ear from radio and TV programs where, apart from other things, the respective data not always were specified adequately.

Nevertheless, with regard to the aforesaid orbs these probable errors are hardly to be considered meaningful in order to affect the essence of the above-stated conclusions. After all, this Summary is not all-embracing report, and there exist specialists provided with exhaustive banks of data pertaining to the considered factors (earthquakes, floods, terrorism, etc.) whose researches in this field might be supposed to be as fruitful as establishing of general synchronism described in this work, and the author has neither possibility, nor will to take the bread out of their mouth, but only welcomes such investigations.

(160° W – 171° W, 139° W – 156° W, 113° W – 123° W, 95° W – 115° W, 58° W – 76° W, resp.)

MEXICO

T1' 22 large-scale murdering (45)

USA, CANADA

(1) Natural calamities

T2' 9-10 Snowstorms, snowdrifts, interruption of electric power supply; USA, Canada

Feb. 4-5 Hurricanes, floods, rains, wind, snowstorms – Atlantic shore of USA (Florida, S. Carolina, Tennessee, Virginia)

Feb. 7,8 -up to 14 Tropical showers, floods, land slides (dozens of victims) caused by EL-Ninijo; damage exceeds \$300 millions – USA/Mexican border (Mexico, San Diego to San Francisco). Unprecedented snow cover; W. Virginia

Feb. 23 Hurricanes, wind (330 km/h), dozens of tornadoes (more than 40 victims); Florida. Earlier – hundreds of houses are destroyed (7); California

T3' T8 8-13 heavy snowfall (30 cm), snowdrifts, blocked traffic; Middle West: from Colorado to Michigan, Canada

T4' 20 State of emergency caused by tornado (8 killed, 80 wounded), N. Guard is mobilized for search of missed; Georgia

TB' 10 The most powerful tornadoes over the history of the USA; wind (500 km/h), unprecedented damage, dozens of victims. Alabama suffered most of all. The President promised to support four most suffered States

(2) Engineering disasters

Feb. 7 Two F-18 collided at Persian Gulf

Feb. 9 Emergent landing; USA

T3' 6 Helicopter (5); Los Angeles

T8 12 The Pathfinder's mission is announced terminated; (See T6)

12 It is announced that asteroid 1997 XA-11 will go by the Earth in 2028 at a highly dangerous vicinity of 40 000 km

13 After the previous statement, America astronomers declared that this asteroid would not come close to the Earth

T4' 19 Two US nuclear missile-firing submarines collided close to New York State

(3) Social and political effects

T3' - T8'

3 Number of bankruptcies in the USA reached in 1997 a record figure of 1 million 300 thous., on the phase of economic boom

Splash in scandals with feminine's accusing Clinton

12 Kofi Annan announces that USA antagonize both its friends and enemies by not paying debt of \$1.5 milliards

12 Inability of most electronic payment system to cope with the millennium "boom" will touch about 20 % of companies, recession in trade might be protracted for a year, total damage could reach \$400 milliards

WW

T4' 17 Senate starts hearing on expanding NATO (See [1])

18 American sportsmen died in Kiev after a contest on "Fight without rules" being prohibited in most states

19 Two terrorists are arrested on suspicion of attempt to perform an act of terrorism with biological weapon (Siberian plague); Nevada

T5' 24 Religious fanatics declared that the God would come on March 31 and take the people to another planet (See T4, T5)

24 Two Chinese are arrested for trying to sell organs of those who were executed in China

24 Four children and a teacher are killed, 10 people wounded as a result of two boys' firing; Arkansas

MERIDIANAL BELTS WB5 – WB6*(5 8° W – 7 6° W, 4 8° W – 6 1° W)***CENTRAL AND SOUTH AMERICA**

Middle of Feb.		Heavy showers, mud-flows. More than 300 victims, 250 thousand people left their dwelling; Ecuador, Brazil, Peru
Feb. 13-14		Heavy conflagration at terminal; Brazil
T3' – T8	1-7	New splash of fights (110) before elections; Columbia
	8	
	10	Resignation of Pinochet, demos, collision with police, Chilli
TB'	11	Before-Eastertide poisoning of several groups of Catholic priests in Columbia (the Satanists are supposed to be the culprit)

MERIDINAL BELTS WB7 – WB8*(2 4° W – 3 7° W, 3° W – 1 4° W)***ALGERIA**

T1'	23	Act of terrorism (59), more than 150 victims over the week
T2'	1-3	Three villages are massacred (412). First two weeks of January – up to 1500 victims: the largest wave of terrorism over the years
Jan.	28	New victims: 34 villagers and 18 terrorists
Feb.	12	Explosion of a bus (37)
Feb.	21-24	Two explosions at gas main, and in the train (18 killed, 20 wounded)
T3'	2-7	Dozens of terrorists are killed
T8	14-15	New large-scale victims (more than 40)
T5'	26	New acts of terrorism (70)

UNITED KINGDOM AND IRELAND

T1'	28	Explosion in Northern Ireland
T2'	1-5	Hurricanes, Storm, heavy waves (up to 10 m), showers: destruction of electric power lines, trees are torn up with roots, road accidents and shipwrecks, even destruction of brickwork
	2-3	New wave of violence in Belfast
Feb.	23	Two explosions in Belfast
T3'	1	Farmers' demo, the largest over 20 years (about 20 000 participants), London
	3	Two assassinations in Belfast, sharp resonance in UK
	3	Mortar bombardment of police station, Northern Ireland
	3	Beating of Tony Blair's children
T8	9	Starting of inquest as to the beef virus (resp. to T3)
TB'	10	Preliminary agreement on peaceful settlement is reached for the Northern Ireland

MERIDIANAL BELT EB 1*(9° E – 2 0° E)***(1,2) Natural Calamities and Engineering Disasters**

Dec.	6,7	Several shipwrecks around Europe
Dec.	9	Collision of two trains (up to 100 wounded); Germany
T2'	5	Heavy gale; hurricane, wind up to 180 km/h – the greatest since 1987; destruction of electric power lines, ferry-boats. Heavy damage (dozens of million £); France, UK
	8	Emergent throwing of two bombs by UK fighter; Italy
Feb.	2	Twenty people are killed in gondola knocked down by US fighter; Italy
Feb.	12	Large – scale collision of cars (4 killed, 80 wounded); Italy

T8	12	A report is published which states that for a few years the Swedish Navy were registering not Russian submarines, but seals; Sweden
WW	14	World Health Organization: the threat of tuberculosis now exceeds the level of danger being over registered (even in developed countries, such as Russia) and requires the prompt actions to have been taken
T4' WW	20	At Int. Conference the President of France declared the threat of deficiency of fresh water for the population of the earth

(3) Social collisions

Dec.	1-7	Cabinet crisis, resignation of Premier; Czech Republic
T1'	21	Uncovering of a plot that aimed to overthrow the Government; Nigeria
Feb.	5	The record unemployment since the WWII is declared; demos in 200 cities; Germany
Feb.	7	Bundestag adopts the law on hearing of telephone talks; Germany
Feb.	8	Murdering of the head of administration; Corsica
T4'	3	Firing in Brussels, several people are arrested in accusing of terrorism
T8	12	French court adopts the decision on exhumation of I.M. for defining the paternity
	13-14	The decision as to accepting Cyprus to EU is not taken at Edinburgh's Meeting
	14-16	Pope's Declaration and subsequent publishing of the document qualifying the genocide of Jews during the WWII which is considered indeterminate (See TB)
	15	After 6-week discussion, the International Commission has put off making a decision as to relating Brchko either to Croats, or to Serbs
WW	15	Regional elections in France: success of extreme wings
T4'	20	Police defeated a Basque terrorist organization; Spain
	20	Strike and demos in France locked the English Chan. ferry

Overcoming of frontiers

T1'	27	800 illegal Kurd refugees run around in a ship near Italy
T2'	Dec. 31 – Jan. 7	Large-scale inrush of Kurds in Europe; few thous. Refugees have sailed up and many more are still awaited
T3'	4	Clinton prolongs the term of sojourning of troops in Bosnia

ALBANIA, YUGOSLAVIA (KOSOVO)

Feb.	7	Albania Armed Forces are made perfectly ready: "should Greece meddle in, Turkey also will not abstain"
Feb.	23-24	Internal Affair troops restored are control over Skoder which was seized by rioters
T3'	Feb.26-28	"Wave of riots in Kosovo being inhabited mainly by ethnic Albanians; this Yugoslavian province is considered as the fuse in the Balkan's powder keg; the arms are supposed to come from Albania; Serbian police has started to restore the order"
	1-2	Police actions (searches, breaking the demos, etc.) have led to killing of 20 ethnic Albanians in Kosovo
	3	Funerals; Kosovo's Liberation Army declares to take vengeance for the deaths
	5	Sharp worsening of situation in Kosovo; Albanian's leader appeals to general mobilization and to international help
	7	USA, Turkey, and other countries declare their concern with respect to events in Kosovo
T8	11-15	Re-burying of 50 people killed over the previous days. Leader of Kosovo's Albanians declares the ultimatum: any negotiations could be kept just on condition of independence of Kosovo
T4'	18	Demo in Kosovo; Albanians state that police killed 5, but Serbs reject this
	20	EU discusses sanctions against Yugoslavia, "state of general international indefiniteness as to proper response"

MERIDIANAL BELT EB 2 (WITHOUT FORMER USSR)*(24° E – 41° E)*

Dec.	10	Intensification of floods being continued for 2 months; more than 2000 people had drowned; Somali
Dec.	11	Attack (300) from Congo onto refugees' camp; Rwanda
T2'	1	Large-scale murderings; Burundi
Jan.	16-17	Rains, floods (86); Kenya
Feb.	24	Unsuccessful attempt of hijacking; Turkey
T3'	4	Three new pyramids are opened for tourists after the Fall attempts upon the tourists; Egypt (See T7, November)
T8	15	New anti-Kurd operation; victims; Turkey
	16	Skirmish with terrorists (3 killed, 13 wounded); Egypt
TB'	9	118 people are trampled down to death and 100 are wounded during hadj; Saudi Arabia (See TB)

ISRAEL-PALESTINIAN RELATIONS

Dec.	6	General strike
T1'	26	Hamas calls upon permanent war with Israel
	28	Israeli artillery and air force fired the Southern Lebanon
T2'	3	Israeli extremists' threat to blow up the mosque being third by importance in the Moslem world
	4	Resignation of the Israel Foreign Affairs Minister being considered a supporter of negotiations with Palestinians
	5-9	Collisions between police and Palestinians. "Peace talks on the brink of disruption"
Feb.	3	Israel undertakes bombardment of Southern Lebanon
Feb.	25	Resignation of the chief Mossad as a result of unsuccessful operation in Jordan against Hamas
T3'	Feb.26	Detention of 5 Israeli citizens in Switzerland on suspicion on bugging the diplomats and belonging to Mossad
	Feb.27	Israel undertakes bombardment of Southern Lebanon
	6	Israel undertakes military operation in Southern Lebanon Yassir Arafat: "deadlock in negotiations"
T8	11	Israeli soldiers fired the bus with Palestinians: 3 killed, 30 wounded. 5000 Palestinians took participation in funerals. Increasing the fighting ready of Israeli army. Firing into Israeli houses
	11-13	Demos and collisions between police and Palestinians on the West Bank
	12	Netanyahu condolences with killing of three Palestinians and admits the soldiers' action erroneous
	13	Explosion of bomb (5 wounded), demos, collisions
	14	Continuation of disturbances on the West Bank: 12 Palestinians and a soldier are wounded
	15	Assignment of a new chief of the Security Service. Helicopter crash at Mediterranean Sea (General and crew). Four day Moslem Conference has opened in Qatar: Israel, Kosovo, Iraq are on the agenda
	16-18	Israel protests against the protocol of attending East Jerusalem by Robin Cook
T4'	17-21	Demos, collisions between police and Palestinians
	18	Extraordinary session of UNO has adopted the resolution as to putting the end to building in East Jerusalem. Israel makes a protest Cook's meeting with Palestinians in East Jerusalem

MERIDIANAL BELT EB2: THE REGION OF THE FORMER USSR

Notes:

1. As all the countries belonging to this region has formally become independent on December 8, 1991 (viz. on dissolution of the USSR), so their horoscopes to a large extent have much in common (which is clearly seen in both common and individual political life and economics of Russia, Ukraine, etc.), and, thus, they are worth to be considered simultaneously.
2. Since Russia is stretched from EB2 to EB8, the events for other belts are also given here, but with appropriate EB marking.
3. The South Russia regions at Northern Caucasus are abbreviated to SRNC.

(1) Natural Calamities

T1'	18	Sudden and heavy icing, fall of temperature, winds; breach of gas mains, power supply lines. Damage exceeds \$35 millions. Splash in traumatism; SRNC, East Ukraine
	26	Splash of dysentery and influenza; Murmansk
T2'		Prolonged flooding of buildings; absence of means for pumping out the water; South Ukraine
Feb.	13	Due to bitter frost and heating the flats by kitchen gas cookers, gas supply is stopped; no means for additional gas supply; Arkhangelsk
Feb.	24	Flood; Latvia
Feb.	26	Earthquake, 5 on Richter scale; Buryatia (EB5) –
	*	(closely relates to eclipses at T5, T8)
Feb	26	Floods resulting from heavy showers and thawing. Damage of \$ 110 millions; Cuban (SRNC)
T8	12	20 000 buildings are flooded; Krasnodar Territory (SRNC)
	16	Increase in floods: 4000 buildings are flooded, 13 000 people left their dwellings; Rostov-on-Don (SRNC)
T4'	20	State of emergency caused by heavy snowfalls: absence of power, gas, and water supply. Troops are enlisted for clearing the territory; Orenburg (EB3)
T5'	26	Official warning about possibility of earthquake (up to 9 on Richter scale) on Kuril Islands (EB7) –
	*	(closely relates to T1, T5)
Note.		Sharp distribution of tuberculosis (See above) and drugs (the number of drug addicts increased in three times by 5 years; the estimate for 1999 is 2-3 millions for Russia). Arising and propagation of epidemics is closely correlated with growing SA, in compliance with [3].

(2) Engineering Disasters

Dec.	6	AN-124 plane with two fighters on board had fallen on the city directly after taking-off; more than 60 victims; Irkutsk (EB5) –
	*	(closely relates to eclipse at T5)
Dec.	10	Attempt of hijacking of IL-62 with 140 passengers for \$10 millions; Magadan (EB7) –
	*	(closely relates to T1, T4)
Dec.	11	Air crash (7); Narimanov – Mar (EB3)
T1'	17	Air crash (70) – Ukrainian JAK-42 in Greece
T2'	5	Steve Fosset, from Saint Louis, performs emergent landing as continuation of the flight of balloon is in danger due to the control system failure; Krasnodar (SRNC)
T3'	4	Air crash of AN-26, victims; Voronezh
TB'	8	Wreck of Russian tanker diesel oil in the Gulf of Finland; threat of heavy contamination

Spacecraft Failures

- T2' 2 Computer failure on board Mir causes refusal of power supply and guidance systems
3 Mir's creaky computer is fixed again
- Feb. 20 For an hour and a half the communication is lost while the spacecraft was being rejoined to another terminal of Mir
- T3' 3 Due to blocking of the outlet hatchway screw-nut (three wrenches were broken!), the planned going of the crew into free space is cancelled (at least for 4 weeks), as well as repairing of the Solar battery which was broken in June '97 (See T6) on collision of Mir and transport ship
- T8,T4' 17 Transport ship Progress (with spare wrenches and other equipment for repairing the hatchway) slid into contact with Mir, but in a manual mode since the automatics had suddenly refused
- TB' 1-4 Exhausting of fuel terminates repairing works aboard Mir
11 Refusal of communication hardware during cosmonaut's work in the free Space

Engineering Objects

- Dec. 2 Explosion in a mine (67); Kemerovo (EB4)
- T1' 19 Bringing down of a balcony during a contest (30); Kotlas
- Jan. 14 Explosion, fire at a mine, victims; Partizansk
- Jan. 17 Explosion, fire at a mine, dozens of victims; Vorkuta
- Feb. 21 Explosion at air force ammunition depot; Engels
- T3' 1 Conflagration (5); Moscow
- TB' 4 "The worst explosion at Ukrainian mines": the explosion killed 63 and wounded dozens; Donbass (Ukraine)
6 National mourning is declared; Ukraine

(3) Social Effects**RUSSIA (IN GENERAL)****(i) Terrorism and accompanying events**

- T1' 19 Kidnapping of Swedish Ambassador for \$ 100000; terrorists and colonel of security service are killed; Moscow
- T3' 1 Explosion in Underground, 3 wounded; Moscow
- T8 14 Kidnapping and releasing of hostages; Barnaul (EB4)
- T4' 18 Two general directors of large firms are killed; Kaspijsk, Krasnoyarsk (close to EB5)
19 Official threat to repeat an act of terrorism: to spill a nervous-paralysing gas in Moscow Underground
19 Kidnapping of two American Mormons; Saratov

SOUTH RUSSIA – NORTHERN CAUCASUS:

- Nov. 26 Kidnapping of 9 policemen; Chechnya/Ingushetia border
- T1' 21 Up to 100 Chechen fighters attacked the tank battalion; Dagestan
21 Kidnapping of 5 Poles; Chechnya
28 Two explosions; Groznyy (Chechnya)
- T2' 1 Resignation of local government; Chechnya
- Beg. of January : "New wave of violences at Northern Caucasus"
- Feb. 13 Field Commander Salman Raduev officially took upon himself the attempt upon the life of the Georgian President (See Georgia)
- Feb. 25 Chechen fighters kidnapped several more Daghestanians (in addition to 7 policemen in Dec., at T1'). The threat to close the roads between Chechnya and Dagestan
- T3' 1 Regional office of Prosecutor is exploded; North Ossetia
- T8 8 Attempt to drive the cattle out from Dagestan to Chechnya is stopped by police and helicopters; victims

- 13 Dagestan /Chechnya border; an unprovoked terroristic attack onto Russia TV journalists. Police and Armed Forces in Dagestan are taken to the state of increased readiness. Announcement: "Now, there are 80 to 120 kidnapped people in Chechnya". Acting Internal Affairs Minister of Ingushetia is given under examination for abusing his position
- 14 Inauguration of the President of Ingushetia (Russia) skirmishes between the governmental forces and field commanders' brigades participating in kidnapping; victims; Chechnya
- 16 An Attempt to release English hostages (2 killed, 4 wounded); "the fighters were informed". The hostages' state is unknown; Chechnya

(ii) Unexpected and cardinal socio-political collisions and changes

- T1' 26 Duma (viz. Russian Parliament) appeals to remove the President's assistant Nemtsov for his illegal declaration
- Feb. 4 Yeltsin declares that "We must try... to make Clinton feel that, with his action in Iraq, he can lead to World War"
- Feb. 5 At Duma, Gyrinovsky stated that there were no repressed men in the USSR, but only state criminals
- T3' Feb. 26-27 Synod of Russian Orthodox Church declares that there are no precise evidences of the remains to belong to the Tsar's family and, thus, it would be inadmissible to bury them this Summer
- Feb. 28 President's administration (Nemtsov) announces that Tsar's family remains will be buried on July 17 (viz. at T6!). President Yeltsin dismisses 3 ministers (See T4, T5)
- 2 One more minister is dismissed by the President; Rearrangements in the Cabinet and highest administration
- T8 11 Duma: Gyrinovsky makes a row, the affair is transferred to prosecutor, and on March 17 (Viz. T4') the action against him is brought
- 12 Unprecedented decision of Sankt-Peterburg and Gatchina administration on returning of the estate to its historical possessor (viz. Nabokov)
- 13 Poll in Russia: the preferred leader to the President's rank is the Head of the Communist Party. Yeltsin is announced to be hit by influenza. Arrest of the commander of anti-gangster group whose members are accused in banditism
- 15 Russian Minister of Defence declares that 6500 (!) deserters are granted an amnesty should they return to their platoons. Mass media: "Nationalism comes into fashion", Leader of Russian communists: "There are unseen the Russian faces in the Russian Government"
- T5' 23 Unexpectedly to all branches of political establishment, President Yeltsin dismisses the Premier and the Cabinet (See T5, etc.). Mass media: "The State is exposed to a new brink", "End of epoch of Gaidar-Chernomirdin of '91-'97"
- TB' 10 New candidate (35 years old) to the Premier's post is not approved by Duma; just at the third presentation and at the threat of the President to dismiss Duma, he will get Duma's approval

(iii) Economical collisions

- Nov. 17- 27 Miners' strike; Moscow region
- Dec. 9 Announcement: Damage for Russia from the world-wide stock market crisis is estimated as \$ 5 milliards and may develop to \$ 10 milliards
- Dec. 10 Hospitalization of Yeltsin with influenza causes immediate fall of Russian shares by 5 %; after S.-E. Asia crisis, the illness of Yeltsin "has worsen the situation in Russia economy"
- T1' 24 Duma rejects the budget estimates
- Jan. 27 2500 miners locked the transsiberian railway (unpaid salary, etc.); this type of protest continues until May, when hundreds of trains are stopped
- Feb. 7 "As to financial damage, being estimated by \$ 12 milliards Russian is the second after Indonesia"
- T3' 3-11 Hunger strike of miners; the transsiberian railway is planned to be locked on March 11 (viz. at T8!); Novoshakh

	3	Regional energetic crisis: enterprises are closed, central heating is turned off; Vladivostok (EB6)
	4	Duma has adopted the budget for '98 (See T8). Yeltsin signs the law on sale of Ros-Oil (up to March 14, viz. T8) and agreement with Ford Motors as to reconstruction of Togliatti car plant
	5	State Committee on Statistics: private savings in cash (\$ 300 milliards) two times exceed those in the banks
T8	11	International rating agencies decreased the rating of Russia. Duma adopts the financial result for '97 unsatisfactory
	12	Services are on strike; 1400 lifts are stopped; Norilsk Soviet of Federation (analogue of Senate) adopts the budget for '98 (See T3'). General strike (miners, teachers, doctors); for 2 hours the railway to Moscow is blocked; Solikamsk (EB3)
	17	Head of Taxation Administration: from 25 % to 50 %, 40 % in average, of GNP is produced by criminal structures

NEW INDEPENDENT STATES (NIS)

Mutual Relations

(i) Summit of NIS is outlined on March 19 (viz. T4'), but:

T8	13	Azerbaijan: the Security Council considers it inexpedient for the President to participate due to illegal delivering of arms from Russia to Armenia, etc.
	13	Info about illness of Yeltsin calls the Summit in question and causes decrease in stock market prices in Moscow by 2 % in average, which exceeds the fall, caused by the news about decreasing of rating
	15	President of Kazakhstan states ultimatum to Russia requiring to accept constructive decisions at the Summit and Parliament's aim to denounce the agreement on leading of Baikonur space-vehicle launching site
	15	President of Georgia had not confirmed his participation (as the President of Azerbaijan) due to uncertain position of Russia relative to attempt to his life (See below)
	16	President of Georgia has confirmed his participation, but Summit is postponed

(ii) Pri-Dniester Territory, self-separated region of Moldova

T4'	20	Odessa: Top-level talks between Russia, Ukraine and Moldova have not completed by assignment of the agreement as to settlement at the Pri-Dniester Territory
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(iii) Russia-Ukraine Relations (See [1])

Feb.	21	Major of Moscow (Russia) declares on presentation of new dwellings for Russian Navy officers in Sevastopol (Ukraine) that it is inadmissible to compulsory distribute usage of Ukrainian language in this city being the Navy base of Russia
Feb.	26	On Solar eclipse, President of Ukraine comes to Russia with the first (since the breakdown of the USSR) State visit for signing the long-term (10 years) State Agreement
Feb.	27	Signing of Russia-Ukraine Trade Agreement. President of Ukraine declares that "economic war" between Ukraine and Russia is over and estimates the Ukraine's losses as \$3 milliards. Besides, he states that Ukraine's debt to Russia for gas remains about \$ 1.2 milliard, whereas its branches of industry depend on Russia for 60 %- 100 %; Ukraine will not be striving to NATO, though many West-Ukraine politics accuse him in betraying of the interests of the State
T3'	4	Duma: scandal during hearings on ratification of General Agreement between Russia and Ukraine: a proposal is offered as to their confluence, the Ukrainian delegation is outraged and offered to leave Duma; Ratification is rejected due to not paying of debts, infringing of Russians and Russian language in Ukraine, etc.
	5	M. Albright warns Kiev against corruption and delivering a turbine to Iran under the threat to refuse in financial aid (See below). Ukraine's refusal to deliver turbine led to Russian's obligation to do this and Iran's declaration that "It is not required in such unre-

T8	10	liable partner as Ukraine is” Russia demands \$ 700 millions (viz. 30 % of Ukraine’s currency reserve) for the gas, but Ukraine agrees just to a lesser sum, Premier rejects (March 6, viz. T3’) to pay penalty for the 1.2 \$ milliard gas debt
T4’	17-	19 Discussing of the Ukraine-Russia border: “ It does not exist in nature; for determining it, even the charters of the 17 th century are studied now”
ARMENIA		
Feb.	4	Resignation of the President; President elections are set on March 16 (viz. T8)
Feb.	-	March Provocations at the line ceasing of fire in Nagorny Karabachos
T8	16	President elections of 16 candidates; rough violations are registered in each seventh polling station
T4’,	T5’	Second round of President elections
AZERBAIJAN		
T3’	3	Lack of consent at negotiations on building of oil-pipeline through Turkey
T8	11	Democratic Congress demands reassignment of the highest administration headed by President Aliiev
BYELORUSSIA		
T3’	4	President’s decree on providing farmers with land and right of succession, firstly since 1917
T8	13	-17 “Black Friday” of Byelorussian rouble (local currency): sharp drop of its rating by 25 %; for this, President accuses administration and foreign circles, dismisses several ministers
T4’	18	President orders enterprises of all types of propriety to return the retail prices to the level of March 1
	20	President accuses Russian and western democrats in dropping of Byelorussian Rouble, dismisses the Head of the National Bank
T5’	24	Russia terminates trade in Byelorussian Rouble until protectionist measures of Byelorussia are removed
GEORGIA		
Dec.	5-7	Tensions at Russia/Georgia frontier
Feb.	9	Attempt on President of Georgia (two bodyguards are killed). 10 to 20 bandits were firing the President’s car and shooting this action by video-camera (!); Tbilisi
Feb.	19	20 fighters attacked the UNO mission and kidnapped 4 UNO observers; by the threat to kill them, bandits demand the President to resign; Zugdidi
T8	14	Elections in Abkhazia (self-separated part of Georgia) being recognized illegal by Georgia and other countries have provoked violences
	14	Georgia/Turkey agreement on constructing an oil-pipeline which goes round Novorossiysk viz. Russia
LATVIA		
T3’	3	Large-scale meeting of pensioners against infringing the rights of Russian-speaking population has been dispersed by police buttons, which caused international resonance; Riga
T8	15	The Government has allowed meeting and procession of 500 veterans of Latvian voluntary legion SS (viz. Nazi’s guard), some of them are still accused in Nazi’s crimes; these, who were swearing Hitler, were met by pickets of mainly Russian pensioners, since anti-fascist demo was prohibited; Riga
	17	Demo (about 2000) against discriminating policy relative to Russians
T4’	18	Provoking poll via the Latvian TV: what will you do in case of armed conflict with Russia?
	18-	25 Russia and Israel protest against Latvia’s indulgence at fascists
TB’	Beg.	Of Apr. Explosion of Russian Embassy and synagogue in Riga

