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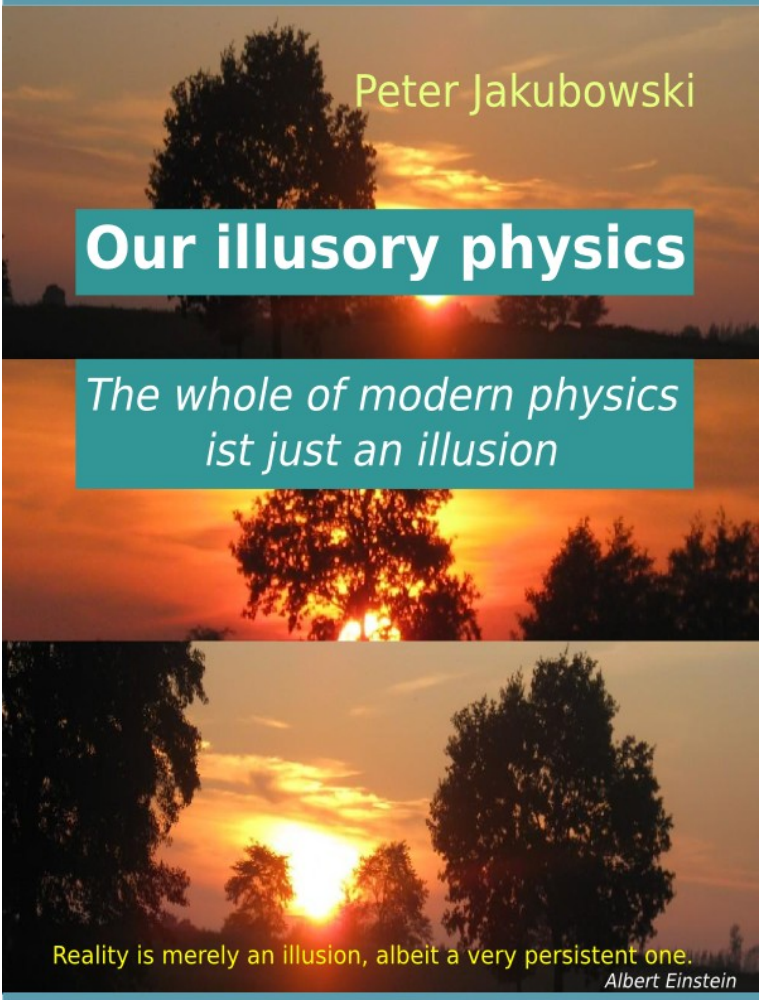

Peter Jakubowski

Our illusory physics

The whole of modern physics ist just an illusion

Reality is merely an illusion, albeit a very persistent one.
Albert Einstein

Open Science Academy

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The whole of modern physics is just an illusion

by Peter Jakubowski

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For Aja, Babi, and Caro.

Remember our past, enjoy our present, dream your future.

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Imagine you are allowed to create your own universe

Imagine for yourself, you are back in the extremely ancient time when there is nothing but you and your God. If you do not believe in God, just imagine that someone like He would speak to you. Then imagine your God would ask you: “I have the power to grant you anything you wish for, however, it can be just a one thing only, and only one wish”. What would be your answer? What would you choose from all those things you are able to think of? Gold, money, a wife or a husband? Or maybe something more extreme: a planet like our Earth, or a star like our Sun? But remember, just one thing. What would you choose?

If I were given this incredible opportunity, I know what my choice would be. I would choose a Universal Creative Potential, giving me a possibility to create everything else. This possibility to create the first quantum of “my” universe would give me the “right” place (or space, if you prefer) for such a universe and also the “right” time (life expectation), both being just the quantum size and quantum period belonging to this first quantum. It seems rather obvious that if I would decide to allow an evolution of life on one (or more) planets of “my” universe, I should consider it being not much smaller than that one we are actually living on. All the next quanta of “my” universe

would then be adjusted automatically to its initial quantum. With this potential at my disposal I would be able to create a whole universe just like ours.

Would I feel glad with myself and with “my” own universe? I suppose ... yes! And you if you were in my place? Probably you too would be glad. And so would any other human being having obtained this creative potential.

So, why should we not feel good with ourselves in our present Universe, on our planet Earth in our Solar System? I think, in order to achieve happiness, we have only to understand, what an enormous stroke of good fortune, that we are allowed to live here and today. Let us try to understand our own luck, at the beginning from the physical, and next from the psychical point of view. This book is a guide into the first part of this understanding.

Nathan Spielberg and Bryon D. Anderson have written in their book *“Seven Ideas that Shook the Universe”* (Wiley Science Editions, 1987) about the use of mathematics in physics as follows:

> “The presentation in this book is nonmathematical. The reader with little training in or taste for mathematics should be able to follow the conceptual development. Yet physics is a very quantitative science, and owes its success to the applicability of mathematics to its subject matter. The success and failure of physical theories depend upon the extent to which they are supported by detailed mathematical calculations, and an intelligent discussion of physical concepts cannot ignore mathematics. It is possible, however, to minimize the formal use of mathematics in such

> publications as *"Scientific American"* and *"Endeavor"*. The basic concepts and methods of physics can be communicated quite successfully with a minimal amount of mathematics."