	8	Russian authorities appeal to impose economic sanctions against Latvia
UKRAINE		
T1'	24	The Head of Central Election Committee demands to change the law or to postpone elections to Verkhovna Rada (viz. Parliament)
Jan.	16	Great scandal in Verkhovna Rada: the report of the Head of Parliamentary Commission as to abusing their positions by Premier, Mayor of the Capital and other authorities within the sum of \$ 80 millions, and by the President's wife who used 80 % of the Child's Fund to the party NDP and 13 % - to the consultants, out of the total sum of \$ 800 millions
Feb.	5	M. Albright's ultimatum to Ukraine, which demands to dissolve contract with Iran for delivering a turbine and to overcome corruption which interferes American businessmen
Feb.	13	Minister of Information has ordered (!) to turn off direct broadcasting of the Verkhovna Rada sessions
T3'	3-5	After 18 months of stability, Ukrainian Grivna (viz. currency unit) has abruptly dropped by 7 %
T8	11	Intensifications of demos of Crimean Tatars for giving citizenship to all of them who come to Ukraine
	17	IMF holds up trenches to Ukraine due to growth of arrears etc. Due to lack of means, the inbuilt super-cruiser "Variag" is sold to China
T4'	20	Former Premier Lazarenko (dismissed on July 2, '97, viz. at T6!) being an oppositional party leader is accused in abusing and corruption in a week before the elections to Verkhovna Rada. Albright demands to allot the major part of the US's aid to overcoming the corruption; "her report to Congress will be negative"
T5'	23	Murdering of the regional head of administration; Lubni
	24	Violation of Crimean Tatars; their leader threatens to continue struggle with non-parliamentary methods; unification of Tatars and Ukrainian nationalists against Russian
	29	Elections to Parliament: acute polarization of groups

MERIDIANAL BELT EB3

(57° E – 67° E)

IRAN (See [1])

T2'	2	Iranian spiritual leader declares irreconcilability with the USA after positive announcement of Iranian President
Jan.	18	Earthquake (in S-W), 5 on Richter scale
T3'	1	EU dismisses restrictions for ministers as to attending Iran (See TB, T7)
T8	14	Earthquake (in S-E), 6.4 on Richter scale, at least 5 killed, 15 wounded
TB'	Beg.	Of Apr. Dismissing of the Mayor of Tehran and conflict between the spiritual and secular powers on this ground
	10	Earthquake, 5.9 on Richter scale, at least 10 killed – on the border with Afghanistan, where in '97 (at T3!) there were killed about 1500 people

IRAQ

Note.		Might be due to lying beyond the Meridianal belt, Iraq was not significantly marked by world-significant events during the active phase of the comet HB (viz. in 1997), though in 1998 it occurred on the crossroad of actions of those countries which were earlier marked by HB (USA, Russia, etc.). However, general influence of the comet HB is seemingly touched this country as well, as it could be concluded from the number of executions in 1997 (See T5').
T2'	3	Two missiles are launched into UNO building; Baghdad
Feb.	4-7	Request from Russia, Japan, and other countries to USA for not using the armed forces until closing of Olympiad
Feb.	4-10	Yeltsin declares that USA's military action against

WW		Iraq and expanding of NATO can lead to WWIII
Feb.	23	Agreement between Kofi Annan and Iraqi Authorities
T3'	2-4	Adopting of UNO's resolution on Iraq. Iraq is warned about severe consequences in case of not following this resolution
T8	13	Senate adopts the resolution putting the blame on Hussein
	16	Announcement about use of chemical weapons by Iraq against. Kurds in 1988 that killed tens of thousand people and caused cancer and genetic diseases
T4' ,	T5'	18-24 International scandal with accusing Iraq in importation of biological weapons in UK, which is rejected by Iraq
	24	Human Rights Int. Commission reports about 1500 capital punishments in Iraq in 1997, the statistic is based on the refugees' evidences

MERIDIANAL BELT EB4

(65° E – 85° E)

AFGHANISTAN (Afg), TAJIKISTAN (Taj)

Dec.	13	8 deputies of Taj. Parliament are dismissed of their inviolability due to participating in a coup d'etat
T1'	15	Crash (85) of Taj. airplane TU-154 in UAE
T2'	1-8	As a result of military operations (See T7) about 700 people are killed (Afg)
Feb.	7-9	Earthquake in Northern Afg., 6 on Richter scale: more than 4500 are killed, 300 thus. homeless, dozens of villages are destroyed
Feb.	7	Snow-slip in Hinu-Kush kills more than 70 people; Afg.
Feb.	8	Act of terrorism (10); Taj.
Feb.	17	Mud flows, victims; Afg.
Feb.	20	Earthquakes, up to 6.1 on Richter scale; Afg.
T3'	1,4,	6 Two Russian frontier and several contrabandist are killed at Taj/Afg border
T8	12	The third public execution in Kabul. 8 men are sentenced to capital punishment in Taj. for attempting to the life of the President in 1997 (See TB)
	13	Amnesty Int. applies to the President of Tajikistan with appeal for pardon
	13-14	Starting of desperate combats in Mazari-Sharif between the groups of North Coalition; Afg.
	17	5 people are killed in attack of a police station; Taj.
	17	Air crash (22) of Boeing 727; Kabul
T5'	23	Holding up of UNO's mission in Kabul due to unstopped actions against it; Afg.
	24	Collision of fighters of different groups (20 killed); Taj.
	25	Several attacks (more than 20 killed) onto police station near Dushanbe; Taj.

INDIA

Chain of acts of terrorism in connection of forthcoming parliamentary elections

Feb.	14-17	Seventeen explosions in South India: 24 killed, 120 wounded, 6 attackers committed suicide on attempt to arrest them
Feb.	21	Accident (16)
Feb.	24-27	New political murderings, explosions in trains, railway stations; victims
T3'	1	Completion of multi-stage elections has been marked by new victims (about 60)
T8	7	Threatenings, acts of terrorism in Kashmir
	13	The widow of Rajiv Gandhi is elected the head of the Indian National Congress
	15	Leader of Bharati Djanata party is appointed the Premier
T5'	24	Enormous hurricane: wind exceeds 500 km/H. 200 people are killed, few hundreds disappeared, dozens of thousand dwellings are destroyed

After-effects (May '98):

Several nuclear weapon tests and declaration as to possessing of missile carriers with

WW		1500-2000 km range of action. World-wide protests and new sharpening of India-Pakistan-China relations
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OTHER COUNTRIES

Jan.	27	Aircrash (14); Burma
Feb.	27	Bomb explosion (7); Pakistan
Feb.	28	Bomb explosion (8 killed, 23 wounded); Karachi
T3'	1	Arrest of 40 people accused in anti-government plot; Burma
	3	THE HEAVIEST flood over 200 YEARS: 40 killed, 200 disappeared; S-W Pakistan
	4	Explosion in a bus (36 killed, 250 wounded); Colombo
T8	13-15	Deporting of diplomat accused in espionage; Mutual accusing in terrorism (30); India-Pakistan
	11-15	Armed forces of Burma attacked the refugee's camps in Thailand

MERIDIANAL BELTS EB5, EB6

(104° E – 122° E, 119° E – 132° E)

CHINA, TAIWAN

T2'	9	Earthquake, 6.2 on Richter scale, 225 km from Peking –
	*	47 killed, 250 badly wounded, 2000 wounded
Feb.	16	Aircrash (200); Taiwan
Feb.	24	Closed Plenum: dismissing in leadership; Peking
T3'	3	Three more dissidents are arrested in China for their appeal to Government to democratize the country
	6	Official declaring the Plan as to dismissing of half of the state workers until 2000
T8	12	Dismissing of Vice-Premier; China. Exhumation and studying the body of an official who lived about 400 years ago
	16,17	Elections and appointments of the highest administration of China: on the phase of delaying of growth rate in '97-'98 the goal is declared of large-scale market-type reforms in economics

KOREA

T2'	Beg.	of Jan. More than 100 companies went bankrupt and 10 merchant banks declared failed; S. Korea
T3'	2	Declaration on hunger threat for hundreds of thus people in the nearest weeks; N. Korea (See TB)
	2-5	Rumours are spread throughout the world (from China's diplomatic circles) as to military coup d'etat in N. Korea
	3	President announces the staff of new Cabinet whose adoption was delayed by Senate for a week; S. Korea
T8	13	Due to increasing threat from abroad and military exercises, general mobilization is declared. From the night of March 12, the military law is set up; N. Korea
	14	Sharp decrease in foreign activity (e.g. Embassies are shortened by 30 %) is declared, until the hunger threat vanishes and economic state increases; N. Korea
T4'	18-20	Deadlock in negotiations between North and South Korea in Geneva: "No ways are seen for overcoming the crisis"

INDONESIA

T1'	19	Aircrash (104) of new Boeing 747 upon a good weather; Sumatra
T2'	8	Rupiah has dropped by 22 %
Feb.	2	Aircrash (more than 100): the plane crashed in a mountain
Feb.	14	Large-scale violations
Feb.	16	Announcement: more than 17000 foreign specialists left Indonesia during Jan.-Feb. due

		to fall of Rupiah and riots
Feb.	21	Rupiah has lost 75% of US dollar
Feb.	25	Once again, the fires propagate over Borneo after the last year conflagrations [1] which brought a damage of about \$ 1 milliard
T3'	3	Anti-government demos in Jakarta continue for the 3rd day
	6	IMF postponed aid to Indonesia
T8	10	Electional Assembly elects Suharto the President. Large-scale demos against electing Suharto and corruption
	11	Inauguration of newly re-elected President
	12	The Headquarters of Armed Forces threats to dissipate demos
	14	The government staff is declared, which is estimated negatively (President's eldest daughter, friends, etc.)
	15	Suharto refuses to fulfil the IMF's requirements as to escaping from the crisis; IMF postponed the second tranche of \$ 43 milliards
T4'	17	Dispersing of demos; 28 wounded
TB'		Conflagrations on Borneo have run put of control and are estimated as more dangerous than last year smoking
After-effects: Growing of demos in May has led to hundreds of victims and resulted in RESIGNMENT OF PRESIDENT who was governing the state for more than 30 years		
KAMPUCHEA		
T4'	20	Prince of Kampuchea obtains mercy after he was dismissed at T6 by accusing in coup d'etat
THE PHILIPPINES		
T4',	T5'	22 Aircrash (several people are killed and wounded)
MERIDIANAL BELTS EB7, EB68		
<i>(143° E – 156° E, 166° E – 177° E)</i>		
JAPAN		
After-effect: Record of unemployment since the WWII		
T1'	28	Coming of Boeing 747 into turbulence above the Pacific (1 killed, 10 wounded)
Feb.	21	Earthquake, 5.1 on Richter scale, in Nagano, during the Olympic Games.

4. APPENDIX

ESTIMATING THE PROBABILITY $P_{HB/SA}$ OF FORTUITY OF SYNCHRONISM BETWEEN THE HB'S TIME FOCUSES AND SSU MAXIMA

The probability of such synchronism for a separate Focus and local maximum of some SSN Cycle can be estimated by ratio of orb d (in days) determining the difference between the dates of SSN maximum and Focus, and duration D of this Cycle (in days):

$$p = d / D \quad (1)$$

A1. By assuming homogeneity in average distribution of 9 Focuses T6a, T6b, T7, T1', T31, T8, T4', T5', TB' over the 16 specified Cycles (See Table) and their coincidence with different maxima, we obtain the following estimate for the probability of general synchronism

$$P_l = p^9 \quad (2)$$

An average orb $d_{(1)}$ for the above Focuses (See Table) equals to

$$d_{(1)} = \frac{0+0+4+2+1+1+0+2+0}{9} = \frac{10}{9} \approx 1.11, \quad (3)$$

and average interval duration $D_{(1)}$ equals to

$$D_{(1)} = \frac{292 \text{ (days)}}{16 \text{ (Cycles)}} = 18.25 \text{ (days)}. \quad (4)$$

Hence, the estimate (2) for $P_{HB/SA}$ in this case takes the value

$$P_{(1)} = (1.111 / 18.25)^9 \approx 1.15 \times 10^{-11} \quad (5)$$

A2. Estimate now the same probability $P_{HB/SA}$ by having preliminary estimated the probability of fortuity of synchronism for conclusion (3) of para. 2.3.

Average orb for Focuses T7, T8, TB' equals to $d_{(2)} = (4 + 1 + 0) / 3 = 1.67$ (days). By also taking into consideration a record maximum of January 25 (though not presenting a splash of monthly average) which can but increase the estimate by an order of ten, an average per-maximum interval makes $D_{(2)} = (292/4) = 73$ (days). For these assumptions, the probability of fortuity of coincidence of these three Focuses with three of four SSN records is estimated as

$$P_{3F} = 4 \times (1.67 / 73)^3 \approx 5 \times 10^{-5} \quad (6)$$

Similarly to (1), average probability of fortuity of synchronism for each of the remaining six Focuses T6a, T6b, T1', T3', T4', T5' at average orb $d_{(3)} = 5/6$ and average interval (out of the remaining 12) $D_{(3)} = 36.5$ (days) makes $p_{(2)} = (5/6) / 36.5$. Hence, by analogy with (2) we obtain the following estimate for these six Focuses

$$P_{6F} = p_{(2)}^6 \approx 1.42 \times 10^{-10} \quad (7)$$

Thus, the resulting estimate for $P_{HB/SA}$ in this case takes the value

$$P_{(2)} = P_{3F} \times P_{6F} \approx 7.08 \times 10^{-15} \quad (8)$$

A3. Averaging of the estimates $P_{(1)}$ and $P_{(2)}$ gives

$$P_A = \sqrt{P_{(1)} \times P_{(2)}} \approx 2.85 \times 10^{-13} \quad (9)$$

By rounding the estimate (9) to the nearest greater power, we obtain that the probability of fortuity of synchronism between the HB's Time Focuses and SSN maxima might be estimated as

$$P_{HB/SA} = 10^{-12} \quad (10)$$

Of course, this estimate could be made more exact, but even if it would be increased by several orders, such a vanishing probability of fortuity speaks for itself.

5. CONCLUSIONS

In a broad sense, we may define the period of July '97 to April '98 a transient process of transferring the influence from the comet HB being on the phase of completing its mission to SA that starts to grow, which reveals itself in the following peculiarities.

1. It is rather difficult to understand the synchronism between the comet HB's Time Focuses and SA maxima, as well as their resemblance in influence in some other way than as relay-race where the "baton" of influence is transferred from HB to SA on the phase of impetuous starting of the next in order, 23rd, 11-year SA-cycle from the very beginning of which the Sun being esoterically considered the Heart and the Brain of the Solar System had turned its intent look to the Earth. The more so, the estimate of fortuity of this synchronism makes a vanishing value of $P_{HB/SA} = 10^{-12}$.

2. This formal synchronism is seemingly not the only sense, as it show the Summaries, in which the comet Hale-Bopp is opening the Gate of the Forthcoming Decade; High stability in tendencies of manifestations of the HB's factors of influence has allowed to indicate some countries and regions which could be supposed to present the places of future manifestations of the growing SA influence (as it was in Russia, Indonesia, etc.), since it is the Solar activity that started to exert its influence upon these countries during the transient process.

3. Besides, as kinematically defined Focuses of influence of the comet HB have come in resonance with the SA dynamic effects, so we may suggest that the Solar activity, this main dynamo of the Solar System, would have the appropriate "kinematic" colleague-assistants among the Heavenly bodies [5] through the planetary configurations of which it will be synchronously transferring the respective influence.

4. In compliance with that part the Esotery (H.P. Blavatsky, H.I. Rerich, A. Leo, etc.) assigns Uranus as analogue to Sun, which, thus, associates it with the SA, as well as by taking account of current position of Uranus in Aquarius, from where it directly "governs" Neptune and indirectly (via Neptune and sextile) - Pluto, we have good reasons to define the forthcoming 5-6 years (until Uranus finally leaves Aquarius) as the Local Age of Aquarius. This concept also corresponds to defining the current epoch the Age of Aquarius (that has started since the beginning of the XX century, H.P.B.), or a Subage Aquarius (1866 – 2045) as a fractal of the Age of Sagittarius [6], or the Age of Capricorn with particular importance of Uranus and Aquarius [7].

5. Besides, this forthcoming Age might be (1) impetuous, with respect to Uranus mighty being combined with the specified factors of influence intensified by the epoch of maximum of 11-year SA-cycle (about

2000-2003 [8]); (2) full of unexpectedness, due to the variety of properties the Uranus can manifest by himself; (3) all-embracing, due to conducting the SA/Uranus influence via the highest planets, not speaking about close ties which bond the world; (4) Severe, due to (i) forthcoming triennial, in a wide [9] sense, period of Uranus square to Saturn in Taurus, which, in particular, touches the Great Conjunction of Saturn and Jupiter within an orb of 2°, (ii) "battle" of Uranus and Saturn predicted in Agni-Yoga, and (iii) high status of Uranus in the Age of Aquarius/Capricorn; (5) probably more rich in significant events, due to the above considerations, than even the period of the preceding 11-year SA-cycle maximum epoch (about 1917) that took place on Uranus transit through Aquarius (1912-1920).

* * *

It is obvious, that these conclusions neither contradict, nor reject conventional astrological approaches, but make it reasonable to take account of the considered dynamic factors, as neglecting their influence would make it hard, if possible, to understand the source of might & expansion of the events to be, as it was in August '91, or in 1917. The more so, the grounds for growing of chaos are clearly seen.

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7. REFERENCES

8.

(The respective Site Reference is given in brackets)

1. [41, Sec. 9.2] S.V. Smelyakov. Whether The Comet Hale-Bopp Is Opening The Gate To The Forthcoming Decade? - Kharkov, 1997. - 28p. Also accessible at <http://www.isarastrology.com>
2. Daily Solar Data. - U.S. Dept. of Commerce, NOAA, Space Environment Center. <http://wvnmv.sec.noaa.gov>
3. [2] A.L. Tchijevsky. Space Pulse of Life. - Moscow, 1995.-768p. (In Russian)
4. [4] Cycles in Nature and Society. Iss. 1 and 2. - Proc. of 3rd Int.Conf. "Cycles in Nature and Society", Stavropol University, 1995. - 358p. (In Russian)
5. [5, **Part 2**] S. Smelyakov. The Golden Section in Synchronism of Solar Activity Cycles and Planetary Revolutions. - Kharkov, 1997.- 80p.
6. T. Landscheidt. A Report at Astrological Conference, Aalen, Germany, 1964. (In German)
7. [56, **Part 8**] S.Smelyakov. Whether the Age of Aquarius Would Strike the Bell? - Kharkov, 1996. - 17p.
8. [17] S. Smelyakov. Interval Approach for Super-long-term Forecasting of Sunspot Activity Maxima,- In: Numerical Methods and Error Bounds,- Math. Res. Vol. 89. - Berlin, Akademie Verlag, 1996, pp. 255 - 260.
9. S. Smelyakov. Discharging of Hades. Chernobyl Atomic Power Station Catastrophe: Forecast for Heightened Risk Periods.-Kharkov, 1998. - 16p.

9.5. The Focuses of the Comet Hale-Bopp – the Magic Spectacles for Seeing the Mosaic of the Mundane Trends?

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Smelyakov S. The Focuses of the Comet Hale-Bopp – the Magic Spectacles for Seeing the Mosaic of the Mundane Trends? Research Project, May 2, 2001 www.isarastronomy.com [85]

(The references are renumbered so as to correspond to the general list of the Site References; several misprints are corrected as well)

In [83] a forecast was presented for the year of 2001 that was based on the early [41] forecast for the influence of the comet Hale-Bopp (HB) for the year of 1997 with the following:

Factors of Influence:

- (1) natural calamities (tsunamis, gales, hurricanes; earthquakes, eruption of volcanoes; deaths on a mass scale from destruction, drowning, fire; loss of dwelling property; epidemics);
- (2) technogeneous catastrophes (ship wrecks, train, airplane, car crashes; destruction and fires (mines, bridges, etc; damage to agriculture);
- (3) social and political disorders and disturbances, mental and psychological collisions; illusions, terror, cruelty, aggressiveness; loss of relations, violation of physical frontiers and legislation,

Time Focuses:

***T1** December 21; ***T2** January 3; **T3** March 3; **T4** March 20; **T5** March 24; **TB** April 7 – 11; **T6** July 4, 14; **T7** September 16; ***T8** March 13, which are defined by dates, regardless of the year; here * denotes the Focuses with less pronounced (other conditions being equal) manifestations, and

Geographical Focuses (viz. meridians), which cover the USA, Western part of South America, UK and France, Central Europe (including Yugoslavia), Russia, Israel, Kenya, Afghanistan, India, Korea, Japan, Indonesia and some other countries.

Might be such global factors of influence as coming to New Millennium and to the New Age, the Age of Capricorn [56], around the current peak of the 11-year cycle of Solar Activity (SA), the first one before the last 11-year maximum that would take place before the predicted evolutionary shift in our civilization being associated with the termination of the Mayan Calendar in 2012 [Part 3], explain, provoke or somehow intensify (in addition to conventional astrological objects) other mundane sources of influence, both revealed and still unknown ones which, after then, were continuing to manifest themselves through the same (as above) factors of influence, and at the same Focuses, in addition to the moments of these events.

Thus, firstly it was proved [86], that the miraculous synchronism between the comet HB's Time Focuses and the splashes of Solar Activity took place in 1997 – 1998; and it is effective (See below) until now. Af-

ter then, it was shown that these Focuses are synchronous with the Great Conjunction (GC) of Jupiter and Saturn of May 28, 2000 and the Total Solar Eclipse (SE) of August 11, 1999 [Vols. 45, 63, 72, 74, 84 of Sec. 9.6]. Now, I may only add to that, that the comet Hyakutake (that, so to say, had heated the situation in 1996 for coming of the comet HB in 1997) was seen by a naked eye and its Celestial path made a cross with that of the comet HB and was similar in its influence [41].

At this, it is established [41, 56, 86, Sec. 9.6] that once some event pertaining to the listed above factors (1) – (3) took place at some Geographical Focus of the comet HB, the resembling events (independent, or such that develop the trend specified by the initial event) would, generally, take place at the subsequent comet HB's Time Focuses. Besides, the more close synchronism between the comet HB's Time and Geographical Focuses and the respective time and/or geographical parameters of the GC or SE with the respective Nation's chart take place, the more pronounced effect at this place and comet HB's Time Focuses one may expect. The more so, if the SA splash takes place at the moment.

And really, apart from examples given in [41, 56, 86, Sec. 9.6], we see that over the last few months - including the current Focuses of T2 (January 3) and T3 (March 3) of the year of 2001 - the world wide known events continue to develop the specified trends pertaining to the Factors and Geographical Focuses of the comet HB that started to manifest themselves in the respective countries since 1997. Though this statistics of events of extremal or record nature covers hundreds of examples, the attached Summary of events for some detected trends may present definite interest both for studying of this phenomenon and for forecasting purposes. For short, in the trends being listed below these are given the events which pertain, mainly, to the USA, Yugoslavia, Europe, Russia and Israel.

SUMMARY

(abbreviated relative to Factors of influence, countries and spectra of events)

Legend: T4(97) – the date for the Time Focus of T4 (viz. March 20) for the year of 1997; the same holds true for the remaining Focuses and years. In average, the orb for the events is 3 – 5 days, which corresponds to 3 – 5 degrees of Zodiacal orb for the Sun as the mutual positions of the Sun and comet HB in 1997 had specified these Focuses. The qualitative estimates for the events are taken from official statements and from mass media.

Solar Activity

Starting with the year of 1997, that is from the beginning of the 23rd 11-year Cycle of Solar Activity (SA), the most of local splashes of SA had shown [86, Sec. 9.6] close correspondence with the HB Time Focuses, as if the Sun itself had turned its face to the Earth. Last year there were two more events that might be considered as such that were organized by the Providence for energizing these Factors of Influence and Focuses: a *Solar Storm, the largest and most destructive since 1991* [Will Holley, <http://www.msnbc.com/news/432295.asp>] on July 14, 2000 (viz. *exactly at the Focus T6*) that was accompanied by an *explosion of the comet Linear* (about July 22) *the first comet to be seen in three years (after the comet HB!)* [ISAR Int. E-Letter, Vol. 90].

After that July splash, the average sunspot number (SSN) level was decreasing until March 2001, when the average level firstly began to raise since July 2000 and three local SSN splashes took place on March 4 (viz. at T3), March 12 (viz. at T8) and March 26, 28 (viz. at T5).

But those March splashes were only a prelude.

On March 29, that is within a 5-day orb (being equivalent to 5° of ecliptic longitude orb) of Time Focus T5, there emerged a tremendous region on the surface of the Sun that had the distinction of the largest sunspot group yet seen during Cycle 23 that occupied an area of 14 Earth's diameters. That region produced a massive solar flare being comparable with that of July 2000, and, what is important, from that region the Sun shot an Electromagnetic cloud (EMC) in the direction of the Earth. As far as an EMC, as well as Coronal mass ejection (CME), needs some time to reach the Earth, the issued EMC "shell" had reached the Earth and enveloped it on March 30 – 31.

On April 2,3 (viz. within an orb of the Focus TB), that region produced two X-class flares, one of which had the largest X-ray magnitude seen to date in Cycle 23 and, to some estimations, was the largest in 25 years. Space weather increased to extreme level on April 2. This series of diverse SA manifestations (X-ray emissions, sunspots, EMC and CME) had resulted in massive bombardment of the Earth in the subsequent two weeks which coincided with the distributed HB Time Focus TB (April 7 – 11):

During April 2-8 three more major flares took place. An extreme radio blackout, apart from moderate and strong ones, occurred on April 2; this category of radio blackouts is rare and normally causes adverse effects on high-frequency radio communication and low-frequency navigation signals for many hours on the entire sunlit portion of Earth. Geomagnetic storms occurred on April 4 – 5 and on April 8 were due to a series of CME passages at Earth associated with major solar flares; the latter ones normally result in adverse effects on power systems and high-frequency communications at high latitudes, and spacecraft operations.

During April 9-15, space weather increased to severe levels on April 11 and 15. One more large and complex sunspot group produced two Earth-directed CMEs on April 9, 10 as well as major solar flares on April 12, and 15. These flares caused category moderate to severe radio blackouts. The largest of these reached its peak on April 15. As well, they caused moderate solar radiation storms occurred during April 10 - 13 and April 15. Besides, the geomagnetic field was intermittently disturbed during the period as a series of CMEs passed Earth; the largest disturbance occurred during April 11 with geomagnetic storms reaching

the category of strong to severe levels (geomagnetic storms of this magnitude produce adverse effects on power systems, satellite operations, pipeline operations, high-frequency radio signals, and low-frequency navigation signals).

Floods and hurricanes

- T4 (97) Hurricane in Central Europe, the largest in a decade.
- TB (97) N. and S. Dakota, Minnesota: heavy floods, snowfalls – record of the XX century.
- T6 (97) Central Europe – record floods in a century; catastrophic floods in China, India, Chili.
- T7 (97) Hurricane in Mexico – the worst natural disaster to hit Mexico in a decade.
- T2 (98) France, UK – the heaviest gale in a decade.
- TB (98) Tornado in the USA – the worst over the period of registration.
- T2 (99) Heavy snow storm in the USA.
- T4 (99) A sequence of heavy earthquakes from the USA to Asia.
- TB (99) Heavy hurricanes, floods in America, Asia.
- T6 (99) Every day of this week was marked by an extremal cataclysm throughout the world.
- T3 (00) Hurricane in Western Europe – forests are heavily damaged: more than 100 years are required for restoring them; about a hundred of victims. For a week, the earthquakes, volcanoes and floods were shaking the world.
- T6 (00) The most powerful Solar storm (July14, 2000) in 11 years. the most powerful flood in Southern Europe over a decade.
- T7 (00) The record shower in a century, Japan.
- T2 (01) Krasnoyarsk (Russia) – the record fall of temperature in 85 years.
- T3 (01) Earthquakes in Salvador (for a week), Washington;
Continuous and heavy snowstorms and floods in the USA, snowstorms in Moscow (the largest in winter) and Sakhalin (the largest in 20 years, state of emergency);
Flood in the Central Europe: the level of water in pre-Carpathian lowlands exceeds the ever recorded (for 150 years) levels.
- T8 (01) It is announced (March 11) that in the most regions of Russia the accumulated amount of snow is the largest in 50 years and 2 – 3 times exceeds the norm; this means the possibility of very dangerous floods in March;
Japan (March 12): hundreds of whales had thrown ashore.
- T5 (01) Hiroshima earthquake (March 24) – most powerful in 15 years; 2 victims.
Peak (March 24-26) of powerful floods in Western Europe, especially severe in France.
- TB (01) Peak of the flood in France, the most powerful in 80 years
USA: powerful tornadoes in several states – snow storms (50 cm a day), winds (30 m/sec); roads and airports are blocked, 50 000 people are without power supply
Afghanistan is declared to be hit by the most severe drought in 30 years

Epidemics and large-scaled chemical poisoning

- T7 (97) National health emergency in Chili is declared due to epidemic of hantavirus; Large-scale microbial affliction of fish, Maryland; Cholera epidemic exploded in Kenya.

- T3 (97) First successful cloning (of a sheep) is carried out in Scotland (association with T8 (98) and T5 (01)).
- T8 (98) Starting of inquest as to the beef virus.
Declaration of the World Health Organization: the threat of tuberculosis now exceeds the level of danger being ever registered and requires prompt actions.
- T4 (98) Attempt to make an act of terrorism with biological weapon (siberian plague), Nevada.
- TB (98) Before-Eastertide poisoning of several groups of Catholic priests in Colombia.
- T1 (99) - T2 (00) The largest, after Chernobyl, catastrophe in Europe: the cyanides from Romanian's plant have poisoned Danube river.
- T7 (00) Canada – catastrophe at a chemical plant.
- T3 (01) UK – in several days, the epidemic of foot-and-mouth disease (F.&M.D.) propagates over the territory of the GB; this disease was not met for 20 years.
- T4 (01) Scandal with a large scale import of nuclear waste to Russia; this project was called in the Parliament “the swindle of the century” (See T5 (01)).
- T8 (01) First case of F.&M.D. (France, March 13) on the continent;
Sensational declaration of the French Ministry of Health (March 13): a human being may also fall ill with F.&M.D., and no effective remedy exists.
It is declared that the U.K. had never faced such an epidemic of F.&M.D.
- T5 (01) The U.K.: damage from the F.&M.D. is estimated as \$13 billions
The “genetic” sheep Dolly is queued up to slaughter due to danger of F.&M.D.
Mass graves are started to be filled with hundreds of thousands of carcasses.
Unprecedented Greenpeace protests against import of nuclear waste to Germany for recycling; in its turn, the scale of the police operation in Germany was unprecedented as well.

Mental and psychological “epidemics” and collisions

Ritual self-murdering and monstrous crimes

- T5 (97) Ritual self-immolation, Canada (March 24, 1997);
39 followers of the “Heaven’s Gate” cult had committed suicide in San Diego, USA (March 26, 1997).
- T5 (98) Religious fanatics appeal to follow God Who will take people to another planet on March 31, 1998.
- T4 (00) Self-burning of 700 followers of the “Day of Doom” cult, Uganda.
- T4 (01) Moscow: 3 beheaded women and a man with the slashed chest are found in a basement room being decorated with candles and flowers (the 19 years old murderer was caught in the day of crime)
- T5 (01) 400 corpses and dozens of skulls were conveyed to Germany from Novosibirsk (without the will of the departed), where German doctor Hoggy was making of them the opened out “sculptures” for a German museum.
A married couple in the US had adopted a Russian child and monstrously tortured him
- TB (01) Netherlands’ Senate has adopted the law which allows euthanasia, firstly in the world.

Schoolboy-killers

- T5 (98) Arkansas – 5 victims, 10 people are wounded (March 24, 1998).
 TB (99) USA – victims (April 9, 1999).
 T3 (01) California – 2 victims, 15 people are wounded (March 5, 2001).

Fans

- T3 (98) Colombia – splash of fights, 110 victims.
 TB (00) Turkey – fight of football fans.
 Chili – fights between tennis fans and police during the Chili-Argentina match.
 T6 (00) Republic of South Africa – 13 victims at the international football match.
 T3 (01) Venezuela, Brazil, Panama – hundreds of people are killed and hundreds are wounded on the carnival grounds.
 TB (01) Republic of South Africa – 50 victims as a result of jam at a football match

Pilgrimage

- TB (97) Hadj: 343 victims, more than 2000 are wounded during the fire in the Mecca tent camp (April 12, 1997)
 TB (98) Hadj: 118 people are trampled down to death, 100 are wounded (April 9, 1998).
 T1 (98) 11 members of an American sect are arrested in Israel and deported to the USA for provoking violence.
 T4 (00) Firstly in 35 years, the Pope went to Palestine. This voyage caused a large scale protests of Israelites and Moslems; unprecedented security measures were undertaken by Israel: 30 000 policemen and 4000 soldiers were engaged for providing his security.
 T3 (01) Hadj: at least 35 people are trampled down to death (March 5, 2001).

Air crashes and spacecraft fails

Crashes and fails in this sphere were taking place as if by the signals of the alarm-clock being scheduled to the comet HB Time Focuses [2, 5 – 6]. Thus, for the last period the following most known aircraft accidents might be noted

- T6 (99) The J.F. Kennedy Jr. Catastrophe
 T2 (00) Indian airplane is highjacked and landed in Afghanistan
 T3 (00) Round the world balloon flight of American pilot is terminated in Asia.
 TB (00) Arizona, USA: air crash, 19 victims.
 T6 (00) Russia: helicopter had crashed with 16 top sportsmen and crew.
 T7 (00) Ukraine: deputy minister crashed during a demonstrative flight at air show.
 T3 (01) Georgia, USA: air crash, 21 victims.
 T8 (01) By blunder, the US fighter had bombed (March 12) an observation post in Kuwait: 5 American and 1 New Zealandian servicemen are killed, 10 are wounded;
 Turkey (March 15): Russian airplane with 162 passengers and crew is highjacked in Istanbul by two terrorists. After landing in Medina, they demanded to fly to Afghanistan (See T2 (00)).
 T4 (01) **Two (!)** crashes of Mi-8 helicopters (March 19) in Russia (3 victims) and Ukraine (6 victims)
 T5 (01) **Two (!)** US military jets F-15 crashed in Scotland, 4 victims.

- TB (01) Collision of **two** planes (April 2): US spy plane and Chinese jet (1 victim); (April 11): spy plane crew flew to Hawaii. Note: By blunder, the US missile the Chinese embassy in Yugoslavia in 1999, around the same focus TB.
Kosovo: crash of KFOR helicopter, 2 victims.

The same holds true for Russian, US and Ukrainian **space flights**. In particular:

“Mir” station: even the decision to remove it from the orbit is put into life by the comet HB Focuses: the date of this operation was declared about T7 (00) and was specified as the end of February, viz. T3 (01). Then, in winter this date was changed to March 20 (viz. T4, exactly), but about T3 (01) it was said the station might be directed to the Pacific Ocean at any moment within the interval of March 13 to 20 (viz. T8 – T4) since it began to descend with the increased speed. Successful reentry of the station on March 23, at T5.

The launching of the Shuttle to the space station on March 10, 2001 (viz. at T8) was accompanied by some fails, as well as coming of the astronauts to a free space on March 11. Landing of the Shuttle was planned on March 18 (viz. T4). Landing took place on March 21, at T4.

Besides,

- T3 (01) about March 4 it was announced that American scientists had firstly discovered the actual “Black Hole”, the existence of which was theoretically predicted many years ago, by analyzing the photographs of the sky that were made in 1992 (!).
- T4 (01) strike of Russian space crew in Houston with the demand to allow American space tourist D. Tito to fly with them.
- TB (01) launching of Russian spacecraft Proton-M was delayed due to technical fails;
US agreed to allow D. Tito to be included into Russian crew.

Railway accidents

The railway accidents also show a trend to occur near the Focuses of the comet HB [2, 5]. Thus, the most known ones that took place in Europe over the last year are:

- T2 (00) Norway: up to 60 victims – the largest catastrophe in the history of this country.
- TB (00) Norway: new railway accident.
- T3 (01) UK: one of the largest catastrophes in the history of the GB, the third over 3 years and the second on the Focus (after that of 1999, near London);
Russia: collision of a train and a car, victims.
- TB (01) Moscow: one of the city underground lines is closed as it was flooded.
Canada: train left the metals at a speed of 80 km/hour; two dozens of hardly wounded.

The same trend holds for explosions (both terroristic and technogeneous), car accidents, destruction of bridges, houses, mines throughout the Geographical and Time Focuses of the comet HB.

International and state affairs

AFGHANISTAN

In continuation of the preceding distribution of events over the Time Focuses for this country [2, 5], note the monstrous crime of the current regime – destruction of the Buddhist monuments, the culmination of which comes to the beginning of March, that is to T3, when the UNO and almost all other countries had declared their demand to immediately stop this vandalism; nevertheless, within several days before and after the date of March 3 (viz. T3) two most large monuments of Buddha being engraved in a rock were exploded by talibs with dynamite and shot from the tanks. On March 13 (viz. T8 exactly) the CNN publishes the first photos of the destroyed statues of Buddha.

YUGOSLAVIA, KOSOVO

In continuation of the preceding distribution of events over the Time Focuses for this country [2, 5, 6], it is interesting to consider the following chain of events.

T3 (98) Sharp worsening of situation in Kosovo (victims, etc.) and political declarations of the USA and Turkey on this matter.

T4 (98) EC discusses sanctions against Yugoslavia.

T5 (99) Exactly on the Focus, on March 24, NATO starts bombardments of Yugoslavia.

NOTE: major events with NATO also follow the HB's Focuses.

T6 (99) First information in mass media (July 16, 1999) as to uranium shells that was ignored.
Large scale anti-Miloshevich demonstration in Yugoslavia.

TB (00) Unprecedented security measures are undertaken by the NATO headquarters against the most known terrorist Ben Laden

T7 (00) The peak of crisis associated with the presidential elections in Yugoslavia; the navy of some countries approach Yugoslavia.

T2 (01) “Balkan Syndrome” – the world scandal has exploded by the publication in The Guardian which is associated with leukemia and deaths of NATO soldiers caused by the American uranium shells (See T6 (99)) that were used in Yugoslavia in 1999.

T3 (01) Yugoslavian officials declare that Miloshevich will be arrested later in March.
Illegal bands of Kosovo's Albanians invaded Macedonia, shelled KFOR and Serbia. KFOR headquarters allowed Yugoslavian forces to defend Macedonian and Serbian borders in Kosovo, which means failure of the NATO mission in Yugoslavia.

T8 (01) Refutation of the previous statement that Milosevic will be arrested later in March;
Unprecedented mass-meeting of Albanians in Skopje (March 13): “Demonstration of force”;
Combats (March 14) between the illegal Albanian armed groups and Macedonian police.

T4 (01) Intensification of combats in Macedonia. The Government imposed a curfew and started to mobilize the reserve.

T5 (01) Shooting in Skopje; Ultimatum to Albanian rebels: to surrender or to leave Macedonia.

TB (01) Milosevic is arrested in Yugoslavia. The European Court issues the warrant to arrest him;
Bosnia and Herzegovina: capturing of 10 hostages;
Shelling of Russian KFOR group: a sergeant is killed; protests of Russia, NATO, UNO.

ISRAELI-PALESTINIAN RELATIONS

In continuation of the preceding distribution of events over the Time Focuses for this country [2, 5, 6], it is interesting to consider the recent chain of events:

- T6 (00) 9-day USA-Israeli-Palestinian negotiations had finished without success.
Resignation of the President of Israel, firstly in the history of this state, due to accusation in corruption.
- T7 (00) The last week of September 2000 – the most powerful Palestinian disturbances over the decades; dozens of victims, hundreds of wounded people.
- T2 (01) Three terroristic explosions in Israel. Sharp worsening in Israeli-Palestinian relations; shootings, declarations as to coming of war actions.
- T3 (01) Forming of new government of Israel is carried out in the environment of acts of terrorism, victims, explosions, shooting, mutual ultimatums. Blockade of the Autonomy had resulted in \$ 1500 million damage to it.
- T8 (01) Palestinians attempted (March 12) to break the blockade: 1 victim, dozens of wounded.
- T4 (01) Killing of Israeli settler caused complete blockade of Bethlehem
- T5 (01) The days of the most powerful Palestinian protests over the last weeks; shelling, victims
- TB (01) Crash of hopes for achievement of peaceful regulation. Israel declares starting of new settlements. Mortar shelling of Israeli settlements. Israel considers this as declaration of war. Rocket and tank shelling of Palestinian and Lebanon territories.

STOCK MARKET, CURRENCY, ECONOMY

In continuation of the preceding distribution of events associated with the stock market crises (since the Focus of T7 – September 16, 1997) over the Time Focuses [2, 5, 6], it is interesting to consider the recent chain of events, up to the point T8 (01) lying in opposition to the Focus T7:

- T2 (99) Euro is put into force.
- T6 (99) Record (in 20 years) fall of price on the gold (July 6, 1999).
- T7 (99) Maximal price of oil over 2 years (Sept. 14);
Dow Jones has fallen by 120 points (Sept. 15);
Russia-USA-Swiss scandal as to the Bank of New York (Sept. 16 – 20).
- T3 (00) Dismissing of the Vice-President of the Bank of New York;
Merging of the two largest German Banks to one, the largest in the world.
- T8 (00) Second the largest fall in exchange of the Japan and Korean indices of stocks in their history.
- TB (00) Unexpected stock market crisis (Asia, USA).
Florida: “historical” judgement as to the penalties to be implied to tobacco companies.
- T7 (00) Ukraine (Sept. 8): this year’s harvest is declared to be the lowest in the 20th century;
Powerful Solar activity splashes (Sept. 12 – 14);
Maximal price of oil in ten years (Sept. 15);
Indonesia stock exchange crisis (Sept. 16);
Europe: unexpected fall of Euro (Sept. 17);
Russia: beginning of unprecedented state attack onto oligarchic capital; political crisis in Moscow (Sept. 9 – 16).
Europe: peak in strikes and road blocking in protest to high price of fuel (Sept. 14-17).
- T2 (01) Record raising of Euro to US dollar; sharp oscillating of stock markets over the world.
- T8 (01) Unexpected agreement on delivering of the weapons to Iran that is announced (March 12) during the visit of the Iranian President to Moscow – the first one since the Iranian Revolution;
Absolutely “unexpected” stock market world wide crisis had started on March 13: the US high tech shares had fallen by 62%, the Japan stock index had fallen to the lowest level in 16 years.

- In two days, the Dow Jones had fallen below the red line. Mass media (March 15): “Such unlucky week was not seen for 15 years”; London: “One of the most hard days since 1984”
- T4 (01) Sensation: The Central bank of Russia is accused in illegal operations.
- T5 (01) Declaration of the General Prosecutor Office: per year drain of funds from Russia, mostly illegal, comprises \$20 – 25 billions.
- TB (01) Boom at oil market caused by the rumors concerning the “death” of the King of Saudi Arabia.

ESPIONAGE SCANDALS

In continuation of the preceding distribution of events associated with the implicit and explicit passing of the borders of states (since September 1997) over the Time Focuses [2, 5], it is interesting to consider the recent chain of events in the sphere of “secret” infiltration:

- T8 (98) A report is published in Sweden (March 12): for a few years the Swedish Navy were registering not Russian submarines, but seals.
- T7 (99) Belgium (Sept. 14): Two KGB’s caches are disclosed.
- T8 (00) Zimbabwe (March 10): several boxes with the UK diplomatic post are illegally opened
- T5 (00) U.K. (March 25): it is announced that the Prime Minister of the UK had allowed recording and hearing of the world wide electronic communication networks, including the talks of her ministers, through the British-US-Canadian “Echelon” system.
- TB (00) (April 7) Chief of the German security service had semi-officially come to Chechnya. US citizen is arrested in Moscow and accused in espionage.
- T7 (00) Japan navy officer is arrested for espionage in favour of Russia (See below). Bulgarian mass media specify Russian embassy as the center of espionage in Bulgaria (See below).
- T3 (01) New sensational accusing (February 26) of the President of Ukraine in corruption (for about \$ 1 000 millions) made by a former Ukrainian security officer who secretly escaped to the West. Russia (March 2): the largest security service operation in Moscow airport that resulted in capturing of 400 tons of contraband and \$60 000; Radioactive cargo from the USA is captured in Krasnoyarsk airport; A Chinese is captured at Khabarovsk airport (March 3) who attempted to take secret drawings to China.
USA: sensational publications in the American newspapers disclose the US security service operation as to digging a tunnel to the basement of the Embassy of Russia.
Japan navy officer is sentenced (March 7) for collaboration with Russia (See T7(00)).
Moscow mass media (March 7): Russian diplomat and security service agent run away to Canada; he is supposed in disclosing of the FBI agent who worked for Russia.
- T8 (01) Series of arrests in Bulgaria and, firstly in Bulgaria-Russia relations, declaration on possible deportation of Russian diplomats being accused in espionage.
- T4 (01) Bulgaria deports 3 Russian diplomats. In its turn, Russia demands 3 Bulgarian diplomats to leave Russia (See T7 (00)).
Urgent departure of Russian diplomat Frolov from the USA; he is associated with the scandal with the disclosed FBI agent R. Hanssen.
CNN: the USA will probably initiate a large-scale deportation of Russian diplomats (firstly in 15 years). These deportations are also associated with R. Hanssen. Mass media: “The war of embassies”.
- T5 (01) 3 Russian diplomats leave Bulgaria.
The USA deports 4 Russian diplomats, while 40 more have to leave the US until July (viz. T6). In two days, Russia does the same action.
- TB (01) One of the CIA authorities had committed suicide; he is also associated with the affair of R. Hanssen.

9.6. An Astrological Background of the Acute World Trends

by Prof. Sergey Smelyakov

Foreword

This report presents an approach that might be used in Mundane Astrology, both independently and together with a national chart. It allowed to forecast some actual trends and events that started to develop with a new might in definite countries since 1996; they were gathering strength with sequential passing of the comet Hale Bopp's Time Focuses that, in resonance, were accompanied by the splashes of Solar activity. Starting with September 11 attack, the most actual of these trends have unified into a common world wide process, as if the Rubicon was crossed from the implicit, or intra-national, growth of tensions to explicit, or international, attempts to settle the disclosed problems on a world wide scale. The obtained results clearly show that the steadfast development of the situation in the USA and Afghanistan, as well as in Israel and other countries is far from its completion, and allow every astrologer being familiar with the basic techniques to use the presented critical points in her/his analysis.

After completion of this report on December 12, 2001, the events pertaining to its subject began to develop over the Focuses so intensely, that the author was required to describe them in Appendices (March 29, 2002), as well as a newly discovered comet that came to resonance with these Focuses.

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Part I. Factors of General Influence

1.1. Introduction

By taking account that the comet Hale Bopp (HB) Focuses of influence are still effective [1,2], and that the Solar return chart of the USA came to a strained resonance with the July 5, 2001 Eclipse and the event and progressive charts of the comet HB, in development of the forecast for the year of 2001[3], where it was noted that the manifestations might be amplified if the Solar activity (SA) splash took place around the Time Focus, I paid special attention to the Time Focus T7 of September 16 (to be considered with an orb of 5 days being equivalent to 5° of Ecliptic) [4]. As in many previous cases, a powerful SA splash actually took place a week before T7 and, within a 5-day orb of T7, the terrorist attack happened.

Though the forecast [4] has not predicted that three jets would strike the WTC and Pentagon (if such accuracy could ever be reached with astrology) as well as subsequent war in Afghanistan, it was the only one being known to the author that quite exactly described the situation with respect to time, place and type of events, which, on a tragic scale, repeated the events around T7 in 1997. But whether this coincidence is determined or accidental?

As we may see this from the below consideration, the grounds exist for rejecting an accident in favor of the following statements:

1. The comet Hale Bopp influence exists and might well be predicted.
2. Knowing of this influence allows us to clarify the astrological roots of the September 11 attack, as well as its connections with Afghanistan, apart from the HB influence onto Israel and other countries, especially when the national charts are insufficient.
3. Treating of the comet Hale Bopp charts with the national ones provides us with additional tools for mundane forecasting, at least – for half a decade.

1.2. Comets Hyakutake and Hale-Bopp and their Apex at Algol

In January – April of 1996, the comet Hyakutake being seen with the naked eye has circumscribed an arch over the Northern Hemisphere. On the basis of its trajectory and conjunctions it was forecasted by the author that during its spring transit it would exert a Saturn/Mars influence and could cause accidents in social processes, engineering systems, fires and floods with victims. The manifestations of its influence were acknowledged, though the respective events were not so pronounced as in the case with the comet Hale Bopp.

The Ephemeris for the comet Hyakutake might be taken at [5] by entering MPEC's number 1996-C06 (Minor Planet Electronic Circular number 1996-C06); the comet positions are given there at 2-day steps for 0 hours UT.

Meanwhile, the orbital period of the comet Hale Bopp (HB) had been decreased, primarily by Jupiter, from 4200 years (before entering the Solar System) to 2380 years. That is why the Ephemeris for this comet were published sequentially, as extensions to the initial part of its trajectory. From Autumn 1996 to Summer of 1997 at 5-day steps they might be taken at [6] by entering the IUAC's (Int. Astronomical Union Circular) numbers 6507, 6547, 6671, and from March 1, 1997, at 1-day steps, - at [7]. At last, with the use of additional observations, through March 13, 1997, the corrected comet HB's Ephemeris for the period since March 15 were summed up in [8] at 1-day step. That is why in the below consideration the sources [5, 6] were used for the period of up to March 1, 1997, and [7, 8] for the subsequent period.

As far as the Ephemeris [5 – 8] are given in Equatorial System for the epoch of 2000.0, care must be taken for obeying the accuracy to seconds of Right Ascension both on transforming them to the position of the

required date and on calculating the time and coordinate of conjunctions. Otherwise, an error of 1 sec of R.A. leads to error of 15 sec of arc which, in correlating the cometary position with respect to the Sun, gives an error of 6 min of time for a stationary object (e.g. may give an error of up to 1.5 degree for As or Mc, or geographical longitude), and up to 15 – 20 minutes of time when the HB/Sun conjunction is searched. Hence, an error of several sec of R.A. (e.g. n sec) may give an error in several (n · 1.5) degrees for As and Mc, or up to several (approximately n/2) min of longitude for Sun/HB conjunctions.

In December 1996 – July 1997 the comet Hale Bopp (HB) that was remarkably seen with its huge tail had also circumscribed an arch over the Northern Hemisphere that made a cross with the trajectory of the comet Hyakutake. The Apex (viz. the Celestial point of intersection of trajectories) of this cross makes

Apex = 3h 1m 19.15s in R.A., 39° 45' 50" in N.decl., for the epoch of April 10, 1997, in Ecliptic, this value makes **Apex = 24° TAU 26' 30.8"**,

and almost exactly coincides on the Celestial sphere with the star **Algol** (3h 8m 0s R.A., + 40° 56' for the same epoch) and, in R.A., with **Menkar**, whereas the Sun at this moment conjuncts **Baten Kaitos**. Note, that all these three stars are well known for their Saturn nature. Moreover, both these comets passed this Apex almost on the same dates – on April 11, 1996 and on April 10, 1997 (See the line **Apex** in the **Table**, below).

The influence that was attributed to the comet HB was defined in a conventional astrological way – with the due regard of its conjunctions (first of all – with the Sun) and their configurations. At this, the following principle of resonance was used for unification of these influences: the more times the event repeats and the lesser its orb, the greater the influence this event will exert, whereas the types of planets, stars and aspects define the factors of influence. In brief, (See [1-3]) these are

FACTORS OF INFLUENCE:

1. **Natural calamities**; deaths on a mass scale from destruction, drowning, fire; epidemics;
2. **Technogeneous catastrophes** (ship wrecks, train, airplane, car crashes); destruction and fires (mines, bridges, etc); damage to agriculture;
3. **Social and political disorders and disturbances**, mental and psychological collisions; illusions, terror, cruelty, aggressiveness; loss of relations, violation of physical frontiers and legislation.

GEOGRAPHICAL FOCUSES (defined by meridians):

cover the USA, Western part of South America, UK and France, Central Europe (including Yugoslavia), Russia, Israel, Kenya, Afghanistan, India, Korea, Japan, Indonesia and some other countries.

TIME FOCUSES:

- T1, December 21** (Dec 21, 1996, GMT 14:07 - Sun ingr. to Capricorn and HB's origination area);
- T2, January 3** (Jan 3, 1997, GMT 8:02:07 – Sun conjunct HB);
- T3, March 4** (Mar 4, 1997, GMT 1:40:54 – Sun conjunct HB);
- T4, March 20** (Mar 20, 1997, GMT 13:55 – culmination of HB at Solar ingress to Aries);
- T5, March 24** (Mar 24, 1997, GMT 4:45 – Lunar Eclipse, etc.);
- TB, April 7 – 11** (Apr 7 – 11 – Cometary Apex, etc.);
- T6, July 4** (Jul 4, 1997, GMT 21:33:05 – the last Sun/HB conjunction), **July 14**;
- T7, September 16** (Sep 16, 1997, GMT 18:51 - Lunar Eclipse opposing Eclipse of T5);

T8, March 13 (Mar 13, 1998, GMT 4:34 - Lunar Eclipse complying to T5, T7).

The Time Focuses T2, T3 and T6 are obtained by Ecliptic conjunctions of the Sun and comet HB, the remaining ones – by Eclipses and other events being actual to Sun/HB interaction [1]. As the Focuses are defined by the Sun, *the dates may be used regardless of the year*. At this, as the dates of Sun/HB conjunction in Right Ascension fit the orbs of the above given Focuses, they were not presented earlier. However, for the purpose of this work, e.g. for subsequent use of the Astro*Carto*Graphy and Local Horizon maps, we take them into consideration and denote T2*, T3* and T6*, resp. (See the **Table**, below).

The trustworthiness of these Focuses and Factors of influence was verified on the basis of a 5-year collection of the record-type events [1- 2]. And even the forecast [4] for the Focus T7 of September 16 states that (in bold the text is marked for this case): "the distribution of the record-type events over the Geographical and Time Focuses of the **comet Hale-Bopp still shows no signs of cardinal fall in influence**. So, we may **expect a series of events of extremal nature around the forthcoming Focus of September 16 around the specified regions (first of all - USA, Balkans and Central Europe, Moscow and some other regions of Russia, Israel, India, Afghanistan, Japan, China, Indonesia)** where it showed its power quite exactly, as well.

During the previous years, this Focus was also marked by natural calamities, but, **first of all**, - by a **splashes in air** and space **crashes, fires** and other **technogeneous catastrophes**. ... As well, several times this Focus marked a **splashes in mental collisions, social and political disorders, and military operations**.

So, in two weeks we will see, whether the **combined influence** of this **comet**, several **eclipses** and **Solar activity** is still effective, or is falling down".

Thus, once again, the Focus of September 16 (within the orb of 5 days that corresponds to 5 degrees of the Ecliptic) had marked itself, but this time - with the unexpectedly great tragedy in the USA on September 11. It was followed by Anthrax attack (viz. threat of epidemics), and military operations in which, firstly after the W.W.II, Germany and Japan agreed to participate. Even damage to agriculture took place (e.g. due to prohibition of flights in the USA).

Apart from other events (e.g. financial crisis) and countries, we may remember that within a three day orb of this Focus (September 16, 1997) the comet HB manifested itself with the following series of tragic events, when, as now, **LARGE NUMBER OF DEATHS** took place that caused special actions, **NEW YORK and BOEINGS WERE CONCERNED** and the **FLIGHTS of F-117A were PROHIBITED** in the USA (!): Sept. 13 Disappearance of the USA's C-141, 9 victims, and German's Tu-154, 24 victims (the last one is believed to be the second worst disaster for German Military Forces since WW II). Sept. 14 - crash of F-117A, Baltimore. Sept. 15 - The US Air Force temporarily grounded its fleet of F-117A "stealth" fighters. Sept. 17 - crash of UNO's helicopter, 12 victims. Sept. 19 – Two Boeing 747 had a near-collision close to New York. "Air Force officials began an investigation over the September 20 into six crashes of a US military aircraft in a week ... In all 16 Americans have died in the U.S. military crashes since Spt. 13". Over two weeks (Sept. 13 - 26) not less than 315 people were killed in air crashes (including 234 people in A-300 airbus in Jakarta), that makes 140% of the first half-year amount!

1.3. Local Splashes of Solar Activity versus the Focuses of the comet Hale Bopp

During an 11-year cycle of Solar activity (SA), the duration of which may vary from 7 to 17 years, the average level of SA varies from the lowest level (0, if the sunspot number is taken) to the upper levels (the upper daily sunspot number may take values of up to 300 units and even more, but several times a cycle); then, the average level decreases to the lowest values. At this, the daily SA levels also decrease and increase with a period of 2 to 5 weeks; the maximal value within such period presents local maximum, or splash of the SA. In further consideration, the **sunspot number** index is considered [9] which correlates with other indices and is the most simple one for general use. However, as far as the sunspots, X-ray and coronary mass ejections, as well as other types of SA are subjects for the cause and effect, you are to consider the "exact" days of maximum with an orb of 1 to 3 days.

It is known that splashes of SA, as well as high levels of SA, exert the influence [10] which is similar to the factors of influence of the comet HB. The analysis shows [2, 11] that with the very beginning of the 23rd 11-year cycle of SA, viz. since July – August of 1997, the local splashes of SA take place in a close vicinity (0 – 2 days, which might be equaled to 0 – 2 degrees orb) of the Time Focuses of the comet HB. At this, an extreme synchronism between the HB's Time Focuses and SA maxima attracts great interest by itself, as the probability of fortuity of this coincidence for the year of 1998 [11] might be estimated as $P_{SA/HB} = 10^{-12}$. For comparison, this value is several dozen times lesser than the ratio of a poppy-seed and the Earth's radii.

Moreover, this synchronism continues until now. Thus, last year there were two more events that might be considered as such that were organized by the Providence for energizing these Factors of Influence and Focuses: a Solar Storm, the largest and most destructive since 1991 on July 14, 2000 (viz. exactly at the Focus T6) that was accompanied by an explosion of the comet Linear (about July 22) the first comet to be seen in three years (viz. after the comet HB!). Further on, the largest SA splashes in 2001 took place in the vicinity of the Focuses T5 [2] and T7. Besides, on April 2,3 (viz. within an orb of the Focus TB), the Sun produced two X-class flares, one of which had the largest X-ray magnitude seen to date in Cycle 23 and, to some estimations, was the largest in 25 years; the subsequent diverse SA manifestations (X-ray emissions, sunspots, coronary mass ejection) had resulted in massive bombardment of the Earth in the following two weeks, which coincided with the distributed HB Time Focus TB (April 7 – 11). This coincidence that takes place for the fifth year might be considered random, but just with a fantastically small probability of approximately 10^{-50} .

From materialistic point of view an event with such vanishing probability can be considered as impossible, though from Theosophical point of view this may denote the only thing, that the Sun being the Brain and the Heart of the Solar System has turned its intent look to the Earth by aimingly participating in the Earthy processes on the phase of rise of its activity within the 11-year cycle through directing complementary energy flow in conjunct with the HB's Focuses. By analogy with physics, we may say that the SA presents the dynamical (viz. energetic) factor of influence in addition to conventional astrological consideration of statical and kinematical factors which specify planetary positions and movements, resp.

Besides, two more historical examples are worth to be mentioned (note, that since the procedure of calculating of sunspot number implies assigning the value to a date, each observation has a natural orb of 1 day, for the Globe in the whole). In 1991, on the second crest (after that of 1989) of the 11-year maximum, the sunspot level has raised by 4 times in 11 days and on August 21 it reached an extremely high value of 300 units (a yearly maximum); note, that namely in those days, August 19 – 21, the coup d'etat in the USSR took place that had mortally wounded it, and in the subsequent days its Republics had started to proclaim independence. In 2001, on the second crest (after that of 2000) of the 11-year maximum, the sunspot level had raised by 2.5 times in 11 days and on September 9 it reached an extremely high value of 291 units (nearly a yearly maximum), and two weeks later – even the level of 320 units, whereas September showed the maximal average of the year.

1.3. 11-year Cycles of Solar Activity

In 1924, A. Tchijevsky [10] publishes the results of his investigations devoted to distribution of the important historical events (IHE) of extremal nature (revolutions, wars, riots, etc.) where he has shown that: as soon as the SA approaches its maximum, the number of IHE, taken as whole, increases, approaching its maximum during the 11-year SA maximum. At this:

1. at the first phase (ab. 3 years), at minimum of SA, the tension of the all-human military-political activity falls to its minimum;
2. at the second phase (ab. 2 years), when the SA starts to increase, excitability and tension grow and form themselves in definite manifestations;
3. at the third phase (ab. 3 years), when the SA varies around its maximum, the problems arisen on the phase 2, apart from new ones, are solved in a revolutionary or military way;

4. at the fourth phase (ab. 3 years), a decline of excitability and tension takes place when the after-effects of the phase 3 problems are smoothed (viz. are developed to their solving in a more or less civilized way) and define the course of events.

Thus, the years of SA maximum for the XX century are as follows: 1905 (war between Russia and Japan, 1st Revolution in Russia), 1917 (Revolution in Russia, W.W.I), 1929 (world wide economy crisis), 1937 (large-scale repressions in the USSR and Germany, actual starting of W.W.II in 1938 by annexation of Austria), 1947 (threat of WWII), 1957, 1968 (the USSR brings troops in Czechoslovakia), 1979 (the USSR brings troops in Afghanistan), 1989-1991 (war in Iraq, dissolving of the USSR), 2000-2001 (war against terrorism). As the last two cycles show two crests maxima, both years for them are given.

1.4. Conclusion relative to the Factors of General Influence

The cometary "cross" with its Apex at Algol, as well as the comet HB's Geographical and Time Focuses exerting Saturn-like influence had started the chain of events over the specified countries including the USA, Yugoslavia and Albania, Israel, Russia, Afghanistan, India, Indonesia etc. Those events have formed the trends, which are developing since the very beginning of the period of growth of Solar Activity and in resonance with its splashes, till its current 11-year maximum. At an extreme splash of SA near the comet HB Time Focus T7, this 5-year "heating" of local regions has led to a series of important world-wide events, since the monstrous September 11 attack resulted in a quick world-wide political and military consolidation of those countries in a war against terrorism.

The "axis" of this polarization was marked by the track of the August 11, 1999 Eclipse being associated with the comet HB Focuses [12], that overshadowed the regions from the N-E of the USA, through the GB, Central Europe and Balkans, Middle East, Afghanistan and Pakistan – up to India. (As far as I remember, it was Nick Campion who noted that a similar Eclipse track had marked the W.W.I).

One more factor of global significance being actual for these days is the influence the Uranus exerts from the last degrees of Aquarius at the maximum of 11-year SA cycle. In the previous time, this combination took place in 1917 (Revolution in Russia). Indeed, we may suppose that at the current SA cycle and transit through Aquarius the Uranus has not yet said its last word, the more so the world-wide trends have just taken an explicit international manifestation and not all the resonant comet HB's Focuses are yet passed (See Part II).

Such a dramatic perspectives correspond to coming of the Earth to the Age Of Capricorn in a sense that the Tropical 0° point comes to 0° point of Capricorn of the Solar Zodiac [13], and vice versa, namely at the beginning of this Millennium. At this, the Solar Zodiac is determined as a natural affiliate to the Tropical one – by the Solar system and Galactic Planes. In particular, this increases the actuality of the 0° point of Capricorn, in the close vicinity of which the Solstice Meridian, Ecliptic a Galactic Equator intersect on the background of the Galactic Center. No wonder that this point (viz. Time Focus T1) also participates in the HB's play!

As well, this dramatic course of events corresponds to sharp intensification of events of world-wide importance that is prescribed both by the Mayan Calendar, and by its Golden Section structure [14] reflecting the Geocosmic, Spiritual and other crucial moments of our civilization.

Part II. Planetary Factors of Influence

2.1. Introduction

From the one hand, it is hardly possible to assume that making use of only national chart may be sufficient for predicting such extremal for the USA event as unprecedented strike of September 11 and subsequent world-wide military action against the extremists; the more so, that several charts are still proposed for the USA, and the chart for September 11 attack does not contain essentially more difficult situation than those that took place in the preceding decades.

From the other hand, though the factors of general influence being considered in the Part I show the critical points where the Cosmic Energies may influence the Earth, they are not sufficient, by themselves, for use in forecasting with respect to statical and kinematical peculiarities of the national charts.

That is why it is more natural to unite these two approaches on the basis of principle of resonance which implies that it was a system of planetary configurations the reiteration of which had developed a definite set of sensitive points that could trigger a process in a country provided some "innocent" transiting and/or progressive planet would hit some of these points in the national chart directly, or through a hard configuration. And namely this situation takes place with the USA, Afghanistan, Israel, as well as with some other countries. However, due to the lack of space, we will prove the applicability of this principle on the example of these three countries, and for the former two – in a more detailed way.

For the USA and Afghanistan, the brief scenario of drama for the current moment is as follows. In their recurrent conjunctions, the Sun and comet HB "dance" has specified a set of Focuses which conjunct, square and oppose the natal Sun of the USA and the 0° Capricorn point (for this point, see also para. 1.5) being essential for Afghanistan. After then, for several years [1, 2] these Focuses were heating the situation throughout the world, including these two countries, until the progressive Sun, from several Focuses, had conjuncted the America's natal Sun, apart from other sensitive points of the progressive charts of the USA.

The possibility of the events like September 11 attack and possible April and June 2002 incidents were highly increased by the July 5, 2001 Eclipse at (and within the scope of) the Solar Return chart for the USA on the Focus of T6, when the *Eclipse Sun (13 CAN 39)* conjuncted and opposed the *Solar arch Sun of the Focuses sa T2* (13 CAP 55)* and *sa T6* (13 CAN 25)* with the average of *(13 CAP/CAN 40)*. In Astro*Carto*Graphy and Local Horizon maps, these and other actual events for the USA are linked with Afghanistan, and in many cases touch Washington and Kabul.

As a result, when all the charts have come to a resonance, with a support of extra energy poured by a SA splash (See para. 1.3) into the crucial planetary configurations at Focus T7, the overheated boiler has exploded with covering the world with a splashes of blood and terror.

2.2. Planetary Cast and Dance Steps

As far as the principal events take place, first of all, under the pressure of principal causes, it leaves us little chance to understand the astrological background of the September 11 attack through a routine correlation of hundreds of natal and progressive charts for the HB's Focuses, USA etc. As it follows from the below analysis, it is more fruitful to preliminary detect the comet HB's "Planetary Cast" and their "Dance Steps" – that is the set of planets being most actual in their recurrent configurations, and only then to use this principal data in correlation.

Thus, for the basic reference points for the comet HB these are taken three HB/Sun conjunctions with respect to Ecliptic longitude – T2, T3, T6, and to Right Ascension (R.A.) - T2*, T3*, T6*, respectively. For these points the charts for Washington and Kabul are considered (See the **Table**). Other HB's Time Focuses, as well as the Hyakutake/Hale-Bopp cometary Apex at Algol are also actual as static critical points, but as they are defined by Eclipses and other actual points with respect to the principal ones, they are not

used in kinematics, viz. in progressions, except of T1 that initiates the the HB Focal sequence (See also para. 1.5).

For the USA and Afghanistan basic reference points these are taken the ascending Gemini chart [15] and Capricorn. The latter choice is quite obvious as this sign clearly reflects both the highland and desert landscape of Afghanistan, and the archetype of its inhabitants. As to planets, the Moon and Saturn are taken as the dispositors of Sun for these countries; besides, Moon is actual as the symbol of Islamic extremists who were very active during the elapsed 5 years at all HB Geographical Focuses, from Algeria to Indonesia [1, 2, 11].

Further on, the comet HB Planetary Cast (PC) and Dance Steps (DS) are correlated with the USA and Afghanistan, as well as with Israel charts with the use of Astro*Carto*Graphy (ACG) and Local Horizon (LH) maps, in statics and kinematics. Besides, the America's July 4, 2001 Solar return (USS) and July 5, 2001 Eclipse (ECL) charts for the USA and Afghanistan are used, since the latter is involved in the scope of the former one.

The analysis of correlation between 8 pairs of charts for the HB Focuses (lines T1 – T6 of the **Table**) and charts of USS and ECL (lines USS and ECL of the **Table**), as well as comparison of these 10 pairs of charts with the charts for the New York Attack (NY) and the USA (US) (lines NY and US of the **Table**) show who are the "stars", and what "dances" are still might be seen in a future.

This analysis was carried out under the following **Agreement**:

1. Only conjunctions, squares and oppositions are considered with an orb of up to 1°, if not specified otherwise. For this reason, as well as for the sake of saving space and increasing readability, in the below consideration the symbols of these aspects are omitted, when appropriate.
2. Only T-square and Grand Cross configurations are considered with an orb of up to 5° (3° in average), if not specified otherwise.
3. Only those midpoints are considered which are formed by *As/Mc* or PC-planets at a PC-planet or at an angle with an orb of up to 1° (in several cases an orb of up to 1.5° is taken for the recurrent midpoints).
4. For the comet HB charts, only the Sun is used in solar arc directions.
5. For the ACG and LH map lines, an orb of up to 1.5° of geographical longitude is used, which is equal or twice less than an uncertainty in the position of the comets HB and Hyakutake with respect to the accuracy of 1 to 2 sec of R.A. of existing Ephemeris [5 – 8].

With the aim to simplify the subsequent notation, make use of the following clear references to the **Table** elements, where ecliptic longitude might be omitted:

SU T2, *SU T2 (12 CAP 59)* denotes the Sun for the time of Focus T2;

sa SU T2 (17 CAP 46) denotes the Solar arc directed Sun of T2 For September 11, 2001;

Mc W T3, *As K T3* denotes *Mc (As)* for Washington (Kabul) for the time of Focus T3;

sp SU US denotes the secondary progressed Sun for the USA.

The positions of the *sa* and *sp* planets are given for September 11, 2001, if not specified otherwise.

Under these assumptions we obtain that the following set of planets (without taking account that Moon and Saturn are considered as rulers), including *Mc* and *As*, forms the **Planetary Cast**:

$$PC = \{SU, MO, MA, SA, UR, NE, PL, (As, Mc)\},$$

as both these planets and their midpoints participate in all 10 cosmograms (19 charts, resp.) from T1 to ECL either explicitly, in the specified aspects and/or configurations, or implicitly – through the midpoints, though it is Uranus that made explicit aspect, but once.

TABLE. The Event Data for the Comet HB Focuses and Accompanying Charts

Designation, Date, GMT	Sun		As	Mc	Moon	Mars Saturn	Uranus Neptune Pluto
	Natal	sa dir. for Sep 11, 2001	for W for K	for W for K			
T1 Dec 21, 1996 14:07:00	00 CAP 00	4 CAP 49	25 CAP 02 24 CAN 51	17 SCO 36 12 ARI 22	21 TAU 50	25 VIR 27 0 ARI 54	2 AQU 43 26 CAP 28 4 SAG 01
T2* Dec 30, 1996 17:04:50	9 CAP 18	14 CAP 5	14 ARI 18 8 VIR 55	7 CAP 53 6 GEM 40	13 VIR 26	28 VIR 48 1 ARI 16	3 AQU 12 26 CAP 47 4 SAG 20
T2 Jan 3, 1997 8:02:07	12 CAP 59	17 CAP 46	15 SCO 13 3 TAU 58	24 LEO 10 21 CAP 1	27 LIB 22	0 LIB 0 1 ARI 27	3 AQU 24 26 CAP 55 4 SAG 28
T3 Mar 4, 1997 1:40:54	13 PIS 31	18 PIS 03	16 LIB 10 9 PIS 1	18 CAN 31 17 SAG 23	4 CAP 41	1 LIB 37 6 ARI 56	6 AQU 46 29 CAP 3 5 SAG 36
T3* Mar 21, 1997 10:15:36	0 ARI 50	5 ARI 17	6 PIS 43 20 LEO 6	16 SAG 58 14 TAU 32	0 VIR 37	25 VIR 10 9 ARI 4	7 AQU 33 29 CAP 30 5 SAG 33
Apex Apr 10, 1997 5:33:24	20 ARI 24	24 ARI 44	4 CAP 2 7 CAN 31	26 LIB 44 20 PIS 15	27 TAU 12	18 VIR 44 11 ARI 32	8 AQU 14 29 CAP 50 5 SAG 19
T6* Jul 1, 1997 9:25:50	9 CAN 35	13 CAN 35	3 CAN 58 3 SCO 29	12 PIS 32 7 LEO 43	28 TAU 48	5 LIB 33 19 ARI 32	7 AQU 46 29 CAP 6 3 SAG 18
T6 Jul 4, 1997 21:33:05 (New MO 18:39)	12 CAN 55 (12 CAN 48)	16 CAN 55	3 SAG 20 2 GEM 29 (28 LIB 36)	18 VIR 13 12 AQU 56 (3 LEO 17)	14 CAN 20 (12 CAN 48)	7 LIB 17 19 ARI 42	7 AQU 39 29 CAP 1 3 SAG 14
USS Jul 4, 2001 15:56:28	12 CAN 44		27 VIR 20	26 GEM 57	1 CAP 51	16 SAG 43 9 GEM 22	24 AQU 20 8 AQU 3 13 SAG 9
ECL Jul 5, 2001 15:03:49	13 CAN 39		15 VIR 58 21 CAP 11	13 GEM 57 11 SCO 15	13 CAP 39	16 SAG 32 9 GEM 29	24 AQU 19 8 AQU 2 13 SAG 8
NY Sep 11, 2001 12:45:00	18 VIR 51		14 LIB 10	16 CAN 29	28 GEM 4	1 CAP 27 14 GEM 45	21 AQU 50 6 AQU 21 12 SAG 38
US Jul 4, 1776 7:13:40	12 CAN 44		7 GEM 14	13 AQU 38	18 AQU 10	20 GEM 57 14 LIB 47	8 GEM 53 22 VIR 24 27 CAP 34

NOTE. On Ecliptic, the *Apex* for comets Hyakutake and Hale-Bopp is (**24 TAU 26.5**).

Apart from other hard aspects (n.1 of Agreement) between the PC planets, in all 10 cosmograms, except of T6, exist a *T-square*; in six of them **Mars opposes Saturn**, whereas *in the last ones it shares its part with*

Pluto, explicitly, in conjunct, or through a midpoint. The double squared point in these T-squares is occupied: 3 times by *NE/PL*, 2 times by *SU* and *MO*, and once – by *UR*, *MA/SA*, *SA/NE* and *PL/UR* midpoints.

At this, some PC element is conjunct: 7 times by the midpoints *SA/PL* and *MA/NE*, 3 times by midpoints *As/Mc*, *SU/NE*, *MA/SA*, *MA/PL*, *SU/SA*, *SU/PL*, *MO/SA*, and 4 times *Saturn* is square or sesquiquadrate **Pluto**. At the last Focus, T6, *PL* conjunct *MA/NE* sesquiquadrates *SA* conjunct *MO/SA* and *SU/NE*, whereas the *SU* conjunct *MO* at *MA/SA* squares both *MA* and *SA*.

The steps of this dance are quite clear and predictable; in a definite way, they are summed up in the July 5, 2001 Eclipse (viz. ECL, Table 1) charts:

- the *As* of the Kabul's ECL chart coincides with *Ds* of the Kabul's and *As* of the Washington's charts for T1, whereas the *As* of the Washington's ECL chart coincides with Washington's *Mc* (18 VIR 13) of T6 (for importance of this, see para 2.3) and *SU NY* (18 VIR 51);

- in the chart for Washington:

1. The Sun of ECL, *SU* (13 CAN 39), at *N.Node* and *MA/NE* conjuncts the Solar arc Sun of T6*, *sa SU T6** (13 CAN 25), and is opposed by the Moon of ECL, *MO* (13 CAN 39), at *S.Node*, which in its turn, conjuncts the Solar arc Sun of T2*, *sa SU T2** (13 CAP 55) in semisextile to *NE* and *MA* conjunct *PL*. At this, the average of *SU T6**, *sa SU T2** makes (13 CAN/CAP 40), viz. exactly the Sun/Moon position of the Eclipse!

2. the *MA*, *PL*, *Ic* conjunction opposes *SA* at *Mc* and both these groups semisquare and sesquiquadrate *UR*, as if all 7 PC-planets and angles have prepared, at the America's Solar return, to start their parts on looking along the *Moon-Sun arrow to the Natal Sun of the USA*. Note, that this arrow repeats the *SU/SA*, *JU* arrow to *MA* (18 VIR 44) of the future Sun of the NY chart (in addition to the above *Mc*).

2.3. Trutina Hermetis in the USA/Afghani Synastry

Consider the pairs of midpoints *SU/MO* and *As/Mc* from the one hand, and the angles *As* and *Mc* from the other hand, for all 11 charts T1 – NY of the **Table** in a chronological order: one sequence of pairs for Washington, and the other – for Kabul. (Note, that for this consideration the geographical difference between Washington and New York city is insignificant). Then, the Focuses of the comets Hyakutake (via the *Apex*) and Hale Bopp define the following correspondence resembling the Trutina Hermetis for these sequences of charts.

The Rule of HB's Focal Synchronism

1. The *As* or *Mc* of the subsequent event coincides with the preceding event midpoint *As/Mc* or *SU/MO* being disposed in the same cross, Cardinal, Fixed or Mutable (viz. it is rotated by 0°, 90° or 180°), or vice versa.

For example, the first four transitions, from T1 to T3, for Kabul are as follows (positions are rounded to degrees):

SU/MO T1 (11 PIS) --> As T2 (9 VIR)*
As T2 (9 VIR) --> As/Mc T2 (12 PIS)*
As/Mc T2 (12 PIS) --> As T3 (9 PIS)
Mc T3 (17 SAG) --> SU/MO T3 (16 GEM)*

At this, more than one transition may take place. For instance, the transitions from T2* to T2 and from ECL to NY for Washington are as follows:

Mc T2 (8 CAP) --> As/Mc T2 (5 LIB),
 SU/MO T2* (11 SCO) --> As T2 (15 SCO),
 As/Mc T2* (26 AQU) --> Mc T2 (24 LEO),*

*SU/MO ECL (14 CAN/CAP) --> As NY (14 LIB),
 SU/MO ECL (14 CAN/CAP) --> Mc NY (16 CAN),*

The exceptions to this rule make transitions from T6* to T6 for Kabul, and from Apex to T6*, from T6 to USS and from USS to ECL for Washington, where the midpoint **SU/MO** at T6 stops its miraculous alterations from Mutable to Fixed cross points (**11 PIS, 11 SCO, 5 SAG, 9 AQU, 16 GEM, 9 TAU, 19 GEM** and **(13 CAN 37)** at T6 that emphasizes the above mentioned situation at the Eclipse of July 5, 2001). Nevertheless, the correspondence at this Focus is provided by repeating of the **Mc** at T6 by **Mc** of T6* for both Kabul and Washington, and by repeating of the **As, Mc** and **SU/MO** points of T6 at USS and ECL, though with a larger error.

The error of existing 16 coincidences (without exceptions) makes 1.3° of Ecliptic longitude for Kabul charts, and 2.9° - for Washington with maximal deviations of 3° and 6°, resp.

2. Moreover, this rule holds not only for the adjacent events, but also for a large part of those charts that are separated by 1, 2 and even more events. For example, for Washington:

As/Mc T2 (5 LIB) --> As Apex (4 CAP) --> SU/MO USS (7 LIB).

3. Besides, in a quarter of transitions to adjacent charts the midpoint **SU/MO** takes the value of **As/Mc**, and vice versa, and **As (Mc)** takes the value of the preceding **As (Mc)**; as well, they may also follow the condition 2 of this Rule. For Washington, the examples are as follows:

*SU/MO T2 (5 SAG) --> As/Mc T3 (2 VIR),
 As Apex (4 CAP) --> As T6* (4 CAN).*

NOTE. For the subsequent analysis these are important the transitions from the ECL (viz. July 5, 2001 Eclipse) to the NY (viz. the chart for the September 11 attack, New York) charts:

Kabul: *Mc ECL (11 SCO) --> SU/MO NY (8 LEO),*
 Kabul, Washington: *SU/MO ECL (14 CAN/CAP) --> As NY (14 LIB),*
SU/MO ECL (14 CAN/CAP) --> Mc NY (16 CAN).

Thus, with taking account of both conditions 1 and 3 of this Rule, that is even without considering of non-adjacent transitions and without taking account of presence of other correlations, we obtain that for all 11 charts T1 – NY the **error of existing 20 coincidences** makes 1.7° of Ecliptic longitude for Kabul charts, and 3.2° (or 2° without the USS chart) - for Washington, with maximal deviations of 5° and 7° (6°), respectively.

This is very high precision of synchronism, since the uncertainty of the HB's Ephemeris makes 1 to 3sec of **R.A.** which correspond to 1.5° - 4.5° of Ecliptic longitude for **Mc** and **As**, since they are defined by conjunctions of Sun and comet HB (See para.1.2).

In the terms of the Trutina Hermetis we may conclude that each of the events in the sequence of T1 to NY of the Table presents a "conception" for the "birth" of the next (and even all subsequent!) event(s).

In other words, the Rule of HB's Focal Synchronism establishes a mysterious 11-fold algebraic correspondence between the Washington and Kabul through the comet Hale Bopp's Focuses!

2.4. Astro*Carto*Graphy (ACG) and Local Horizon (LH) Effects for the USA, Afghanistan, Israel, U.K. and Somali

A substantial involvement of the USA and Afghanistan, as well as Israel, the UK, Somali and some other countries into 10 events T1 – ECL is also clearly seen from the ACG maps for these events. At this, the LH-maps for the same PC-planets show close correspondence between these countries.

When considering the planetary lines in these maps, one must remember that the Sun should be interpreted with taking account that it reflects the properties of the **Sun/HB** conjunctions with hard aspects. Note also, that due to variations in its trajectory, a relatively large angular dimension and heterogeneity of the comet HB, the longitude of its center might be accurate (See para. 1.2) to within 1 –3 sec of R.A., which, in average, correspond to 12 min of time, or 3° uncertainty of ACG lines in geographical longitude (about 200 miles for the regions considered). This orb of 3° is considered below, if not specified otherwise.

Only PC-planets are considered. Latitudinal intersections are not listed below.

Afghanistan

ACG (K denotes that the line crosses Kabul):

T1 **NE Ds** (K), **UR Ds**

T2* **PL Ic** (K), **MO As**

T2 **MO Ds** (K), **SU Mc**, **NE Mc**

T3 **SU As** (K), **PL Mc**

T3* **UR Ds** and **MO As** - 4° to W and E from Afghani border, resp.

Apex **MA Ic** (K)

T6* **UR Ic** (K), **NE Ic**

T6 **UR Mc**; **NE Mc** and **PL Ds** - 5° to W and E from Afghani border, resp.

USS **UR As** (K)

ECL **SU Ds**, **MO As**

LH: the following Washington's planetary lines cross Afghanistan:

SA Apex, **MO T3**, **UR T6***, **MA USS**, **PL USS**

The USA

ACG: though a large number of angular PC-planetary lines cross the territory of the USA, the most dense net of these lines and latitudinal intersections are spread in the following regions: about 200 miles of continental territory along the Western and Eastern shores, and about 300 miles Eastward and Westward from the meridian of Denver.

In these regions, the lines concentrate around San Francisco, Los Angeles, Florida, and North-Eastern United States, especially in Maine.

(NY) (W) (LA) (SF) denote that the line crosses New York, Washington, Los Angeles, San Francisco

T1 **NE As** (NY), **SU As**, **SA Ic** (SF, LA), **MA Mc**, **UR As**

T2* **SU Mc** (W), **NE As**, **UR As** (SF), **PL Mc**, **MO Ds**, **MA Ds** and **SA As** (Detroit-Atlanta), **ME Mc**

T2 **SU Ic** (SF, LA), **NE Ic** (Denver), **UR Ic**, **MO As**,

T3 **PL Ic** (SF), **SU Ds** (LA), **MA As**, **MO Ic-SA Ds-NE Ic** cover Oklahoma-Memphis Meridians

T3* All PC-planets, at some angle lines, cross the USA;

Apex **NE Ic**, **UR Ic**, **SU Ds**, **MO Ds**, **PL As**, **MA Mc**, **SA Ic**, **SU Ic**

T6* **SU As** (NY), **ME As**, **NE Mc** (SF, LA), **UR Mc** (Tucson), **MO As**, **PL Ds** (Kansas City);

Besides, almost all PC-planets, at some angle lines, cross Alaska.

T6 **SU Mc**, **MO Mc**, **MA As**, **NE Ic**, **UR Ic** (LA), **PL As**

USS **MO Ic** (Portland), **UR Ds** (Las Vegas), **SA Mc** (Kansas City), **PL Ic** (Memphis), **MA Ic**

ECL The New York and Washington almost exactly (within dozens of miles) are crossed by the lines of **MA Ic ECL** and **PL Ic ECL**, resp.

Besides, **NE Ds** (SF), **UR Ds** (Denver), **SA Mc ECL** (Cleveland – Jacksonville).

Thus, if the planetary configuration on July 5, 2001 Eclipse presents a prelude to September 11 attack (See para. 2.2), or a bow, the Moon-Sun arrow of which is directed to the America's natal Sun being coincided and opposed by several natal and progressive positions of the HB's Sun, the Eclipse ACG map makes this target more exact by its *MA Ic ECL*, *PL Ic ECL* lines.

LH: the following Kabul's planetary lines cross the USA:

MA (Apex), *PL T2**, *PL T3*, *MO T3*, *UR T6**, *UR T6*, *SU T2*, *NE T2*, *UR T2*.

In brief, consider now the A*C*G and LH situation in Israel and the U.K., where the situation strictly follows the HB's Focuses from 1997; now, London is actively engaged in anti-terrorist activity, Somali is accused in supporting terrorism.

For the LH maps, W (K) stands for the lines of Washington (Kabul, resp.).

Israel

A*C*G:

T3 *NE As*

T3* *SA Mc*

Apex *MO As*

T6* *MA As*, *SU Mc*

T6 *SA As*, *SU Ic*, *MO Ic*

USS *MO As*

ECL *MA As*

LH:

T2* *NE*, *UR* of W

T2 *MA*, *SA*, *MO* of K, *UR*, *NE* of W

T3 *SU*, *MA* of K

Apex *PL*, *MO* of K, *MA* of W

T6* *MO*, *SA*, *PL* of K, *SU* of W

T6 *SA* of K

ECL *UR*, *NE* of K

Somali

A*C*G:

T1 *SU Ds*, *SU Ds/MA Ic* intersection in 4° Eastward

T2* *UR Ds*

T2 *MA Ds*, *SA As*

Apex *MO As*, *PL Ds*

T6* *SA Ds*

T6 *SA As*, *SU Ic*, *MO Ic*

ECL *MO As*, *SU Ds*

LH:

T1 *MA*, *SA* of W

T2 *PL* of K, *NE* of W

T3 *PL* of W

T3* *SU*, *MA*, *SA* of K

Apex *MA* of W

T6* *SU* of W

T6 *SU*, *MO* of K, *UR* of W

United Kingdom (L – London)**A*C*G:**T1 *UR Mc* (L), *MO As* (L), *NE Mc*T2* *MO Ic*, *MA Ic*, *NE Ds*T2 *SU As*T3 *MA Mc*, *SA Ic* (L)T3* *MO Ic* (L), *PL Ds*Apex *SU As* intersects with *SA As*; *MA Ds*T6* *MO Mc*, *PL Ic*T6 *UR As* (L), *SU Ds*, *NE As*ECL *UR Ic***LH:**T2* *PL* of WT2 *UR* of WT3* *PL* of KApex *SU* of K, *MA* of WT6* *SU*, *NE* of WUSS *SA* of WECL *PL* of K**2.5. Synastry Resonance between the USA and Comet HB's Charts**

Consider the basic synastry between the USA chart (US, the last line in the **Table**) and the PC planets of the comet HB' Time Focuses, which cause the resonance in position and dance steps, by using the orb of up to 1°. At this, taking account of the Agreement of para. 2.2 allows us in most cases to shorten description to enumerating of planetary positions, as only conjunctions, squares and oppositions are considered and Ecliptic positions themselves are given in the **Table** or could be obtained from those values. Remember, that the *sa* and *sp* planetary positions for the USA chart are given for September 11, 2001, if not specified otherwise.

SU US (12 CAN 44) is almost exactly opposed and conjuncted by *SU T2 (12 CAP 59)*, *SU T6 (12 CAN 55)*. At the first Focus T1, in 1997, the *sa SU US (21 AQU 40)* squares the *MO T1 (21 TAU 50)* of Afghanistan and its own Solar dispositor, while at last Sun/HB conjunction at T6 the *MO T6* approaches the *SU US*, while the Solar return Sun of 1997 conjuncted by Moon.

As US (7 GEM 14) is squared by *sa PL T6 (7 SAG 14)*, *sa PL T6* (7 SAG 18)* and trines *UR T3 (6 AQU 46)* to *UR T6 (7 AQU 39)*.

ME US (24 CAN 28), the ruler of the America's Ascendant, conjuncts the angles of the first Focus: *Ds W T1 (25 CAP 2)* and *As K T1 (24 CAN 51)*, the basic chart for Afghanistan.

MO US (18 AQU 10), the ruler of the America's Sun, in the chart of the USA coincides with *MA/SA*, *SU/NE* and trines *MA* and *SA*, whereas *SA = MO/UR*, *N.Node = MO/PL*. This means, that the *MO US* is "ready for getting into resonance" with the PC-planets.

On September 11, the *sp MO US (21 TAU 30)* approaches *MO T1 (21 TAU 50)*, and exactly conjuncts it at the beginning of military actions against Afghanistan.

while the *sa MO US (1 LIB 39)* comes to resonance with: *MA T3 (1 LIB 37)*, *MO USS (1 CAP 51)*, *SA T2 (1 ARI 27)*, *SA T1 (0 ARI 54)*, *MA T2 (0 LIB 0)*, *SU T3* (0 ARI 50)*

SA US (14 LIB 47) = MO/UR comes to resonance with: *sa SU T2* (14 CAP 5)*, *MO T6 (14 CAN 20)*, *SU ECL (13 CAN 39)*,

whereas *sa SA US (28 TAU 16)* passed *Apex* in 1997. Now, it comes to resonance with: *MO T6* (28 TAU 48) = SU/SA*, *sa Apex (28 TAU 47)*, *MO Apex (27 TAU 12) = SU/NE*.

Moreover, the *sp SA US (3 SCO 24)* comes to resonance with: *As K T6* (3 SCO 29)*, *As K T2 (3 TAU 58)*, *PL T6* (3 SAG 18)*, *UR T1 (2 AQU 43) – UR T2 (3 AQU 24)*, *VE T6* (3 LEO 10) = UR/NE = MO/MA*,

while the *SA USS* and *SA ECL* are at the *sp Ds US (9 SAG 23)*.

UR US (8 GEM 53) trines *UR Apex (8 AQU 14) = SA/PL* and sesquiquadrate *UR ECL (24 AQU 18)*,

whereas *sp UR US (6 GEM 57)* comes to resonance with: *Mc K T2* (6 GEM 40)*, *As W T3* (6 PIS 43)*,

semisextile *MA T3 (6 ARI 56)* and trines *UR T3 (6 AQU 46) = SA/PL*.

S. Node US (6 AQU 36) = MO/PL = MA/NE comes to resonance with: *UR T3 (6 AQU 46)* *UR T6 (7 AQU 39)*,

while the *sp S. Node (26 CAP 54)* comes to resonance with: *Mc W Apex (26 LIB 44)*, *MO T2 (27 LIB 22)*, *NE T2 (26 CAP 55)*, *NE T1 (26 CAP 28)*.

NE US (22 VIR 24) comes to resonance with: *N.Node T6* (22 VIR 51) = SU/PL* *N.Node T6 (22 VIR 14) = SU/PL*

PL US (27 CAP 34) comes to resonance with: *MO T2 (27 LIB 22)*, *NE T2 (26 CAP 55)*, *NE T1 (26 CAP 28)*

sa PL US (11 VIR 3) comes to resonance with: *SA/PL ECL (11 VIR 18)* *SA ECL (9 GEM 29)* *PL ECL (13 SAG 8)*,

whereas *sp PL US (28 CAP 56)* comes to resonance with: *NE T3 – NE T6 (29 CAP 1)*, *UR/NE T1 (29 CAP 25)*.

Integrally, the America's *sa SU/MO (13 SAG 56)* comes to resonance with: *SU T3 (13 PIS 31)*, *MO T2* (13 VIR 26)*, *Mc W ECL (13 GEM 57)*, *PL ECL (13 SAG 8)*.

2.6. The America's 2001 Solar Return and July 5, 2001 Eclipse Charts

In 2001, at the Focus of T6 and within the scope of the 24-hour Solar return pass of the America's Solar return chart (See **Table**, the line **USS**), the Lunar Eclipse took place (See **Table**, the line **ECL**) as an reiteration of the New Moon at *(12 CAN 48)* that was synchronized at the first pass of the Focus T6 in 1997 with the Solar return for the USA. Namely, the **USS** and **ECL** show that:

the Eclipse Sun *SU ECL (13 CAN 39)* conjuncted and opposed the Solar arch Sun of the comet HB's Focuses *sa SU T2* (13 CAP 55)* and *sa T6* (13 CAN 25)* with the average of *(13 CAP/CAN 40)* and within a 1° orb of *SU T6 (12 CAN 55)* and *SU T2 (12 CAP 59)*. In two months, on September 11, 2001, the latter one, *T6* (13 CAN 35)*, approached the *SU ECL* to within 4' and coincided with it, together with the *sa SA T3* (13 ARI 35)*, at the beginning of military actions against Afghanistan.

SU USS (12 CAN 44) comes to resonance with: *SU T6 (12 CAN 55)*, *sa SU T6* (13 CAN 25)*, *SU T2 (12 CAP 59)*, *sa SU T2* (13 CAP 55)*,

while *sa SU US (26 AQU 4)* comes to resonance with: *As/Mc W T2* (26 AQU 5)*, *MO Apex (27 TAU 12)* at *Algol (26 TAU 10)*

MO USS (1 CAP 51) is conjunct *Ic USS (26 SAG 57)* and comes to resonance with: *SA T2 (1 ARI 27)* *SU T3* (0 ARI 50)* *MA T3 (1 LIB 37)* *sa MO US (1 LIB 30)*

As USS (27 VIR 20) is square *Mc USS (26 GEM 57)* and comes to resonance with: *sa MO US (1 LIB 30)*, *sa Mc US (26 VIR 57)*, *MA T1 (25 VIR 27) - MA T3 (1 LIB 37)*

MA USS (16 SAG 43) is square *As W ECL (15 VIR 58)* and comes to resonance with: *Mc W T3* (16 SAG 58)*, *Mc K T3 (17 SAG 23)*, *SU/MO T3*(15 GEM 44)* *sa SU T3 (17 PIS 53)*

SA USS (9 GEM 22) square *Backward sa SU T3 (9 PIS 0)* and comes to resonance with: *As K T2* (8 VIR 55)*, *As K T3 (9 PIS 1)*; *SA T3* (9 ARI 4)* via the last Moon's aspect

UR USS (24 AQU 20) square comet HB's *Apex(24 TAU 27)*

PL USS (13 SAG 9) square *SU T3 (13 PIS 31)*

Note, that the aspects the *MO USS* makes before the Eclipse are those with Neptune and Saturn, which correspond to the middle of January and February 2002, respectively, whereas the Eclipse – to the middle of June, 2002.

General planetary dance steps for the Eclipse of July 5, 2001 are given in para. 2.2. Note here, that the Eclipse chart for Washington practically repeats that of the USA Solar return, while the *Mc* and *As* for Ka-bul within the accepted accuracy repeat those of T1 for Washington.

2.7. The September 11, 2001 Tragic Premiere

After several rehearsals at the HB Focus stages being decorated with T-squares based on Mars, Saturn oppositions with the third partner being alternatively taken from the PC, and subsequent T-squares with other planets from PC and their midpoints, where Pluto begins to take the part of Mars, the general rehearsal with the same dance steps took place in July 2001 that had acknowledged the cast for the tragic premiere of September 11 attack in compliance with the Trutina Hermetis (TH):

As NY (14 LIB 10) corresponds (TH) to the *SU/MO ECL (13 LIB/ARI 39)* of the preceding event and *MO T6 (14 CAN 20)* comes to resonance with: the Sun-Moon arrow (See para. 2.2) of the Solar return's Eclipse (*13 CAP 39*) ? (*13 CAN 39*) (and that of the Apex) supported by the *sa SU T6* (13 CAN 35)*, that are targeted to *SU US*;

sa SU T2 (14 CAP 5)* and *As W T2* (14 ARI 18)* and their average of ($14^{\circ} - 11.5'$) of Cardinal cross.

ME NY (14 LIB 17) comes to resonance with *sa SU T2* (14 CAP 5)*.

SU/MO NY (8 LEO 27) corresponds (TH) to *Mc K ECL (11 SCO 15)* and *As/Mc USS (12 LEO 9)*,

sp SU/MO US (8 ARI 51) square *SU T2* (9 CAP 18)*, *SU T6* (9 CAN 35)*

SU NY (18 VIR 51) corresponds (TH) to *As W ECL (15 VIR 58)*, *SU/MO T6* (19 GEM 11)*.

The "premiere" Sun *SU NY* is approached by the Eclipse Ascendant *As W ECL (15 VIR 58)* and HB's Sun *sa SU T3 (18 PIS 3)*.

Besides, it comes to resonance with: *Mc W T6 (18 VIR 13)*, *As/Mc K T6* (20 VIR 36)*, *Mc K T3 (17 SAG 23)*, *Mc K Apex (20 PIS 15)* and a day/ a month progression of *As W ECL* giving *18 VIR*.

Mc NY (16 CAN 29) corresponds (TH) to the *SU/MO ECL (13 LIB/ARI 39)* of the preceding event and comes to resonance with: *sa SU T6 (16 CAN 55)*, *sa SU T2 (17 CAP 46)*, *As W T3 (16 LIB 10)*,

Besides, for opposition *sa SU T2* (14 CAP 5)/sa SU T2 (17 CAP 46) = (15 CAP 55)* and conjunction *sa SU T6 (16 CAN 55)* we get the average point *(16 CAN 25)*.

MO NY (28 GEM 4) corresponds (TH) to *As USS (27 VIR 20)* and *Mc USS (26 GEM 57)* of the second preceding event and comes to resonance with: *MA T2* (28 VIR 48)*, *sp Mc US (27 VIR 7)*, *sa MO US (1 LIB 39) = sa MA/SA, sa SU/NE*

Besides, the September attack takes place in resonance with the *next HB Focus, T7*, specified by the September 16, 1997 Eclipse with *SU T7 (22 VIR 53)*, *N.Node T7 (19 VIR 44)* after the *preceding HB's Focus T6 conjunct* the critical July 4, 2001 Eclipse on the USA Solar return, where the Sun *SU NY (18 VIR 51)* conjunct *saS.Node US (20 VIR 5)* was entering the cusp of the *XIIth NY (19 VIR 26)*, thus specifying the tragic assault of the clandestine enemy.

At this scenario being developed since 1996, the entire planetary cast is included to the play: in midpoints *MA/PL (22 SAG 2)*, *SA/MO (21 GEM 25)*, the pairs of *MA, PL* and *MO, SA* have united two T-squares into a "scissors" with the apex on the Sun, *SU NY (18 VIR 51)*, where *NE* and *UR*, in accordance with their corps de ballet parts of the preceding plays, participate in midpoints and other aspects: *UR*, as earlier, is in sextile/trines, while *NE* – in semisquare, with *UR/PL* at *Mc*.

In particular, *MA NY (1 CAP 27)* comes to resonance with:

MA T3 (1 LIB 37), *MO USS (1 CAP 51)*, *sa MO US (1 LIB 39)*,
SU T3 (0 ARI 50)*, *SA T1 (0 ARI 54) - SA T2 (1 ARI 27)*.

SA NY (14 GEM 45) comes to resonance with:

SU/MO T3 (15 GEM 44)*, *Mc W ECL (13 GEM 57)*,
As W ECL (15 VIR 58), *MA ECL (16 SAG 32)*,

whereas *sa SA US (28 TAU 16) = sa (MO/UR)* comes to resonance with:

MO T6 (28 TAU 48)*, *sa Apex (28 TAU 47)*, *MO Apex (27 TAU 12)*

and *sp SA US (3 SCO 24) = sp As/Mc (3 SCO 15)* comes to resonance with:

As K T6 (3 SCO 29)*, *As K T2 (3 TAU 58)*, *UR T2 (3 AQU 24)*.

UR NY (21 AQU 50) comes to resonance with:

MO/ME NY, the midpoint of the USA rulers, and *MO T1 (21 TAU 50)*

PL NY (12 SAG 38) comes to resonance with:

Mc W T6(12 PIS 32)*, *As/Mc K T2 (12 PIS 29)*,

whereas *sp PL US (28 CAP 56)* conjuncts *NE T3 (29 CAP 3)*, *T6 (29 CAP 6)*, *T6* (29 CAP 1)*
MIDPOINTS come to the following resonances:

sa N.Node US (20 PIS 5) = sa (MA/NE = MO/PL) with

Mc K Apex (20 PIS 15), *As/Mc K T6* (20 VIR 36)*, *SU/MO T6* (19 GEM 11)*,

SA/PL NY (13 PIS 41) with *SU T3 (13 PIS 31)*,

SA/UR NY (18 ARI 17) with *Mc W T3 (18 CAN 31)*.

2.8. Comet HB and Israeli Charts

From the very beginning, all the Time Focuses of the comet HB have manifested themselves in Israel by the splashes of Israeli-Palestinian confrontation [1, 2], and since the Autumn of 2000 they started to sharpen even more, until the current maximum. Note also, that Saturn is considered to be the ruler of Judaism; from this point of view, Capricorn may also be attributed to Israel and, therefore, all the above results pertaining to the Focus T1.

This confrontation is, firstly, described by Israeli natal Sun *SU ISR (23 TAU 40)* [10] resonance with the just formed cometary *Apex (24 TAU 27)*. Then, the Israeli Solar return chart (*ISR sr*) for the year of 1997 shows that

SU ISR (23 TAU 40) at *Apex, Algol* being in the scope of the *ISR sr*, is
square MO ISR sr (23 LEO 25) in 12^{th} that *sesquiquadrate SA ISR sr (15 ARI 34)* in 8^{th} ;
PL ISR sr (4 SAG 32) is *conjunct Ic ISR sr (4 SAG 44)* and *opposes VE ISR sr (4 GEM 34)* being the ruler of natal Sun sign and Ascendant.

At this, the Natal ACG map lines pass Kabul (*SU Ds*) and Afghanistan (*MA Mc*), with nearby *PL Mc* and *SA Mc* lines, at a series of latitudinal intersections pertaining to Israel.

In progressions for the date of the Solar return in 1997,
sa Ic ISR (11 PIS 57) = *MA/UR* and *UR/SA ISR sr (12 PIS 7)* are close to *SU T3 (13 PIS 31)*,
sa SA ISR (3 LIB 19) opposes transiting *SA*,

and, after this Solar return of 1997, the *sa SU ISR (10 CAN 34)* starts to go under the HB's Solar arc Sun escort; thus, on September 11, 2001, this procession is as follows:

sa SU T6 (13 CAN 35)*,
sa SU T2 (14 CAP 5)*,
sa SU ISR (14 CAN 40) (conjunct *sp MO ISR (14 CAN 39)* about Sept.1, 2001)
sa SU T6 (16 CAN 55),
sa SU T2 (17 CAP 46).

On July 5, 2001 Eclipse, this procession was intensified by *sp MO ISR (12 CAN 46)* conjunct the *SU USS (12 CAN 44)* and exact semisextile of *sp PL ISR (13 LEO 39)* to the Eclipse position of *SU/MO*, and, further on, by the progressive New Moon in the 8^{th} - *sa SU ISR*, *sa MO ISR (14 CAN 39)* around September 1, 2001.

Besides, on March 2001 the *sa Apex* conjuncts *MA ISR (28 TAU 18)*, and within the scope of this Eclipse, the backward *sp MO ISR* conjuncts the cometary *Apex*.

The backward secondary progressions (*bsp*) are also very dangerous: for several years the *MO*, *MA*, *SA* and *PL* are in the 12^{th} , from where they *sesquiquadrate SU* in the 8^{th} ; in particular:

bsp SU ISR (1 ARI 20) sesquiquadrate *bsp SA ISR (16 LEO 20)*, whereas
bsp MO ISR conjunct *MA ISR* in December 2001,
bsp MO ISR conjunct *SA ISR* in February 2002,
bsp MO ISR conjunct *PL ISR* at the end of May 2002,
bsp SU ISR conjunct *SU T3** at the end of July 2002,

bsp SU ISR square SU TI at the end of March 2002.

2.9. Comet HB and the Basic Charts of the U.K.

The below correlation shows, that in addition to essential ACG and LH involvement of the U.K. to the USA – Al Queda (as we may take Afghanistan leadership before the War) interaction (See para. 2.4), the basic five charts being attributed to the United Kingdom also come to essential resonance with the comet HB's Focuses (the *sa* values are given for September 11, 2001):

1. May 11, 973 with *SU (23 TAU)*, *Mc (25 TAU 17)* vs. *Apex (24 TAU 27)*
2. Dec. of 1066, with *SU (9 CAP 50)*, *Mc (8 CAP 40)*; *NE (22 TAU)*
vs. *SU T2*(9 CAP 18)* , *SU T6*(9 CAN 35)*, *Apex (24 TAU 27)*
3. Jan. 1, 1801, with *SU (10 CAP 10)*, *Mc (9 CAN 10)*; *SA (23 LEO 20)*
vs. *SU T2*(9 CAP 18)* , *SU T6*(9 CAN 35)*, *Apex (24 TAU 27)*
4. Dec. 7, 1922, with *As (8 CAN)*, *PL (10 CAN)*; *SA (17 LIB 44)*
vs. *SU T2*(9 CAP 18)* , *SU T6*(9 CAN 35)*;
sa SU T2(17 CAP 46) , *sa SU T6 (16 CAN 55)*,
5. May 1, 1707, with *MA (13 CAN 44)*; *PL (20 LEO 36)*
vs. *sa SU T2*(14 CAP 5)* , *sa SU T6*(13 CAN 35)*;
Apex (24 TAU 27), *bsp Apex (20 TAU 7)*.

Integrally, these resonances hardly require comments.

2.10. Conclusion

General Forecast

As it is shown in [1, 2] and in Part II, the comet Hale Bopp's Geographical and Time Focuses still exert their influence and not only in statics, that is Astro*Carto*Graphically and when they are passed by transiting Sun. As it is shown, even the progressive "Suns" of the basic Focuses T2, T3, T6 and T2*, T3*, T6* being defined by the comet HB and Sun conjunctions in Ecliptic longitude and Right Ascension, respectively, define the development of events in kinematics as well, both on a national level, until September 11 attack, and on the international one – after that date. However, all these effects must not be attributed just to the comets Hyakutake and Hale-Bopp and their Apex at Algol. To a large extent, the local splashes of Solar activity, that took place in resonance with the HB's Time Focuses, were "heating" the development of events for five years, until the tragedy of September 11 had turned the "national" problems into international military and political confrontation. Emergence of this world wide problem in the year of maximum of the 11-year Solar activity cycle, apart from other factors, leaves us, even by itself, little hope for it to be solved in a short-term operation and would probably worry the world community for half a decade.

Planetary Forecast

Moreover, the grounds exist for suggesting that in the forthcoming years, with respect to the HB's Sun Solar arch directions, a series of dangerous events reflecting the HB's Factors of influence of Saturn/Plutonian nature may continue to take place in the specified countries [1, 2]. In particular, the forthcoming half a year presents a series of dangerous points, and not only for those countries that were considered in this work (note, for example, that the belt of extremist activity had spread over these years [1, 2, 11] from Algeria to Indonesia, including Yugoslavia). These points are specified by the presented HB's Time Focuses (which might be preceded by a February splash being determined by the resonance with the August 11, 1999 Eclipse and US chart) and, first of all, by those which are distributed through March, though the TB Focus of April 7 – 11 might be even more dangerous. After then, the vicinity of Saturn/Pluto opposition (May 26, 2002) presents general danger as a "Premiere" of the Saturn/Mars, Saturn/Pluto "rehearsals" during the previous 5 years. The details for definite countries might be obtained through the use of the **Table** and Focus data.

In particular, the forthcoming half a year presents significant danger for the USA, U.K. and Israel, mostly due to an extremist activity, but these probable accidents may have other causes (e.g. Earthquakes in the regions specified by the HB's Focuses ACG maps). At this, apart from the above specified dates, for these countries, as well as for Afghanistan and al Queda network, the vicinities of the Focus TB (April 7 – 11), Saturn/Pluto opposition (May 26, 2002), Eclipse of June 10, 2002 and the period of Eclipse of June 24, 2002 to Time Focus T6 of July 4, 2002 present especial danger as after-effect of the July 5, 2001 Eclipse and New York Tragedy, where a series of progressive conjunctions will take place. As it is seen from the above consideration, the progressive Sun of the HB's Focuses may still disturb the world in November 2002 and further on, but as they are touching the World wide Karma, for compiling a detailed forecasts it might be more reasonable to wait for the Summer 2002.

Last, not least, the author hopes that this work might not only be used in giving some hints for obtaining detailed predictions for those who are engaged in the Mundane forecasting, but will somehow help in excluding those events that arise from not sufficient analysis of the situation and could be associated with this dramatic "cometary" trend in development of the world wide community.

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References

(The respective Site References are given in brackets)

1. [56, Sec. 9.2] Smelyakov S. Whether the Comet Hale-Bopp is Opening the Gate to the Forthcoming Decade? - Kharkov, 1997, - 28p. Also accessible at www.isarastronomy.com
2. [85, Sec. 9.5] Smelyakov S. The Focuses of the Comet Hale-Bopp – the Magic Spectacles for Seeing the Mosaic of the Mundane Trends? 2001, www.isarastronomy.com
3. [83, Sec. 9.4] Smelyakov S. Non-Planetary Mundane Factors of Influence in 2001. TIA, Vol. XXIX, N.4, pp.48-49.
4. [Sec. 9.7] Smelyakov S. It Seems that the Comet Hale Bopp does not want to Surrender (sent on August 30). ISAR Int. Email Letter, Vol. 145, September 14, 2001.
5. Comet Hyakutake Ephemeris, <http://cfa-www.harvard.edu/iau/mpec>
6. Comet Hale Bopp Ephemeris for November 1996 – August 1997, <http://cfa-www.harvard.edu/iauc/Recent> (IAUCs.html)
7. Comet Hale Bopp Ephemeris since March 1, 1997, www.jpl.nasa.gov/comet/index.html
8. Comet Hale Bopp Ephemeris since March 15, 1997, <http://www.jpl.nasa.gov/comet/ephemjpl7.html>
9. Sunspot indices http://sec.noaa.gov/ftpdir/indices/quar_DSN.txt or <http://sec.noaa.gov>
10. [2, **Part 5**] Tchijevsky A. Physical Factors of the Historical Process. Kaluga, 1924.- 72p. (In Russian)
11. [75, Sec. 9.3] Smelyakov S. The Heavenly Colleagues and their Earthly Pursuits, or Whether this is Uranus for Whom the Battlefield is prepared? Kharkov, 1998.-32p.
12. [Sec. 9.7] Smelyakov S. Though the comet Hale-Bopp is still in Power, the August Eclipse has laid the Claim to it. ISAR Int. Email Letter, Vol. 45, Sept 26, 1999.
13. [56, **Part 8**] Smelyakov S. The Solar Zodiac and the Age of Capricorn. TIA, Vol. XXIX, N.1, P.41-45.
14. [**Part 3**] Smelyakov S. and Karpenko Yu.. The Auric Time Scale and the Mayan Factor http://temporology.bio.msu.ru/EREPORTS/smelyakov_auric_time.gz.ps
15. Noel Tyl. Prediction in Astrology. 1995.- 340p.

APPENDICES (March 29, 2002) [Sec. 9.7]

1. THE COMET HALE-BOPP'S FOCUSES STILL CONTINUE TO EXERT THEIR INFLUENCE

by Sergey Smelyakov, January 9, 2002

(INTERNATIONAL EMAILLETTER VOLUME 163 - Jan 13, 2002, www.isar.demon.nl/page000.htm)

After the September events at the Focus of the comet Hale-Bopp [1], the current Focus of January 3 has manifested itself with a culmination of natural calamities and military tensions (that started with the Focus of December 21), as well as with air crashes and mental collisions throughout the world. At this, as in the previous years and at the September 2001 Focus [1], the current one is accompanied by a splash in the Solar activity. This time the Sun unleashed a powerful "solar prominence" on January 4, when the instruments on SOHO recorded what one researcher says could be the most complex coronal mass ejection the spacecraft has ever witnessed in 6 years; never has it seen anything like this [2].

For the concerned countries and factors of influence, these are:

- the extreme snowfalls that stretched from Buffalo to Central and Southern Europe, Northern Caucasus, Turkey and Syria, and attacked the Russian Far East; the tremendous fires in Australia and Earthquakes in Afghanistan;
- sharpening of Pakistani-India tensions with almost daily shelling; killing of the first US soldier in Afghanistan; the first, after the W.W.II, sending of the German troops to the outer territory, to Afghanistan;
- seizing by Israel a contraband ship with weapons and several tons of explosive for \$15 millions; official prohibition of Israeli authorities for Arafat to attend Catholic and Orthodox Christmas services in Bethlehem.

As if by passing a baton of the airplane crashes [1] and suicide air-ramming of sky-scrapers, on January 5 an American admirer of bin Laden hits the Bank of America's building in Tampa, apart of two more accidental air crashes in the USA on the same day and crash of unmanned Pakistani spy plane (Jan. 6).

The detailed description of astrological background of these Focuses, as well as the Forecast for March June, 2002 and further on, is to appear in the ISAR publication.

References

- 1) Smelyakov S. Fierce Manifestations of the Comet Hale Bopp. ISAR Int. Emailletters, vol. 146/B, www.isar.demon.nl/page000.htm
- 2) Solar Eruption Among Most Complex Ever Recorded, www.space.com/scienceastronomy/solarsystem/solar_flare_020104.html

2. NEW COMET/OLD PROBLEMS: New Space Envoy Incites The Schedule of World Disasters

By Sergey Smelyakov; March 17, 2002

(INTERNATIONAL EMAILLETTER VOLUME 172 - Mar 17, 2002, www.isar.demon.nl/page000.htm)

For the third time since 1996, a comet approaches the Earth, which is presumed to be seen with the naked eye - the comet Ikeya-Zhang (IZ) [1,2]. But the more miraculous thing with it is its trajectory, the principal points of which come to resonance with the Focuses of influence (Focuses) [3] of the comets Hale-Bopp (HB) and Hyakutake (H).

Thus, the comets H, HB and IZ have the perihelion and perigee in March and April of 1996, 1997 and 2002, respectively. The trajectories of the first two of them have made a cross over the Northern Hemisphere, the Apex H/HB of which relates to April 10, while the last one moving in parallel to the trajectory of comet H, but in opposite direction, will reach the Apex IZ/HB of the resembling cross with the comet HB on April 7, 2002. Remind, that as far as these Focuses of the comet HB are primarily defined [3] by their conjunctions with the Sun, the dates relevant to these Sun positions are used as Time Focuses with an orb of up to 5 days corresponding to 5 degrees of Ecliptic.

The very moment of discovering of the comet IZ on February 1, 2002 was marked by a splash in sunspot area [4] being the largest over the last 3 months, as the Focuses of the comet HB in the previous years were systematically accompanied by pronounced splashes in Solar activity [5, 6].

After then, within the orb of the Focuses of T3 (March 3) and T8 (March 13) it conjuncted the Sun of Apex H/HB and crossed the Ecliptic into the Northern Hemisphere on March 8,9. This was immediately followed by a splash in terrorist activity, military operations, natural calamities etc. with respect to the specified [3,5,7] factors of influence and countries (first of all USA, Israel, Afghanistan, India, Russia and some other [5,7]). In particular, the just passed two Focuses T3 and T8 are marked by the following extremal events.

I s r a e l. The first week of March was marked by the most bloody violence over the period of confrontation when Palestinian snipers and 10 suicide bombers from the one hand, and Israeli soldiers and missiles from the other hand were killing almost dozens people a day. After then, on March 11-15, Israeli forces have undertaken the largest (over the last years) military operation in the Palestinian territory with the use of 100 tanks that was accompanied by arrests, dozens of victims and shelling of the Christian Temple and statue. Even to day, on March 17, one more suicide bomber blast is undertaken. The astrological background of the events in Israel is closely associated with the progressive HB's Focuses that "convoying" the Israeli progressive Sun [7].

U S A / A f g h a n i s t a n. On March 1, the USA has started the offensive in Afghanistan, the largest in this year, the full swing of which comes to March 2-6; it was estimated as the largest and most severe military operation the USA held since the Korean war. Note, that the bombardments of Yugoslavia had also started at the HB's Focus on March 24 (to my relief, nobody can accuse me in knowing the Pentagon or Israeli plans in advance!). A new weapon - a thermobaric bomb - made its debut at Gardez on March 2. Within several days of March 3, several helicopters were shelled or shot down; apart from American and Afghani victims, there were first victims, after the WWII, between German and Danish troops. After then, within a day orb of Focus T8 (March 13) the Canadian troops take participation in military action, firstly since the Korean war; the American newspapers publish a "secret" report were the Pentagon considers the possibility of employing the nuclear weapons against Iran, Iraq, N. Korea and, possibly, Russia and China. The astrological background of these events is also closely associated with the "natal" and progressive HB's Focuses.

I n d i a. After putting the train with Indian pilgrims to fire on March 1, where 260 people, mostly women and children, were burnt, the greatest religious violence in a decade had propagated over the Western India, and in 5 days, around March 3, they led to 450 victims, in spite of curfew.

B e s i d e s, on March 1, NATO starts the largest military exercises in 4 years. On the next day, an embassy was attacked in Macedonia, 7 victims. A splash of postal terrorism takes place in the UK, and even to the T. Blair's office a parcel was sent with a toxic substance. On March 4, the largest in half a year anti-terrorist operation starts in Grozny, Russia. In Paris, a bank is robbed for 6 mill. Euro. At T8, Germany is shocked with a series of acts of vandalism at cemeteries on March 16.

N a t u r a l calamities around March 3 were also intense: flood in France, Earthquakes in Afghanistan and Philippines with many dozens of victims, large-scale fires in Moscow and two (in the same day) in St. Petersburg. And even the previous [5] meat and poisoning scandals were repeated at Focus T8 by Russia's prohibition for importing American chicken and Chinese beef.

All these world wide fierce manifestations of cruelty that sharpen at the HB's Time Focuses and at the moments of their resonance with the national charts [7], including astrocartography, makes it expedient to show how the comet IZ may increase the actuality of the remaining forthcoming Focuses. T h u s, at its perihelion on March 18, the comet IZ makes its first conjunction with the Solar arc Sun of Apex H/HB and becomes retrograde at the Focus of T4 (March 20), with respect to R.A., and at T5 (March 24) with respect to Ecliptic Longitude (E.L.).

V e r y h a z a r d o u s is the first half of April when, in addition to the HB's resonances [7] at the Focus TB (April 7-11), the Apex of the IZ/HB cross (April 7) at the Great Nebula M31 takes place near the Apex of H/HB (April 10), as well as the first IZ/Sun conjunctions with respect to R.A. (April 4) and E.L. (April 14), apart from other details. After then, the comet IZ makes a series of squares and conjunctions with the Sun of other HB's Focuses, until it comes to perigee on April 28 at the Ecliptic region of its origination, viz. in the second half of Pisces.

O n M a y 26, at Saturn/Pluto opposition, comet IZ exactly opposes the secondary progressed Apex of H/HB, and on June 10, near the Eclipse and after the second station, it becomes direct in E.L.

O n J u l y 4, at the Focus T6, the comet IZ, after the last station in R.A., becomes direct and opposes the progressive Sun of the H/HB Apex, traverses the Equator towards the Southern Hemisphere.

In September, it traverses a series of nebulae of the constellation of Scorpius and opposes the Sun of the Saturn/Pluto opposition at the Focus T7 (September 16).

At Focuses of T1 (December 21) and T2 (January 3), on the Celestial Sphere the comet IZ passes the intersection of the Celestial and Galactic Equators on the background of a series of nebulae M8, M20, M21, etc., which it traverses very slowly.

This completes the sequence of actual resonances which the comet IZ makes with the Time Focuses of the comet HB. After then, in March April of 2003, it practically stands still in several minutes off Ecliptic, at 14-15 degrees of Aquarius. By Sun, this position corresponds to the moment of official registering of this comet on February 19, 2002.

References

- 1) Viewer's Guide to New Comet http://www.space.com/spacewatch/spacewatch_comet_020309.html
- 2) Comet C/2002 C1(Ikeya-Zhang) Ephemeris <http://cfawww.harvard.edu/mpec/RecentMPECs.html> (MPEC 2002-E22)
- 3) Smelyakov S. Whether the Comet Hale-Bopp is Opening the Gate to the Forthcoming Decade? www.isarastronomy.com
- 4) Sunspot indices http://sec.noaa.gov/ftplib/indices/quar_DSN.txt
- 5) The Focuses of the Comet Hale-Bopp the Magic Spectacles for Seeing the Mosaic of the Mundane Trends? 2001. www.isarastronomy.com
- 6) Smelyakov S. The Comet Hale-Bopp's Focuses Continue To exert Their Influence. ISAR Int. EmailLetters, Vol.163, Jan 13, 2002. , www.isar.demon.nl/page000.htm

3. The Implicit Might of the Cometary Focuses and Its Development. Check it yourself!

By Sergey Smelyakov,

(INTERNATIONAL EMAILLETTER, March 27, 2002 , <http://www.isar.demon.nl/page000.htm>)

As far as the pronounced manifestations of the comet Hale-Bopp (HB) Focuses T3, T8, T4 and T5 of March 3, 13, 20 and 24, respectively, have come to resonance with the critical points of the newly discovered comet Ikeya-Zhang (IZ) [1,2], for the astrologers' use it might be worth to know the alarming moments of the further comet IZ most actual points which coincide with the approaching HB's Focus TB of April 7-11. These are F1: April 4, GMT 5:20:15 (Sun/IZ conjunction at R.A.), F2: April 7, GMT 17:43:34 (Apex of the cross of HB/IZ trajectories), and F3: April 14, GMT 17:14:47 (Sun/IZ conjunction at Ecliptic Longitude).

In particular, the moments F1, F2, F3 define a striking resemblance between the charts for Washington. A similar synchronism is seen not only for the USA (including the WTC attack), but also for Israel, Afghanistan, U.K., Somali and some other countries, both in charts and AsrtoCartoGraphically.

After then, the critical IZ's points come to close correlation with the moments of Saturn/Pluto opposition and Lunar Eclipse on May 26, June 10 Eclipse, and subsequent comet HB's Focuses T6 (July 4) and T7 (September 16).

The above given moments and days of resonance are hazardous as the ones where, at high probability, the further development of the preceding events or trends may occur with respect to the entire spectrum of the specified [3,4] factors of influence: military activity, acts of terrorism (explosions and poisoning), political and economical crises, psychological collisions, as well as technogeneous catastrophes (fires, air and space failures and crashes, destruction, etc.) and natural calamities. At this, by taking account of the current intensification of the quakes in Afghanistan that strictly follow (within one day orb) the Focuses T2, T3 and T5 both by time and AsrtoCartoGraphically, the forthcoming focuses of F1, F2, F3, as well as subsequent moments being specified above are alarming as such that may, in resonance, provoke the Earthquakes (and tsunamis) in Southern Japan, along a line of San Francisco - Los Angeles, in some other regions including Afghanistan.

With respect to other factors of influence and AsrtoCartoGraphical indications, the regions of Washington, New York and Iowa in the USA, Orenburg-Cheliabinsk-Perm in Russia, as well as the U.K., India, Pakistan, Somali and some other areas might also be damaged in April and further on, around the above specified moments; to full extent this relates to respective countries of the Middle East, which are reiteratively affected by the HB's Focuses (including T6 coinciding with the America's 2002 Solar return).

Though the levels of Solar activity [5] were not very high in March (viz. since the report [2]), they were, once again [3,4], synchronous with the comet HB's Focuses. Thus, the maximal Sunspot values in March took place on 4th and 22nd, whereas the largest sunspot area had developed on 11th-14th; the Solar activity caused a pronounced proton events on 18th, 20th and 22nd-23rd, as well as geomagnetic storms on 18th - 20th - up to major storm on 24th, that is at the respective cometary Focuses. Moreover, as the Solar activity level is now at its second comb of the 11-year cycle, we may also expect that, as earlier [3,4], the forthcoming April Focuses might as well be mysteriously intensified by pronounced Solar activity splashes.

As if by emphasizing the actuality of the comet IZ, on March 8, when it passed the Sun of the Apex of the cross the preceding comets (HB and Hyakutake) made over the Northern Hemisphere, an asteroid, now named 2002 EM7, had passed its perigee within 298 400 miles (about 38 Earth's diameters) of our planet, or about 1.2 times as far away as the Moon. However, it was not discovered (!) until March 12 (viz. at T8). Few asteroids this large have ever been known to pass so close to Earth; "of the objects that have come closer, only one is bigger" [6].

References

- 1) Viewer's Guide to New Comet, http://www.space.com/spacewatch/spacewatch_comet_020309.html
- 2) Smelyakov S. New Comet - Old Problems: New Space Envoy Incites the Schedule of World Disasters.- Int. ISAR EMAILLETTER VOLUME 172- March 17 2002, <http://www.isar.demon.nl/page000.htm>
- 3) The Focuses of the Comet Hale-Bopp: The Magic Spectacles for Seeing the Mosaic of the Mundane Trends? 2001. <http://www.isarastrology.com>
- 4) Parts I, II of this Report
- 5) Solar activity Data, <http://www.sec.noaa.gov/>
- 6) Asteroid Buzzes Earth, <http://www.space.com>

9.7. Comet Hale-Bopp Manifestations Summary for 1999-2006

Before-Foci forecasts and after-Foci event registration that are published in the ISAR INTERNATIONAL EMAILLETTERS and can be accessed at <http://www.isar.demon.nl/page000.htm>

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Vol. 45 – Sept. 26, 1999

THOUGH THE COMET HALE-BOPP IS STILL IN POWER, THE AUGUST ECLIPSE HAS LAID THE CLAIM TO IT

Sergey Smelyakov

In the Forecast [1] for the transiting influence of the comet Hale-Bopp for the year of 1997, the following qualitative factors of influence were specified:

1. Natural calamities (hurricanes, earthquakes, fires, etc.);
2. Engineering disasters (crashes of airplanes, cars, etc);
3. Social effects (terrorism, disturbances, etc),

as well as the geographic and time (T1, T2, ... T8) Focuses of influence. As it turned out, the Sunspot activity splashes began to develop in unison with the specified Time Focuses (viz. dates), since 1997 until now [2,3].

THUS, after the powerful manifestations in April (TB) and July (T6) Focuses, the current Focus (T7) of SEPTEMBER 16 astonished us with this miraculous (within several days, one day corresponds to orb of one degree) synchronism once again, which is seen at all geographical Focuses. The most prominent manifestations are clearly seen in the USA (the hurricane "Floyd" being accompanied by unprecedented evacuation of millions of people), Russia (unprecedented, in peaceful times, acts of terrorism - explosions of dwellings, with more than 300 victims, in Moscow, St Petersburg, Volgodonsk, large-scale military invasion of Chechens in Dagestan, etc. and precaution measures), earthquakes in Turkey, Greece and Taiwan, entering of peace-making forces into Timor, and other countries which were significantly marked by this influence during the previous Time Focuses. It is also symbolic (as it typical for development of the events through the Focuses), that the first bombardment of Yugoslavia took place on March 24 (viz. exactly at Focus T5), while the disarmament of the Kosovo Army and signing of the Agreement took place at Focus T7!

What is important, an unprecedented financial scandal and political crisis have taken place around this Time Focus (like the crisis in 1997) that bond the actual Geographical Focuses - Russia (President and his close environment), USA (Bank of N.Y., FBI commission, Congress of the USA, IMF, etc), Switzerland (State Prosecutor and a construction firm), the U.K. (Barclay Bank), apart from falling of the Dow Jones average by 120 points, record (over two years) increase in oil prices, etc.

But what is new now is that, that a series of events pertaining to the comet Hale-Bopp's Factors and Geographical Focuses of influence had started in the vicinity of the Summer Eclipse of August 11, which was not directly (viz. Astrologically) associated with the Focuses of the comet Hale-Bopp. This allows us to expect that the Summer Eclipse had specified the Scene for the future Play that might start in Winter and, to a large extent, would be specified by the opposite Solar Eclipse of February 5 (with the touch of Lunar Eclipse of January 21) squaring the Great Conjunction of Jupiter and Saturn. This act might have a culmi-

nation at Uranus opposition to the August 11 Eclipse on March 4 (as it was noted by Guy de Penguern) synchronously with the actual comet Hale-Bopp's Time Focus T3 (on March 3). Therefore, this series of Eclipses and associated events may inherit the Focuses and Factors of influence of the comet Hale-Bopp. In particular, because the latter were supported by the splashes of Solar activity.

This preliminary conclusion as to "passing of baton" of influence to the Eclipses might be considered as quite actual with respect to the following global factors of influence:

1. Galactic Center and world-wide trends, Mayan Calendar and acceleration of Time [3,4];
2. Guy de Penguern's Forecast [5], associated with the August Eclipse and 'Cosmic Richter Scale';
3. Nick Campion's report at Plymouth '99 Conference where he specified some extremal world events accompanied by the Eclipses with the same tracks. We may add to this, that the track of the last one connects the basic Focal Meridians of the comet Hale-Bopp (from N-E of the USA to India) and crosses them within the areas of the basic events, the center of the track being allocated in the Central Europe.

Therefore, as the Solar activity grows towards its 11-year maximum being usually accompanied by intensification of social and international tensions, we may suppose that the Sunspot activity local maxima, comet Hale-Bopp Focuses, August 11, 1999 and February 5, 2000 Solar Eclipses, Uranus opposition to the August 11 Eclipse at the Focus of the comet Hale-Bopp, and Great Conjunction of May 28, 2000 would be the dominant factors of general influence and, thus, are to be taken into consideration for proper understanding of the Heavenly Play that might probably start with the next comet Hale-Bopp's Time Focus T2 - Monday, January 3, 2000 (that was specified by the comet's conjunction with the Sun at perihelion of the Earth).

References:

1. S. Smelyakov. Whether the Comet Hale-Bopp is Opening the Gate to the Forthcoming Decade? - Kharkov, 1977, - 28p.

Also accessible at <http://www.isarastrology.com>

2. S. Smelyakov. The Heavenly Colleagues and Their Earthly Pursuits. - Kharkov, 1988. - 32p.
3. S. Smelyakov. Sunspots, Astrology and Major World Events. - Talk at Great Eclipse Conference in Plymouth, 1999 (Audio cassette #350: astrological.association@zetnet.co.uk)
4. S. Smelyakov. The 13 Millennium Path To triumph of Astrology - Talk at Great Eclipse Conference in Plymouth, 1999 (Audio cassette #318: astrological.association@zetnet.co.uk)
5. Guy de Penguern, ISAR INT. EMAILLETTER, vol. 38 (Aug. 8, 1999)

COMET HALE BOPP

Sergey Smelyakov

As to my forecast [1] on correlation between the comet Hale-Bopp's (HB) Focuses and August 11, 1999 Eclipse consequences, we may see (to my regret) that both the HB's Focus of January 3 and the specified Eclipse's time focus of January 21 had manifested themselves in compliance with the comet HB's factors and meridians of influence, and in a very powerful way.

Thus, apart from other events, we may attribute to the close vicinity of the Jan. 21 the following manifestations: Extremal political events in Russia and Ukraine (Parliament minority boycotts, etc.), Germany (scandal with H. Kohl), Colombia (coup d'etat), Israel (demand for resignation for the President); Acts of terrorism (Algeria, Israel, Russia, Karachi, etc.); Natural calamities in Republic of South Africa, Norway, Caucasus, etc.; Observation of Large-meteor/UFO-like objects in Canada, Colombia, Rostov (Russia).

Besides, at these two Focuses the President's elections in Russia were assigned on March 26, 2000 (viz. almost exactly at the HB's Focus of March 24, at which, for instance, the bombard-ments of Yugoslavia had begun last year), and referendum in Ukraine was declared to take place on April 16, 2000 (viz. near the HB's Focus of April 7-11). As well, launching of the spacecraft with cosmonauts to the station "Mir" is announced to take place at the end of March (viz. near the Focuses of March 20 or March 24); we may admit here, that almost all the previous fails and launchings were also following the Focuses of the comet HB, both in Russia and in the USA.

As we seemly do not observe the alternative trend toward decrease in respective manifestations, the situation might be likened to operation of tremendous mechanism being set up (as an alarm-clock) to the specified time focuses when it inevitably issues its world-wide influence. At least, we may take these forthcoming focuses [1]: February 5 and, especially, March 3, 20 and 24, and April 7-11 for verifying this grievous trend of general influence.

[1] ISAR Int. Email Letter, Vol. 45, Sept. 26, 1999

COMET HALE-BOPP, SOLAR ACTIVITY AND GREAT CONJUNCTION

Sergey Smelyakov, March 30, 2000

The comet Hale-Bopp's (HB) general factors of influence [1] which, on the whole, predetermine (1) natural calamities, (2) technogeneous catastrophes with space/aircrafts, plants, etc., and (3) extraordinary events of psychological and/or socio/political nature have manifested themselves (as it was forecasted in [2, 3]) once again and on the world-wide scale, intensely and at all Meridianal and Time Focuses (March 3, 13, 20, 24), as well as at the associated Focus (February 5) specified by the August '99 Eclipse.

Though no room is available here for enumerating even the events of the record-type extreme nature that took place at these Focuses in the year of 2000, the following examples (being of importance for the below consideration) illustrate repetition of events over Focuses, from year to year, since 1997. These manifestations stretch from 3 volcano eruptions (the 4th, in Japan, has just started to awaken about March 27) and several drastic floods (including that in Mozambique) to mine explosion (Ukraine, several dozens of victims), and from large-scale (about 700 victims) self-burning in Uganda (March 17), apart from other conflagrations that took many lives, to unprecedented Pope's repentance for the crimes of the Inquisition (being firstly published in Germany on March 3) and his travel to Jerusalem (March 20 - 24) that caused protests of local confessions and unprecedented measures for protecting his life.

The last two types of events also continue the trend of the previous years. Thus, the mourning event in Uganda is preceded by the respective events in Canada (March 24, 1997), San Diego ("the Heavenly Gates", March 26, 1997), and so on up to Russia (March 19, 1999), where one patient, who had felt himself offended, had put the neurological hospital to fire that killed 22 children, and Ukraine where (before March 3) a group of Ukrainian ultra-nationalists being armed with gas pistols and jerricans of gasoline had occupied the Communist party residence with the threat to burn themselves unless this party would not be prohibited and Ukraine be de-Russified; to show their resoluteness, they poured gasoline onto one (at least) of the residents. The latter event corresponds with the unprecedented (for that moment) Pope's excuses on March 14 (viz... at HB's Focus T8= March 13) for the position of the Catholic Church relative to the terror against Jews during W.W.II. The same repetitions take place with air crashes and nuclear stations (e.g. in Ukraine and Japan on March 24, 2000), Israeli-Palestinian relations, etc.

Why these Focuses being initially [1] specified for the year of 1997 (mainly, on the basis of conjunctions of Sun and comet HB) are to be considered as still be active? As it was shown in [4], the SUNSPOT ACTIVITY (SA) had not only started to increase from the 11-year minimum since the Summer of 1997 [5], but the sharp splashes of SA over the current average level (viz. local maxima) took place during 1997/1998 [4] in resonance with the Time Focuses of the comet HB. This mystical synchronism allowed me to suggest that The Sun itself had turned its face toward the Earth's Life. Now, as in the previous years, we see [5] that the SA local maxima take place, once again, within the close vicinity of these Focuses. Note, that due to the procedure of calculating of the SA level (by averaging the data during rotation of the Earth), difference in 2 days might be taken as the exact (within 1 degree) conjunction, whereas difference of 3-4 days might be equaled to a conventional orb of 2-3 degrees, as these Focuses are obtained as conjunctions of HB with the Sun.

By taking this in mind, we obtain that five of six local SA maxima (presented below by intervals with maximum in the center) being registered this year cover the respective comet HB's Focuses within an orb of 1-2 degrees: Jan. 14-16 (no Focuses), Feb. 5-11 (Ass. Focus of Feb. 5), Feb.28- March 3 (T3=March 3), March 8-12 (T8=March 13), March 18-22 (T4=March 20), March 24-28 (T5=March 24).

So, one could suppose that after the next Focus (TB= April 7-11) we will have a "rest" until the next HB's Focus of T6 (July 4, 14). But this is so just for the HB's Focuses, as there grounds exist to expect that one of the goals of this SA/HB synchronism is merely to preliminary heat the situation and to initiate the trends over the Focal Meridianal belts for the Jupiter-Saturn Great Conjunction to operate (e.g. the current average level of the SA, being higher than in some years of SA maximum, still increases as follows: January: 141, February:162, March:200). Among these belts, the following one covers the states of the above examples: Moscow- Ukraine (through Kharkov-Donbass)- Turkey- Israel- Uganda- Mozambique; two more

of them cover the Eastern and Western parts of the USA, apart of those that cover central India, Eastern China, etc.

As Noel Tyl shows [6], the forthcoming Jupiter-Saturn Great Conjunction of May 28, 2000, together with some other factors, "is alarming", for instance, for the Washington D.C., Israel and USA. Now, we may remember that these two countries, as well as Russia and Ukraine, were substantially marked by the HB's manifestations. As there are no conventional charts for the latter two countries, consider how this Great Conjunction may affect them. In compliance with the newly obtained (by the author) rectifications for the system of charts for Russia and Ukraine, President of Russia (rectified by J. Weiss, *Astrologie Heute*, #83) and President of Ukraine, we may add to that list Ukraine as well, since this Great Conjunction might be considered as the trigger that makes the great cross (of natal Pluto, Moon, Jupiter and Mars/Neptune midpoint, apart from other elements) complete and "turns it on" into action.

Though the accuracy obtained for the system of charts for Russia and Ukraine does not allow us to be sure in minutes of Mc, as it elapsed only less than a decade since these two states were established while a lot of extremal events took place which could be well described by the secondary progressions and solar arcs, general position of Mc could be considered as verified, both qualitatively and quantitatively. By taking this situation in mind, we may put forward the following forecast.

For the Ukraine, the Great Conjunction lies in the very beginning of the 4th and completes the above said grand cross in fixed signs and cardinal houses (Note, that Taurus is commonly accepted to be the ruler of Ukraine, as Aquarius - for Russia, and transiting Uranus, from Aquarius, squares the Great Conjunction in Taurus). This chart closely corresponds to the chart of the President of Ukraine (Kuchma) with the Great Conjunction specifying difficulties in the 1st, 4th, IC and 8th. However, the chart of Russia is not so difficult for the moment (though it has a strong synastry with that of the Ukraine); in particular, these are 3rd, 9th and 7th (with the activated natal Pluto) houses which are difficult for the moment. The chart of the President of Russia (Putin) not only in a strong synastry with

the chart of Russia, but comes into resonance with the Great Conjunction in the 3rd and 7th (via the square to natal Pluto), and in 5th and 11th. At this, Putin's chart affects the 8th, 12th and IC of Kuchma's chart, whereas

the chart of the latter one affects the 2nd, 3rd and 7th of Putin's.

As all these charts being very briefly described correspond to the current state of economy and political relations and, in general, are not mutually contradictory, we may conclude that Russia might be touched by this Great Conjunction, but indirectly (via the 7th), through the 3rd (Ukraine) and 9th (USA, Israel), and on the level of difficult official relations between the presidents. At this, Putin may come to some extreme situation about April 23, this date correlates in his chart with the Great Conjunction. However, the situation is quite different for the Ukraine, for which the series of difficult configurations in several charts astrologically prescribe us to put forward a suggestion that it may occur an explosive situation in the sense of general crisis (in economy, energetic, agriculture, political life - up to social disturbances that may affect the highest echelons of the state power) and large-scale contamination that may propagate onto the neighbouring countries.

Of course, the forthcoming two months and a while will make the situation clearer.

References

1. S. Smelyakov. Whether the Comet Hale-Bopp is Opening the Gate to the Forthcoming Decade? <http://www.isarastrology.com>
2. S. Smelyakov. Though the Comet Hale-Bopp is Still in Power, the August Eclipse has Laid the Claim to it.- ISAR INTERNATIONAL EMAILLETTER VOLUME 45- Sept.26, 1999.
3. S. Smelyakov. Comet Hale-Bopp. ISAR INT. EMAILLETTER VOLUME 63- Jan.30, 2000.
4. S. Smelyakov. Whether This is Uranus for Whom the Battlefield is Prepared? Kharkov, 1998.
5. Daily Solar Data.- U.S. Dept. of Commerce. <http://www.Solar.sec.noaa.gov>.
6. Noel Tyl. Prediction in Astrology.- Llewellyn Publications, 1995.

From Sergey Smelyakov:

Meanwhile, as to the forecast [1] on the comet Hale-Bopp's (HB) Focus of April 7-11, we may see that it has manifested itself once again, and vigorously.

Firstly, at the beginning of this Focus the Solar activity showed a tremendous splash. Thus, the Sunspot number on April 2 exceeded the level 300 (at the third time during the last 5-7 years), whereas the intensity of the Sun-produced proton flow had increased on April 5-6 by 2 - 3 orders (viz. by 100 - 1000 times) with respect to the current high level of March and April. The enormous splash of Solar Activity (SA) once again supports the mysterious trend [1] of the local SA maxima to occur at the HB's Focuses!

Secondly, the extreme manifestations of this Time Focus TB of April 7 – 11 might be seen at all Meridional Focuses and for all factors of influence; due to lack of space, mention only some of them (preferably those whose place and nature repeat from Focus to Focus):

1. Natural calamities: the heaviest over the last decades (and unprecedented for Hungary) floods in the Southern Europe (peak at Apr. 10-12). Heavy floods, hurricanes and snow storms in Russia (from East to West), U.K., etc. State of Emergency is declared in some regions. Damage exceeds hundreds of million \$.

2. Conflagrations, engineering disasters: conflagration at shell store in downtown of Kharkov (Apr.8); Air crash (18 victims), USA (Apr.9); detention of 2 Russian tankers (in Persian Gulf and Black Sea) and Ukrainian seiner (Apr. 6,7,8 resp.); turning over of ferry-boat (dozens of victims), Philippines (Apr.12); Heavy railroad accident in Norway (Apr.5) – the previous one was at HB's Focus T2; prevention of explosion of the train from Russia to China (Apr.12); TV: "avalanche" of car and bus crashes in the world during the TB period.

3. Political and psychological collisions (including finances, terrorism, etc). Sensational negotiations (Apr.7-10): German security service chief comes to Chechnya; secret talks between the USA and Yugoslavia; North and South Korea settlement. Large-scale hooliganism of football and tennis fans in Turkey, Chile, Ukraine, etc (Apr.6-9). Gangsterism and terrorism: splash in military actions in Chechnya during TB that is abruptly decreases after April 11-12; shooting of guard by sentry (8 victims), Russia (Apr.7); robbery of American diplomat in Moscow (Apr.8); unprecedented security measures taken by NATO in Kosovo at a threat of Ben Laden actions (Apr.8). International scandals: voting against Russia at the Parl. Assembly (Apr.6) and revoking of this appeal by Coun. of Min. (Apr.8); suicide of Polish ambassador in Turkey (Apr.7); rejection to make a photo with the Austrian delegation in Lisbon (due to Haider's party) (Apr.9); overturn in Bolivia (Apr.9); displacement of Cabinet in Latvia (the Prime and first persons are accused in paedophilia) - Apr. 10-11; scandalous referendum in Ukraine (Apr. 6-16). Finances: large-scale scandal between two energy super-structures in Russia (1st decade of Apr.); the record fine on \$13 millions by the civil action of 3 smokers in the USA - "historical" (Am. press) decision (Apr.8) that may cause an avalanche of fines (in total, up to \$300 billions); April 10 - 14 - unexpected stock market crisis that affected Asia and the USA.

Reference; [1] S. Smelyakov. COMET HALE-BOPP, SOLAR ACTIVITY AND GREAT CONJUNCTION, March 30, 2000 <http://www.isar.demon.nl/page000.htm>

ON THE FORECAST OF THE GREAT CONJUNCTION

Sergey Smelyakov

Though in the close vicinity of the Jupiter-Saturn Great Conjunction (GC) on May 28, 2000 there actually had taken place catastrophes and other significant troubles in Russia, Ukraine, USA, Israel and some other countries, they hardly could be considered as such outstanding things as one could expect to occur in compliance with the forecast [1].

However, among them there is a series of events that might well be considered to be the symbols (which were absolutely unexpected a month ago) for the forthcoming two decades (till the next GC), since they comply to the peculiarities of the charts of these countries and general problems pertaining to the current evolutionary status of this civilization [2,3]. By triggering the course of events, they might be considered as such that outline a scenario for realization (or resolving) of these problems.

Israel. A number of political observers considers that the spontaneous withdrawal of Israeli troops from the Southern Lebanon (several days before the GC) may provoke a war. Note here, that the Palestinian autonomy is planned to be declared on September 13 - just before one of the comet Hale-Bopp Time Focuses (viz.. September 16) [1], which is alarming as the course of extreme events in this country was synchronous with these Focuses (See Refs. 1,4 in [1]).

India. Official overcoming (May 11) of 1 billion level of population.

Ukraine. Sharp worsening of the energy crisis within one week orb of the GC: it was declared that deficit of funds would result (since Autumn) in additional 30% shortage in electric power supply; 1999/2000 Winter schedule of energy turn-off will be substituted by a schedule of turn-on; hospitals must be provided with autonomous power supply sources; number of classes at schools must be reduced, etc. City transport fee is risen by 67%. The Ukrainian debt to Russia for gas had increased by \$700 millions (ab. 11% of the state budget) over the first months of this year. The president of Ukraine had ordered to stop free taking of gas from Russian gas pipes from the 1st of June (approximately 1 billion cubic meters during May). Lack of nuclear fuel; declaration to close Chernobyl atomic power station in December in response to Clinton's proposal (June 5) to allot \$80 millions for this purpose. Resignation of Minister of Power engineering.

Russia, USA, China. May 27: military exercise in Alabama in compliance with the legend: "One Southern country invades into Siberia (Eastern region of Russia), the USA helps Russia to repel aggression". Mass media: "Whether the USA and China will be able to avoid nuclear opposition?", "The USA mustn't miss China as the GB had failed to take Germany into account in the beginning of the XXth century".

June 2-4: Unexpected Putin's proposals for collaboration with the USA in anti-missile defence and with the Western Europe in developing a ballistic missile attack warning system. Discussing of these proposals during Putin's visit to Italy and Germany and Clinton's visit to Moscow.

References:

- [1] S. Smelyakov. Comet Hale-Bopp, Solar Activity and Great Conjunction.- ISAR International Email Letters, Vol. 72, April 2, 2000. <http://www.isar.demon.nl/page000.htm>
- [2] S. Smelyakov. The Solar Zodiac and the Age of Capricorn.- The International Astrologer, 2000, N.1, PP. 41-45.
- [3] S. Smelyakov, Yu. Karpenko. The Auric Time Scale and the Mayan Factor, or demography, seismicity and history of Great Revelations in the light of the solar-planetary synchronism.- Kharkov, Constanta, 1999.- 72 P. (Available at <http://www.chronos.msu.ru>)

It seems that the comet Hale-Bopp does not want to surrender

Sergey Smelyakov, August 30, 2001

The distribution of the record-type events over the Geographical and Time Focuses [1] of the comet Hale-Bopp still shows no signs of cardinal fall in influence. So, we may expect a series of events of extremal nature around the forthcoming Focus of September 16 around the specified regions (first of all - USA, Balkans and Central Europe, Moscow and some other regions of Russia (Irkutsk, Vladivostok, etc.), Israel, India, Afghanistan, Japan, China, Indonesia) where it showed its power quite exactly, as well.

During the previous years, this Focus was also marked by natural calamities, but, first of all, - by a splashes in air and space crashes, fires and other technogeneous catastrophes. We may see, that the catastrophe of the atomic submarine "Kursk" and starting of the preliminary operations for the salvaging closely correspond to these Focuses and associate eclipse of August 1999; so, the vicinity of the September 16, that was fixed up long before to be the date of salvaging, also seems to be dangerous.

As well, several times this Focus marked a splashes in mental collisions, social and political disorders, and military operations.

So, in two weeks we will see, whether the combined influence of this comet, several eclipses and Solar activity is still effective, or is falling down.

[1] S. Smelyakov. We are still passing through the Focuses of the comet Hale-Bopp. ISAR Int. EmailLetters, Vol.122 (March 2001)

FIERCE MANIFESTATIONS OF THE COMET HALE-BOPP

Sergey Smelyakov, September 12, 2001

I PRESENT MY DEEP CONDOLENCES TO THE PEOPLE OF THE USA

For the fifth year, since the comet Hale-Bopp's Focuses and Factors of influence were discovered, I do not feel any kind of satisfaction, but only am astonished with the systematic general fulfilment of my mundane forecasts associated with the Time and Geographical Focuses of influence of the comet Hale Bopp (HB) which, generally, acts in correspondence with the splashes of Solar activity and some eclipses [1, 2].

Thus, once again, the Focus of September 16 (within the orb of 5 days that corresponds to 5 degrees of the Ecliptic), as it was forecasted [1, 2], had marked itself, but this time - with the unexpectedly great tragedy in the USA on September 11. Apart from other events (e.g. financial crises) and countries, we may remember that air crashes and the USA are systematically seen in statistics of events which, as splashes, generally concentrate around these Focuses.

Thus, within a three day (viz. 3 degree) orb of this Focus (September 16, 1997), it firstly manifested itself with the following series of tragic events, when, as now, LARGE NUMBER OF DEATHS took place that caused special actions, NEW YORK and BOEINGS WERE CONCERNED and the FLIGHTS of F-117A were PROHIBITED in the USA (!): Sept. 13 Disappearance of the USA's C-141, 9 victims, and German's Tu-154, 24 victims (the last one is believed to be the second worst disaster for German Military Forces since WW II). Sept. 14 - crash of F-117A, Baltimore. Sept. 15 - The US Air Force temporarily grounded its fleet of F-117A "stealth" fighters. Sept. 17 - crash of UNO's helicopter, 12 victims. Sept. 19 – Two Boeing 747 had a near-collision close to New York. "Air Force officials began an investigation over the September 20 into six crashes of a US military aircraft in a week ... In all 16 Americans have died in the U.S. military crashes since Spt. 13".

Over two weeks (Sept. 13 - 26) not less than 315 people were killed in air crashes (including 234 people in A-300 airbus in Jakarta), that makes 140% of the first half-year amount!

As far, as the 5-degree of Ecliptic orb of this Focus is active until September 21 and the events under its influence show a trend to occur so that definite [1, 2] states are simultaneously included in them, we may conclude that the comet HB's Focuses are actually still active and may present us a series of dramatic events even in the forthcoming week - as if supporting the concept of entering to the Age of Capricorn [3] on completion of the Mayan Calendar [4].

References:

- [1] S. Smelyakov. Non-planetary Mundane Factors of Influence in 2001. - TIA, Vol. XXIX, N.4, pp. 48-49.
- [2] S. Smelyakov. Comet Hale Bopp. Int.ISAR Email Letter, Vol. 145, 2001.
- [3] S. Smelyakov. The Solar Zodiac and The Age of Capricorn. - TIA, Vol. XXIX, N.1, pp. 41-45.
- [4] S. Smelyakov and Yu. Karpenko. THE AURIC TIME SCALE AND THE MAYAN FACTOR
http://temporology.bio.msu.ru/EREPORTS/smelyakov_auric_time.gz.ps

THE COMET HALE-BOPP'S FOCUSES STILL CONTINUE TO EXERT THEIR INFLUENCE

Sergey Smelyakov, January 9, 2002

After the September events at the Focus of the comet Hale-Bopp [1], the current Focus of January 3 has manifested itself with a culmination of natural calamities and military tensions (that started with the Focus of December 21), as well as with air crashes and mental collisions throughout the world. At this, as in the previous years and at the September 2001 Focus [1], the current one is accompanied by a splash in the Solar activity. This time the Sun unleashed a powerful "solar prominence" on January 4, when the instruments on SOHO recorded what one researcher says could be the most complex coronal mass ejection the spacecraft has ever witnessed in 6 years; never has it seen anything like this [2].

For the concerned countries and factors of influence, these are:

- the extreme snowfalls that stretched from Buffalo to Central and Southern Europe, Northern Caucasus, Turkey and Syria, and attacked the Russian Far East; the tremendous fires in Australia and Earthquakes in Afghanistan;
- sharpening of Pakistani-India tensions with almost daily shelling; killing of the first US soldier in Afghanistan; the first, after the W.W.II, sending of the German troops to the outer territory, to Afghanistan;
- seizing by Israel a contraband ship with weapons and several tons of explosive for \$15 millions; official prohibition of Israeli authorities for Arafat to attend Catholic and Orthodox Christmas services in Bethlehem.

As if by passing a baton of the airplane crashes [1] and suicide air-ramming of sky-scrapers, on January 5 an American admirer of bin Laden hits the Bank of America's building in Tampa, apart of two more accidental air crashes in the USA on the same day and crash of unmanned Pakistani spy plane (Jan. 6).

The detailed description of astrological background of these Focuses, as well as the Forecast for March June, 2002 and further on, is to appear in the ISAR publication.

References

[1] Smelyakov S. Fierce Manifestations of the Comet Hale Bopp. ISAR Int. Emaillatters, vol. 146/B www.isar.demon.nl/page000.htm

[2] Solar Eruption Among Most Complex Ever Recorded www.space.com/scienceastronomy/solarsystem/solar_flare_020104.html

NEW COMET/OLD PROBLEMS:

NEW SPACE ENVOY INCITES THE SCHEDULE OF WORLD DISASTERS

Sergey Smelyakov, March 17, 2002

For the third time since 1996, a comet approaches the Earth, which is presumed to be seen with the naked eye the comet Ikeya-Zhang (IZ) [1,2]. But the more miraculous thing with it is its trajectory, the principal points of which come to resonance with the Focuses of influence (Focuses) [3] of the comets Hale-Bopp (HB) and Hyakutake (H).

Thus, the comets H, HB and IZ have the perihelion and perigee in March and April of 1996, 1997 and 2002, respectively. The trajectories of the first two of them have made a cross over the Northern Hemisphere, the Apex H/HB of which relates to April 10, while the last one moving in parallel to the trajectory of comet H, but in opposite direction, will reach the Apex IZ/HB of the resembling cross with the comet HB on April 7, 2002. Remind, that as far as these Focuses of the comet HB are primarily defined [3] by their conjunctions with the Sun, the dates relevant to these Sun positions are used as Time Focuses with an orb of up to 5 days corresponding to 5 degrees of Ecliptic.

The very moment of discovering of the comet IZ on February 1, 2002 was marked by a splash in sunspot area [4] being the largest over the last 3 months, as the Focuses of the comet HB in the previous years were systematically accompanied by pronounced splashes in Solar activity [5, 6].

After then, within the orb of the Focuses of T3 (March 3) and T8 (March 13) it conjuncted the Sun of Apex H/HB and crossed the Ecliptic into the Northern Hemisphere on March 8,9. This was immediately followed by a splash in terrorist activity, military operations, natural calamities etc. with respect to the specified [3,5,7] factors of influence and countries (first of all USA, Israel, Afghanistan, India, Russia and some other [5,7]). In particular, the just passed two Focuses T3 and T8 are marked by the following extremal events.

I s r a e l. The first week of March was marked by the most bloody violence over the period of confrontation when Palestinian snipers and 10 suicide bombers from the one hand, and Israeli soldiers and missiles from the other hand were killing almost dozens people a day. After then, on March 11-15, Israeli forces have undertaken the largest (over the last years) military operation in the Palestinian territory with the use of 100 tanks that was accompanied by arrests, dozens of victims and shelling of the Christian Temple and statue. Even to day, on March 17, one more suicide bomber blast is undertaken. The astrological background of the events in Israel is closely associated with the progressive HB's Focuses that "convoying" the Israeli progressive Sun [7].

U S A / A f g h a n i s t a n. On March 1, the USA has started the offensive in Afghanistan, the largest in this year, the full swing of which comes to March 2-6; it was estimated as the largest and most severe military operation the USA held since the Korean war. Note, that the bombardments of Yugoslavia had also started at the HB's Focus on March 24 (to my relief, nobody can accuse me in knowing the Pentagon or Israeli plans in advance!). A new weapon - a thermobaric bomb - made its debut at Gardez on March 2. Within several days of March 3, several helicopters were shelled or shot down; apart from American and Afghani victims, there were first victims, after the WWII, between German and Danish troops. After then, within a day orb of Focus T8 (March 13) the Canadian troops take participation in military action, firstly since the Korean war; the American newspapers publish a "secret" report were the Pentagon considers the possibility of employing the nuclear weapons against Iran, Iraq, N. Korea and, possibly, Russia and China. The astrological background of these events is also closely associated with the "natal" and progressive HB's Focuses [7].

I n d i a. After putting the train with Indian pilgrims to fire on March 1, where 260 people, mostly women and children, were burnt, the greatest religious violence in a decade had propagated over the Western India, and in 5 days, around March 3, they led to 450 victims, in spite of curfew.

B e s i d e s, on March 1, NATO starts the largest military exercises in 4 years. On the next day, an embassy was attacked in Macedonia, 7 victims. A splash of postal terrorism takes place in the UK, and even to the T. Blair's office a parcel was sent with a toxic substance. On March 4, the largest in half a year anti-terrorist operation starts in Grozny, Russia. In Paris, a bank is robbed for 6 mill. Euro. At T8, Germany is shocked with a series of acts of vandalism at cemeteries on March 16.

N a t u r a l calamities around March 3 were also intense: flood in France, Earthquakes in Afghanistan and Philippines with many dozens of victims, large-scale fires in Moscow and two (in the same day) in St. Petersburg. And even the previous [5] meat and poisoning scandals were repeated at Focus T8 by Russia's prohibition for importing American chicken and Chinese beef.

All these world wide fierce manifestations of cruelty that sharpen at the HB's Time Focuses and at the moments of their resonance with the national charts [7], including astrocartography, make it expedient to show how the comet IZ may increase the actuality of the remaining forthcoming Focuses.

Thus, at its perihelion on March 18, the comet IZ makes its first conjunction with the Solar arc Sun of Apex H/HB and becomes retrograde at the Focus of T4 (March 20), with respect to R.A., and at T5 (March 24) with respect to Ecliptic Longitude (E.L.).

V e r y h a z a r d o u s is the first half of April when, in addition to the HB's resonances [7] at the Focus TB (April 7-11), the Apex of the IZ/HB cross (April 7) at the Great Nebula M31 takes place near the Apex of H/HB (April 10), as well as the first IZ/Sun conjunctions with respect to R.A. (April 4) and E.L. (April 14), apart from other details. After then, the comet IZ makes a series of squares and conjunctions with the Sun of other HB's Focuses, until it comes to perigee on April 28 at the Ecliptic region of its origination, viz. in the second half of Pisces.

On **M a y** 26, at Saturn/Pluto opposition, the comet IZ exactly opposes the secondary progressed Apex of H/HB, and on June 10, near the Eclipse and after the second station, it becomes direct in E.L.

On **J u l y** 4, at the Focus T6, the comet IZ, after the last station in R.A., becomes direct and opposes the progressive Sun of the H/HB Apex, traverses the Equator towards the Southern Hemisphere.

In **S e p t e m b e r**, it traverses a series of nebulae of the constellation of Scorpius and opposes the Sun of the Saturn/Pluto opposition at the Focus T7 (September 16).

At Focuses of T1 (December 21) and T2 (January 3), on the Celestial Sphere the comet IZ passes the intersection of the Celestial and Galactic Equators on the background of a series of nebulae M8, M20, M21, etc., which it traverses very slowly.

This completes the sequence of actual resonances which the comet IZ makes with the Time Focuses of the comet HB. After then, in March April of 2003, it practically stands still in several minutes off Ecliptic, at 14-15 degrees of Aquarius. By Sun, this position corresponds to the moment of official registering of this comet on February 19, 2002.

References

- 1) Viewer's Guide to New Comet www.space.com/spacewatch/spacewatch_comet_020309.html
- 2) Comet C/2002 C1 (Ikeya-Zhang) Ephemeris <http://cfawww.harvard.edu/mpec/RecentMPECs.html> See MPEC 2002-E22
- 3) Smelyakov S. Whether the Comet Hale-Bopp is Opening the Gate to the Forthcoming Decade? www.isarastronomy.com
- 4) Sunspot indices http://sec.noaa.gov/ftplib/indices/quar_DSN.txt
- 5) The Focuses of the Comet Hale-Bopp the Magic Spectacles for Seeing the Mosaic of the Mundane Trends? 2001. www.isarastronomy.com
- 6) Smelyakov S. The Comet Hale-Bopp's Focuses Continue To exert Their Influence. ISAR Int. EmailLetters, Vol. 163, Jan 13, 2002.

7) Smelyakov S. A Mysterious Guide To September 11 Attack, And Further On, Dec. 12, 2001.- To appear at www.isarastrology.com

<http://www.isar.demon.nl/sergey.htm>

Volume 174 - March 31, 2002

The Implicit Might of the Cometary Focuses and Its Development.

Check it yourself!

Sergey Smelyakov, March 27 2002

As far as the pronounced manifestations of the comet Hale-Bopp (HB) Focuses T3, T8, T4 and T5 of March 3, 13, 20 and 24, respectively, have come to resonance with the critical points of the newly discovered comet Ikeya-Zhang (IZ) [1,2], for the astrologers' use it might be worth to know the alarming moments of the further comet IZ most actual points which coincide with the approaching HB's Focus TB of April 7-11. These are F1: April 4, GMT 5:20:15 (Sun/IZ conjunction at R.A.), F2: April 7, GMT 17:43:34 (Apex of the cross of HB/IZ trajectories), and F3: April 14, GMT 17:14:47 (Sun/IZ conjunction at Ecliptic Longitude).

In particular, the moments F1, F2, F3 define a striking resemblance between the charts for Washington. A similar synchronism is seen not only for the USA (including the WTC attack), but also for Israel, Afghanistan, U.K., Somali and some other countries, both in charts and AsrtoCartoGraphically.

After then, the critical IZ's points come to close correlation with the moments of Saturn/Pluto opposition and Lunar Eclipse on May 26, June 10 Eclipse, and subsequent comet HB's Focuses T6 (July 4) and T7 (September 16).

The above given moments and days of resonance are hazardous as the ones where, at high probability, the further development of the preceding events or trends may occur with respect to the entire spectrum of the specified [3,4] factors of influence: military activity, acts of terrorism (explosions and poisoning), political and economical crises, psychological collisions, as well as technogeneous catastrophes (fires, air and space failures and crashes, destruction, etc.) and natural calamities. At this, by taking account of the current intensification of the quakes in Afghanistan that strictly follow (within one day orb) the Focuses T2, T3 and T5 both by time and AsrtoCartoGraphically, the forthcoming focuses of F1, F2, F3, as well as subsequent moments being specified above are alarming as such that may, in resonance, provoke the Earthquakes (and tsunamis) in Southern Japan, along a line of San Francisco - Los Angeles, in some other regions including Afghanistan.

With respect to other factors of influence and AsrtoCartoGraphical indications, the regions of Washington, New York and Iowa in the USA, Orenburg-Cheliabisk-Perm in Russia, as well as the U.K., India, Pakistan, Somali and some other areas might also be damaged in April and further on, around the above specified moments; to full extent this relates to respective countries of the Middle East, which are reiteratively affected by the HB's Focuses (including T6 coinciding with the America's 2002 Solar return).

Though the levels of Solar activity [5] were not very high in March (viz. since the report [2]), they were, once again [3,4], synchronous with the comet HB's Focuses. Thus, the maximal Sunspot values in March took place on 4th and 22nd, whereas the largest sunspot area had developed on 11th-14th; the Solar activity caused a pronounced proton events on 18th, 20th and 22nd-23rd, as well as geomagnetic storms on 18th - 20th - up to major storm on 24th, that is at the respective cometary Focuses. Moreover, as the Solar activity level is now at its second comb of the 11-year cycle, we may also expect that, as earlier [3,4], the forthcoming April Focuses might as well be mysteriously intensified by pronounced Solar activity splashes.

As if by emphasizing the actuality of the comet IZ, on March 8, when it passed the Sun of the Apex of the cross the preceding comets (HB and Hyakutake) made over the Northern Hemisphere, an asteroid, now

named 2002 EM7, had passed its perigee within 298 400 miles (about 38 Earth's diameters) of our planet, or about 1.2 times as far away as the Moon. However, it was not discovered (!) until March 12 (viz. at T8). Few asteroids this large have ever been known to pass so close to Earth; "of the objects that have come closer, only one is bigger" [6].

References

- 1) Viewer's Guide to New Comet
www.space.com/spacewatch/spacewatch_comet_020309.html
- 2) Smelyakov S. New Comet - Old Problems: New Space Envoy Incites the Schedule of World Disasters.- Int. ISAR EMAILLETTER VOLUME 172- March 17 2002.
- 3) The Focuses of the Comet Hale-Bopp: The Magic Spectacles for Seeing the Mosaic of the Mundane Trends? 2001. www.isarastrology.com/
- 4) Smelyakov S. A Mysterious Guide To September 11 Attack, And Further On, Dec. 12, 2001.- To appear at www.isarastrology.com/
- 5) Solar activity Data http://sec.noaa.gov/ftplib/indices/quar_DSN.txt
- 6) Asteroid Buzzes Earth www.space.com/

ONCE AGAIN, THE ENERGIZED COMET HALE-BOPP'S FOCUS MANIFESTS ITSELF

Sergey Smelyakov, Jan. 16, 2003

SOLAR ACTIVITY. For the third year, the Solar activity [1] level does not decrease. In units of Sunspot number (ssn), its average levels are 172.9 (for 2000), 170.2 (for 2001), 177 (for 2002). Since September 2002 till the end of the year, relatively smooth variations (from units to dozens of percents) were observed. On Jan 1, 2003, the ssn falls to 47 and, after then, in ten days it has increased by a factor of 5, up to the value of 238 (Jan 11), while the Sunspot area has grown by a factor of 12 (from 120 to 1490, in units of 10×10^6 hemis.). During this intense growth, the SA levels were increasing much more slowly after Jan 8, 2003. Besides, the daily particle data shows a surge in Proton and Electron Fluence on January 6-8. Note, that the similar surge of the SA took place before the 11th September attack, around the comet Hale-Boops Focus of September 16 (Example 8 in [2]).

COMET HALE-BOPP (HB) FOCI. The ssn surges (or local maxima) of 261 (on Dec 18, 2002) and 238 (Jan 11, 2003) are the largest in two months. As these two local maxima are separated by 24 days, they are not explained by the Solar rotation. However, both these local maxima, as in the previous years [2-4], fit the comet HBs Time Foci of Dec 21 and Jan 3. Note, that these and other HBs Foci are specified, firstly, by the Sun/comet HB conjunctions; for this reason, the dates remain effective for the subsequent years with an orb of 5 days that correspond to 5 degree orb for Ecliptic. However, though the date of Jan 3 marks the beginning of growth, and Jan 8 fits the 5-day orb, why the local maximum was shifted by 8 days?

Probably, this is the **COMET KUDO-FUJIKAWA (FK)**, C/2002 X5, that is supposed to be seen now with the naked eye before the Sunrise (to my regret, the cloudy weather had not allowed me to check its visibility yet), that caused the surges of both the SA and World-wide troubles in association with the cometary Foci of Jan 3,8 as the previous comets did (See [2, 3] and Appendices in [4]), and with respect to [5]. This time, the HBs Focus of Jan 3 being specified by 12 Cap 59, is accompanied by the following comet KF s events within an orb of 5 days/degrees:

January 5, 2003: the comet KF has passed the point 12 Cap 59 (viz. the HBs Focus of Jan 3);

January 8, 2003: Ecliptic conjunction of the comet KF and Sun at 17 Cap 33 (about 6h GMT, Jan 8, 2003); in 10 hours before this, the comet KF makes a conjunction with the comet HB in the sense that at that moment (about 20h GMT, Jan 7, 2003) the comet KF repeats the position (in Right Ascension) the comet HB had on Jan 7, 1997.

Comet **HB's SOLAR ARC PROGRESSIONS** of the **FOCI'S SUN**. As far as the comet HB's Foci are still effective, for the subsequent consideration it is important to mention, that the former point (12 Cap 59) makes almost exact opposition to the HBs Focus of July 4 (12 Can 55) and the natal Sun of the U.S.A., whereas the Focus of the comet KF (17 Cap 33) makes opposition to the Solar arc progressive Sun (18 Can 15) of that Focus of July 4.

Note, that the effectiveness of the comet HBs Time Foci and their Solar arc progressions is shown in [4]; in particular, for the USA, Israel and Afghanistan both in a posteriori analysis and in forecasting. To this end, it worth mentioning that the Solar arc progressive Sun of the HBs Focus of Dec 21 has opposed the Americas Natal Jupiter (5 Can 48) in September 2002, when the US officials had started the large-scale political preparations for a war against Iraq, whereas the Solar arc progression of the Sun of the R.A.-copy [4] of the Ecliptic Focus of July 4 has squared the Natal Saturn (14 Lib 47) of the USA in the middle of December 2002, viz. in a proximity of the specified above Foci, when, regardless of the results of the UN mission in Iraq, the officials had started, with a Saturnians inflexibility, to send troops to the Middle East (and to make the respective official declarations at the Foci of the comet HB). As far as the bombardments of

Yugoslavia and large-scale operation in Afghanistan had started exactly at the Foci of the comet HB [3, 4], we may remind (without specially considering the case) that the subsequent Foci are March 3, 8-13, April 7-11, and March 20-24. In any case, in mid-Summer of 2004, the Solar arc progressions of Sun of the comet HBs Foci will square the Natal Mars and Pluto of the USA.

CURRENT MANIFESTATIONS of the FOCI of COMETS HB and KF. The associated January Foci, Jan 3 and Jan 8, of the comets HB and KF that manifested themselves on the background of the sharp rise of SA with the maximum on Jan 11, had continued the trends of events that were developing since 1997 [3, 4]. These trend are specified by the following

Factors of Influence:

- (1) natural calamities (hurricanes, floods, epidemics, poisoning, etc.);
- (2) technogeneuous catastrophes (ship wrecks, train, airplane, car crashes; destruction and fires, etc.);
- (3) social and political disorders, mental and psychological collisions, terror, cruelty, violation of physical frontiers and legislation, etc.

These trends develop from Focus to Focus in the same list of countries. Remind the basic events that took place in the close vicinities of these January Foci (some dates are omitted, for short), which continue the sequence of the similar events since 1997.

N a t u r a l calamities: Snowstorms, frosts, floods in Germany, France, Britain, Russia, Far East, Japan, etc. The flood in Europe is considered to be the greatest in 10 years. In many regions and countries the state of emergency was declared. Forest fires in Australia; the Small Versailles had burned out in France (exactly on Jan 3).

T e c h n o g e n e o u s catastrophes: in Russia, due to a numerous heating-system failures, dozens of thousands people were suffering from frost; two car crashes of buses with Russian tourists in Egypt (on Jan 2 and 10) each with victims; the largest railway crash in S. Africa (11 victims, 40 wounded); three air crashes with dozens of victims (US, Turkey, Peru) and collision of two fighters in Turkey on Jan 8 and 9.

S o c i a l a n d p o l i t i c a l events. Uncommonly sharp declarations of the President of the USA on the matter of military *operation against Iraq* (Jan 3, 14), while Pope sharply condemn such operation (Jan 13). N. Korean declaration (around Focus of Dec 21, Jan 8, 10) on Nuclear Program that shocked the world. Caracas: starting of gunfire on the streets, police clashes on Jan 3. Unexpectedly, new border-passing rules are entered by Poland and Lithuania with Russia (Jan 1, 3) that led to 17 km car queue; Georgia objects to starting of railway traffic between Russian city Sochi and Abkhasian Capital Suckhumi.

B i o t i c, s e c t s: 159 dolphins throw themselves a shore in N Zealand (Jan 8). As with the ship Dolly and other cloning and associated (subject to penalty?) epidemics [3], two announcements were made (Dec 24 and on Jan 3) about giving birth to human clones; there exists a suggestion that this is a fake for making an advertisement to the sect of Raelits (the previous Foci were marked by the sects acts as well).

P o i s o n i n g: Japan refused to buy European beef (due to danger of the mad cow disease), Jan 5; poisonous gas leakage at a plant in Samara caused a death and few wounded (Jan 9); due to poisoning, a large-scale recall of cakes in Germany (Jan 12). London: Disclosed a secret lab for producing a strong poison Ricin that is associated with al Qaeda (Jan 8); PM of the UK declares that the terrorists were trained in Georgia (Caucasus), while Russian authorities said that the Ricin production technology was found in Chechnya (Caucasus) (Jan 10), and (on Jan 14) special safety measures are taken in Moscow against the danger of Ricin; the first victim in the UK: a policeman is killed by a man suspected in producing Ricin. New anthrax-letters are received in the US (Jan 15).

T e r r o r i s m, suicide-bombers: unprecedented luggage checking measures are introduced in the US airports (Jan 3); a hijacker in Frankfurt threats to direct the stolen plane to the Eurobank (as in continuation of the 11th September and Florida events, synchronous with the HBs Foci), Jan 5; a hijacker seized a ship and the crew near Scotland (Jan 15). A series of arrests of people that are suspected in contacts with al

Qaeda in the UK, Germany, France, Russia. Several acts of terrorism in Israel: 19 victims, 100 wounded (Jan 3), 11 victims, dozens of wounded (Jan 13). Starting of the Washington sniper trial; Ecuador: public lynching (burning) of the man committed the statutory rape.

F i n a n c e s: New rise in oil prices (Jan 3); maximally low rate of US dollar to Euro in 3 years (Jan 10).

REFERENCES:

[1] Solar data www.sec.noaa.gov

[2] World Trends and Astrology in the Light of Heterogeneous resonance. 2003. <http://cura.free.fr/xxv/24smely3.html>

[3] Smelyakov S. The Focuses of the Comet Hale-Bopp: the Magic Spectacles for Seeing the Mosaic of the Mundane Trends? 2001, www.isarastrology.com

[4] S. Smelyakov. An Astrological Background of the Acute World Trends. 2002. <http://cura.free.fr/xx/18smelya.html>

[5] J.M. McCanney. Planet X, Comets and Earth Changes <http://www.jmccanneyscience.com>

THE COMET HALE-BOPP AND WAR

Sergey Smelyakov, March 20, 2003

Whether Pentagon uses astrology, or simply surrenders to its fate?

Once again, since the coming of the comet Hale Bopp (HB), the USA starts a war at the Foci [1] of this comet:

Bombardments of Yugoslavia had started on March 24, 1999 - exactly at the HB 's Focus of T5 (March 24);

On March 1, 2002, the USA has started the offensive in Afghanistan, the full swing of which comes to March 2-6 (viz. at HB's Focus of T3, March 3);

it was estimated as the largest and most severe military operation the USA held since the Korean war; Today, on March 20 (viz. at HB's Focus of T4, March 20), the USA has started the war against Iraq (at Saturn-Pluto opposition with Saturn in the 8th for Washington, etc.; for both sides, the A*C*G map is also impressive).

As the forthcoming HB's Foci are T5 (March 24), TB (April 7-11), T6 (July 4, 14), T7 (September 16), they may also specify the key points in developing of this war.

Reference:

[1] Sergey Smelyakov: An Astrological Background of the Acute World Trends
<http://cura.free.fr/xx/18smelya.html>

THE COMET HALE BOPP's FOCI ARE STILL EFFECTUAL

Sergey Smelyakov

The development of extreme natural calamities (hurricanes, Solar storms, floods, etc.), pronounced spacecraft fails and technogeneous accidents, as well as political collisions and acts of terrorism around the comet Hale-Bopp Focus of September 16 (as well as March 2004 ones) allow us to suggest that all its factors of influence are continuing to be effective throughout the countries where the respective manifestations were triggered by it (See Smelyakov S. The Comet Hale-Bopp and War: Whether Pentagon Uses Astrology, or Simply Surrenders to Its Fate? - Int. ISAR Email Letter, Vol. 224 (March 23, 2003), www.isar.demon.nl/page000.htm. Smelyakov S. An Astrological Background of the Acute World Trends. France: C.U.R.A., 2002 <http://cura.free.fr/xx/18smelya.html>).

As to a cause of non-stop development of terrorism that acquired a world wide scale and permanent manifestations since 1997, we may consider the following guess. The inquisition, the rides of conquistadors in America that were pursuing "the holy goals", and other Medieval fiducial acts aren't they resembling the current growth of terrorism, but with a delay of half a millennium that corresponds to the difference in births of the prophets, neither of whom had declared the use of violence. Isn't this "growing pains" being specific to a definite cycle of development that started after the 1364-year period (viz. the 15-th Auric harmonic of the Earthy year: 1, 3, 4, 7, 11, 18, 29, 47, 76, 123, 199, 32, 521, 843, 1364, . - See S. Smelyakov and Yu. Karpenko. The Auric Time Scale & the Mayan Factor. France: C.U.R.A., 2002, <http://cura.free.fr/xx/20smely2.html>) after passing of the respective prophet?

September 21, 2004

GREEN COMET STEPS INTO HALE-BOPP'S SHOES

Sergey Smelyakov, Feb. 3, 2005

On August 27, 2004, at GMT 11:12 AM, Donald Machholz in Colfax, California, had discovered the comet that was named Comet C/2004 Q2; the next day his name, Machholz, was added to it (you may find it in the Web by this name). These data are given in [Don Machholz. The Discovery of Comet Machholz (Comet 2004 Q2) <http://ephemeris.sjaa.net/0410/b.html>].

The ephemeris for this comet you may take at Ephemeris Generator for UT <http://ssd.jpl.nasa.gov/cgi-bin/eph> , which I used for calculations, or for TT at <http://cfa-www.harvard.edu/iau/Ephemerides/Comets/2004Q2.html> . However, one must remember that ephemeris are given for Right Ascension and Declination for the epoch of J2000; this means, that they are to be transformed to Ecliptic longitude for the epoch of 2005.

Comet Machholz is considered to be the first significant comet to grace our skies since Comet Hale-Bopp in 1997, before which the comet Hyakutake was seen in 1996. But it is not the visibility only that may attract our attention to this object. As the comparison of calculations vs. manifestations shows now, it basically demonstrates the same astrological nature as its preceding colleagues: [1] - Smelyakov S. An Astrological Background of the Acute World Trends. France: C.U.R.A., 2002 <http://cura.free.fr/xx/18smelya.html> ; [2] ISAR E-mail Letters Vol. 303, 215, 224, etc.

Why?

The comet Machholz' longitude for the above birth data makes 26 Tau 35, which is 20 minutes greater than the Algol's longitude 26 Tau 14.5 for the current epoch. Furthermore, on January 16, 2005, on the Celestial Sphere it passes Algol in a vicinity of less than two degrees, and namely there, where the trajectories of the comets Hale-Bopp (HB) and Hyakutake intersect [1]! This was immediately followed by a significant surge of Solar activity around January 16 in 2 (for radio flux), 6 (for sunspot number) and even 60 (for sunspot area) times in 10 days. In October and December these values also exceed significantly the daily values for the year of 2004.

Around September 16 the comet Machholz (3 Gem 29) seemingly came to resonance with the comet HB's Time Focus, which caused a series of natural disasters extreme hurricanes etc. [2].

On December 26 (28 Tau 48) it probably attributed to tsunami (this kind of disaster was also specified as a factor of influence of the comet HB), since in its birth chart: comet Machholz conjuncts Ic for the geographical meridian 90-91 deg., viz. the centre of Bay of Bengal, several degrees to the epicentre of the quake; A*C*G shows, that Sumatra is crossed by Ur opp. to Sun at Asc, near Mars at Ds; natal Sun/Moon (16 Sco 40) is at Ic for Sri Lanka. Last, not least is the comet Machholz' converse direction which conjuncts Algol: 20 minutes of a degree makes 4 months!

Besides, this event took place at a 5-degree orb of the comet HB's Focus of Dec. 21, and namely this longitude (28 Tau 48) specifies one more Focus of comet HB being close to its April's Apex of (27 Tau 12) [1].

Around January 5 (viz. at the comet HB's Focus of Jan 3) the comet Machholz (27 Tau 17) passed closest to the earth (0.35 AU from Earth) and, by this, probably had benefited to a splash of unrecorded storms in Europe and rains in California, etc.

As far as this 'coincident' of comets HB's and Machholz' Foci is hardly to be taken as random, we may suppose that an 'Algol-like' nature of the green comet (as the comet C/2004 Q2 is also called due to its greenish halo) may also benefit to intensification of the remaining [1] Foci of the comet HB, the nearest of which are March 4, 13 and 24, as well as with April's Apex at Algol [1] and so on. The more so that on its ingress in Cancer on March 7, it will culminate for several days (around March 11) in the sky near the Polar star. In more details I am going to present this story to The International Astrologer.

This week NASA reported that on the 4th of July, a NASA spacecraft will blast a hole in Comet Tempel 1.... one can only wonder about the symbolism of this man-made change like a line in the "Astronautical ephemeris" ... !

More on this in the contribution from Sergey Smelyakov below.

ON THE VERGE OF NEW MAN/SPACE RELATIONS (AND COMET TEMPEL 1)

Sergey Smelyakov, June 27, 2005

This Winter, the comet Machholz [ephemeris.sjaa.net/0410/b.html] had intensified [Green Comet Steps into Hale-Bopp's Shoes - Int. e-Letters Vol. 322 www.isar.demon.nl/page000.htm] the comet Hale-Bopp (HB) Foci [cura.free.fr/xx/18smelya.html]. In Spring, the manifestations of these Foci were as efficient as in 1997 - 1998, with respect to all factors of influence [www.isarastronomy.com] from Solar activity surges and natural calamities to air & spacecraft failures and social effects (up to the death of the Pope).

Therefore, the next HB Focus F6 of July 4 may also manifest itself intensively.

But what makes this Focus especially important is that the "comet-studying" Deep Impact mission [nasa.gov/deepimpact, deepimpact.jpl.nasa.gov/] is planned to finish on this date too. In brief, "Deep Impact" is comprised of two parts, a "fly-by" spacecraft and a smaller "impactor." The impactor will be released into the Comet Tempel 1 path for a planned collision on July 4. The crater produced by the impactor is expected to be up to the size of a football stadium and two to 14 stories deep. Ice and dust debris will be ejected from the crater, revealing the material beneath. The fly-by spacecraft will observe the effects of the collision. NASA's Hubble, Spitzer and Chandra space telescopes, and other telescopes on Earth, will also observe the collision".

The intrigue of coincidence of these dates has several aspects.

Firstly, since the first Space flight (Event 1, Oct 4, 1957), this is the first attempt to exert destructive influence on a Space object. To this end, three major Space objects, apart from the Earth, are involved in this situation: the Sun, as the central star and that object whose last conjunction with the comet HB defines the Focus F6 at the Earth's aphelion;

Mars and Jupiter, since the comet Tempel 1, as the actual herald or messenger, revolves between these two planets so that: within a great accuracy, the comet and Mars orbits form the externally tangent ellipses, where the touch point presents the perihelion of the comet's orbit and the point of its North Node, when the Earth is at aphelion; with lesser accuracy, the comet's orbit is tangent to that of Jupiter.

At the collision being planned on July 4, the Earth and comet are at their perihelions. On July 5 (at 26 Lib 48 Tropical, Geocentric) the comet passes its perihelion at a distance of 1.51 AU from the Sun, that is almost exactly on the Mars orbit (1.52 AU), and on July 7 (at 27 Lib 50 Tropical, Geocentric) it passes its Node (viz. passes the plane of Ecliptic to the Southern hemisphere).

This means, that:

The comet passes the trajectory of Mars at its closest point to the Sun;

With its small inclination to the Ecliptic (10.5 degrees), the trajectory of the comet Tempel 1 is almost tangent to the orbit of Mars on July 4-7 (its vector is perpendicular to the Sun and inclined at 10.5 degrees to the plane of Ecliptic);

Besides, Mars itself passes its perihelion in several days, around July 14 (viz. at the conjunct Focus F6' of the comet HB). As Mars squares the point of collision in July, 2005, the third return of the comet Tempel 1 (or its fragments) to this point in 2016.5 will take place when Mars will come to the vicinity of the same point. In 1 and ½ periods of the comet, viz. in 8 years, the fragments of collision will come to a close vicinity of Jupiter that will fly near the comet's aphelion.

To this end, it is very important to specify that on July 4, 2005 (Event 2) Jupiter comes (to within less than a degree) to its fourth return since Ev.1, whereas these planets at Ev.2 make almost exact T-square to the Sun-Jupiter-Mars conjunction of Ev.1 (for noon, as the impact time is unknown):

Sun (Ev.1 - 11 Lib 0) (Ev.2 12 Can 36)

Mars (Ev.1 - 6 Lib 41) (Ev.2 15 Ari 12)

Jupiter (Ev.1 11 Lib 53) (Ev.2 10 Lib 11)

Secondly, though the size of the comet Tempel 1 is not small, it is neither so large for not reacting to the impact in a crucial way. Indeed, the estimates for its size are 3 km in diameter to 6 km long (it is somewhat more elongated rather than a sphere), and a crater may have a diameter of up to 200 meters or more. So, we can see that the linear dimensions of the crater may amount to 5% - 10% of the nucleus itself. With taking account of comet's elongated form, fantastic speed of the impact and possible clefts in nucleus, we may conclude that there exists a great probability that the impact may split the nucleus into several parts, apart from forming of debris.

As far as the collision is to take place in Ecliptic and the ecliptic component of the comet's velocity makes about 98% of the full speed, we may conclude, that the debris, if not significant fragments, will have a wide spectrum of velocities that lie in the plane of Ecliptic and, therefore, may come across the Mars and Earth orbits, even when the comet's core will follow its former orbit.

Therefore, we may suggest that the collision, if it actually would take place, may have negative consequences both physically (debris, etc.) and esoterically (spoiling of an important Space Herald).

Comet HALE BOPP Foci are still in action

Sergey Smelyakov, Jan 6, 2006

This year has started, once again, with intense manifestations of comet Hale Bopp Focus of January 3 [Smelyakov S. The Focuses of the Comet Hale-Bopp: the Magic Spectacles for Seeing the Mosaic of the Mundane Trends? 2001, <http://www.isarastrology.com>] relative to all factors of Influence:

1. Natural calamities (floods, fires, epidemics, etc.): extreme floods and landslides in Indonesia (dozens of victims), California (hundreds of houses are destructed, 4000 people are evacuated), Bolivia (destruction of roads, gas pipelines).

The highest, since the 20-ies, temperatures in Sydney, forest fires with 30 m tongues of flame; fires in new Mexico, Texas, Oklahoma (evacuation of population; arsons are supposed).

Turkey: bird flu is firstly revealed among the humans (2 cases in 4 days).

2. Technogeneous catastrophes (crashes, destructions, etc.): Bavaria: crash of a skating rink roof (13 victims, dozens of wounded); USA: explosion in a mine (12 victims), tragically erroneous declaration that the blocked miners are alive; Mecca: destruction of hotel (30 victims).

Ukraine: switchback falls to earth, victims; air crash with 3 victims.

3. Social and political disorders, psychological collisions, terror, violation of physical frontiers and legislation, etc.:

Ukraine/Russia gas-price confrontation that damages Europe; Russian gas traders blame Ukraine for stealing gas from the European pipeline.

Iraq: a surge of explosions with hundreds of victims.

Israel and Palestine. Surge of confrontation: missile skirmishing, police raids; from the first days of election campaign the menaces are declared as to postponing of the elections in Autonomy; heavy insult removes Sharon from his duties before the elections in Israel.

NEW COMET ACTIVATES THE FOCUS OF COMET HALE-BOPP

S. Smelyakov

On Jan. 2 Grzegorz Pojmanski had discovered a new comet; a confirmation photograph was taken on Jan. 4 (catalogued as C/2006 A1 [1]). In the early morning sky it can be readily picked up in binoculars looking like a small, circular patch of light with a bluish-white hue and an almost star-like center.

It is a mystery, but this new comet, not only was discovered at the comet hale-Bopp's Focus of January 3; once again (e.g. [2]), it has its critical point in a close vicinity of the comet Hale-Bopp's Focus this time it was passing closest to Earth on March 5, that is at the pronounced Focus of March 3 [3].

For this reason, with respect to the Hale-Bopp's factors of influence, the currently observed unprecedented tardy and fierce March snowfalls and intensely cold weather in Europe (apart from other relative events in the World) may seemingly be attributed to its influence.

[1] www.space.com/spacewatch/060224_night_sky.html

[2] GREEN COMET STEPS INTO HALE-BOPP'S SHOES - Int. ISAR Email Letter, Vol. 322 (Feb. 5, 2005) www.isar.demon.nl/page000.htm

[3] Smelyakov S. An Astrological Background of the Acute World Trends. France: C.U.R.A., 2002 <http://cura.free.fr/xx/18smelya.html>

For the 10th year, the comet HB is still effectual

S. Smelyakov, July 6, 2006

At the current Focus (July 4) of the comet Hale Bopp (HB) its influence is still seen in the same countries and relative to the same factors of influence [1]. Thus,

* Once again, a dangerous asteroid has flied by in a close vicinity of the Earth (at a distance of 432 000 km) on July 3. In 2002, a similar situation took place at a Focus of March 8 [2]: "As if by emphasizing the actuality of the comet Ikeya-Zhang (IZ), on March 8, when it passed the Sun of the Apex of the cross the preceding comets (HB and Hyakutake) made over the Northern Hemisphere, an asteroid, now named 2002 EM7, had passed its perigee within 298 400 miles (about 38 Earth's diameters) of our planet, or about 1.2 times as far away as the Moon. However, it was not discovered (!) until March 12 (viz. at T8). Few asteroids this large have ever been known to pass so close to Earth; "of the objects that have come closer, only one is bigger".

* At the Eastern meridional belt of the USA, once again, the spacecraft failures take place before and on July 4: the Shuttle's launch was firstly delayed, before the start a crack was detected in the construction, etc.

* At the meridional belt of Israel-Ukraine-Moscow (it also comes through Kharkov and Crimea): once again we see an intense aggravation in Israel, up to committing troops in Gaza stripe;

on June 28-29 a conflagration took place at a nuclear centre (it is disposed in a residential area of Kharkov) with a nuclear materials escape that was seen as a green cloud (in some places the radioactive level was about 200 units), but this incident was announced by the local TV with a week delay only; the destructive storms took place in Crimea and adjacent regions on July 3 5: a 3-month precipitation level was registered in a day; as well, a new turn in a Parliamentary crisis in Ukraine took place on July 6 with the splitting of a just born coalition (a parliamentary coalition cannot be formed since the elections of March 26).

* N. Korea, as before, has marked itself with a military activity at a HB Focus: this time it launched several operative and strategic missiles. A great hue and cry has been raised against it, up to the UNO.

References

[1] Smelyakov S. Whether the Comet Hale-Bopp is Opening the Gate to the Forthcoming Decade? www.isarastrology.com.

[2] Smelyakov S. The Implicit Might of the Cometary Focuses and Its Development. Check it yourself! ISAR emailletters, Volume 174, March 31, 2002 www.isar.demon.nl/page000.htm

PROGRESSIONS FOR THE FOCI OF COMET HB DO ALSO WORK!

By Sergey Smelyakov, July 18, 2006

The highly pronounced after-effects of the passed [1] Focus T6 of July 4 have a clear explanation if we would give a glance on the progressive Sun positions [2] of the conjunctions defining the comet Hale-Bopp Foci; first of all on the progressed Suns pS1 (18 Can 12) and pS4 (21 Can 32) for the Foci T6* of July 1 and T6 of July 4 (the latter date defines the Sun/HB conjunction in Ecliptic longitude, the former in Right ascension [2]).

This year the growing power of the HB' manifestations after the 5-day orb of T6, which corresponds to the 5-degree orb for the conjunction, follows from the conjunction of the pS1 and pS4 with the transiting Sun (about 20 Can at UT Noon of July 12) and the Sun of the weaker doubler T6' of July 14 for the Focus T6, together with the squaring this conjunction by the HB's Apex Sun (20 Ari 24) and Focal and progressed Saturn (19 Ari 32 to 20 Ari 04).

This basic situation clearly explains the splash of events pertaining to all HB's factors of influence and geographical Foci namely after the Focus T6, in the vicinity of July 12 – 14 (See a brief Summary, below).

As to Israel, the situation was expected [2] due to the moving of the Israeli progressive Sun (IpS) within the "Space escort" of the four progressive HB's Focal Suns. Today, coming of the IpS (19 Can 18) to this junction (or midpoint) of the explosive conjunctions has caused the resonance which is amplified by the transiting Mars square to the Natal Sun of Israel (23 Tau 40) and HB's Apex (24 Tau 27) and Uranus conjunct the Sun of Focus T3, together with the allocation of the IpS at Mc in Xth and at Ic in Fourth of the progressive charts for T6* and T6, Mars-Neptune progressive conjunction and some other major aspects with HB's and its own elements, apart from other significant configurations.

The above considerations are illustrated by the following Summary of the basic events (preceded by day of July) per the specified factors of influence [3]. Notice, that they repeat the analogous events at the preceding Foci [2, 3].

(1) Natural calamities: 7 China: flood with dozens of victims, 30 000 evacuated; 17 Java: Tsunami, hundreds of victims, tens of thousands of homeless; 14 California: state of emergency is declared due to the forest fires.

(2) Air crashes and spacecraft failures: 9 Irkutsk, Russia: crash of A310, 124 victims; 9 Emergent landing of A310 in Simpheropol; 10 Crash and light up of Tu134 in Simpheropol on taking off: the passengers are saved; 10 Pakistan: air crash, 45 victims.

(3) Social and political effects. Social life: 9 An unexpected behaviour of Z. Zidane at the Fifa World Cup Final had probably led to the defeat of the French team.

Economy: 14 Record in oil prices, \$78; 14 A fall in almost all stock exchange indices.

Terrorism: 8-9 Basaev and 12 other terrorists were annihilated by the Security forces. This head of the Northern Caucasus terrorists was the organizer of the blood shed in Beslan (344 victims, 186 children among them), Budennovsk (1500 hostages, expectant mothers in windows as the live shields), Dubrovka theatre (150 victims), etc. He prepared an act of terrorism for the G8; 12 India: 8 explosions over the country, more than 100 victims, hundreds of wounded; 13 Special operation in Chechnya: 13 terrorists are killed and 3 wounded.

Violation of physical frontiers and legislation, etc.: 9 Euro-African Conference on suppression of illegal immigration; 10 Former Vice-President of Yugoslavia and 5 other persons appear in Hague Tribunal as war crimes; 10 GB announces about sending of reinforcement in Afghanistan; 12 Self-declared Near-

Dnestr Republic Parliament declares the independence referendum; 12 Federal Security Agency of Russia announces that two independent sources inform that Georgia is going to undertake a provocation in S. Ossetia during the G8 Summit against the Russian Peace-keeping forces and local residents; 13 S. Ossetia officials inform that Georgia has completed the concentration of its troops in front of Ossetia (1/3 of its military potential) and deployment of field hospital and morgue; 18 Georgian Parliament accepts the appeal to the Government to withdraw Russian peace-keeping contingent from Ossetia and Abkhazia.

12-13 Israel starts the full-scale military operation against Hezbollah in Lebanon at T6', after it started the military operation in Gaza stripe at T6. This is its first war in two fronts and, once again [1-3], use of force in this country starts at the Focus of the comet HB.

References

[1] Smelyakov S. For the 10th year, the comet HB is still effectual. ISAR emailletters, Volume 395, July 9, 2006 www.isar.demon.nl/page000.htm

[2] S. Smelyakov. An Astrological Background of the Acute World Trends. France: C.U.R.A., 2002 <http://cura.free.fr/xx/18smelya.html>

[3] S. Smelyakov. Whether the Comet Hale-Bopp is Opening the Gate to the Forthcoming Decade? <http://www.isarastrology.com>.

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