To a large extent I agree with above sentiments. In a sense I too will use "a minimal amount of mathematics" in my book. However, I do it not because I will follow the *"Scientific American"* popularizing form to explain the traditional physics. I am doing that because my Unified Physics has no need for complicated mathematics at all. Therefore, that what Spielberg and Anderson continue just below the above fragment is not more acceptable for myself:

> "Ultimately, nature appears to follow a few amazingly simple rules. These rules – the laws of physics – can generally be described clearly with little formal mathematics. It is the discovery, extensions, and application of these laws that requires considerable mathematical ability."

It is not correct from the point of view of the new scientific paradigm I am going to present in my book. Nature does not follow any "laws of physics", never in the past, or now, and surely not in the future. The "laws of physics", even the whole of physics itself, is a man-made description of Nature. As we shall see in the next Chapters, Nature stands above our science, like God stands above our religion. Independent of our knowledge or our faith, we have no possibility to decide, how Nature (as well as God) has to be or to act.

Another book, written very recently by Leonard Susskind and George Hrbovsky ("*The Theoretical Minimum; what*

you need to know to start doing physics"; Basic Books; New York, 2013), defines the classical physics in the following way:

> "The term "*classical physics*" refers to physics before the advent of quantum mechanics. Classical physics includes Newton's equations for the motion of particles, the Maxwell-Faraday theory of electromagnetic fields, and Einstein's general theory of relativity. But it is more then just specific theories of specific phenomena; it is a set of principles and rules – an underlying logic – that governs all phenomena for which quantum uncertainty is not important. These general rules are called "*classical mechanics*"."

The most fundamental mistake in this statement relies upon the fact that, according to the new paradigm, the whole of the Universe is quantized. Therefore, there is no any single natural non-quantized process.

However, despite of this mistake, the "*classical mechanics*" as described here above, connects to this quantized "reality" of the Unified Physics much closer than the "*Quantum Mechanics*" of the 20th-century physics ever did. It is because the uncertainty principle was based upon an artificial limit of Planck constant h. This "constant" is just a value of the universal quantum of action, it means, its value on the universal level of the Quantum Spectrum of Matter. In any other state of matter, the value of this quantum is different from this constant. The unified version of the Planck's energy equation means - in the new paradigm - that quantum energy W is always a product of the quantum action J with the quantum frequency f, W = J * f, and only in a specific state of the

Universal Quantum Field it equals to $W_u = h * f_u$. It is the reason, why I am adding (in all my texts) the "*Quantum Mechanics*" of the 20th century to the above defined "*classical physics*", referring to all of them with a collective name as the "*traditional physics*".

So we are going in this book to replace this traditional physics with Unified Physics, what means, we change from the traditional physical description of Nature to the new, uniform (or unified) description, or quite formally, we change our scientific paradigm.

Part One

Introduction

Physics is what the best physicists are doing all the time, and all others from time to time. To do physics is the most exciting and exacting human activities I can imagine for myself. In my shortest definition, physics is our scientific description of Nature by means of the experimentally provable theories.

1

The whole of modern physics is just an illusion

Physics is broadly seen as the most fundamental of the natural sciences. Astronomy, biology, chemistry, or geology are sciences applying physical theories to some specific domains of our knowledge about Nature. This relation has resulted in a division of the traditional physics in seemingly separate domains, like chemical physics, biophysics, geophysics, and astrophysics.

It is obvious that, due to the leading role of physics in our description of Nature, each „revolution“ in physics itself has always a profound influence on all other sciences. The greatest thinkable „revolution“ in science means a paradigm change, i. e., the change in our point of view upon the Universe, upon our World we all are living in.

In recent decades, the awareness is growing, that beside these so-called „natural“ sciences also the humanities (or „humanitarian“ sciences) are increasingly influenced by the physical theories, first of all by the quantum theory. That means that also the humanities are strongly dependent on the actual paradigm in physics. Today we live in times of a great paradigm change in our description of the whole Nature, including the inanimate matter and

the living matter as well. Therefore, not only our traditional physics has to be replaced with a completely new, uniform physics, but also our understanding of such humanitarian aspects of Nature as our own bodies, our thoughts, and our souls, have to be adapted to this new physical paradigm.

Many scientists and humanists have already recognized this necessity. Most of them are grouped around Ervin Laszlo and the Club of Budapest and its members. This book should help them to summarize the running change in our description of Nature from the fundamental, physical point of view. Therefore, I am going to write this book without any deep mathematical ideas, complicated physical equations and endless tables of the observational data. The main reason, however, why I am trying to so much simplify our scientific description of Nature is not the desire to make easier the life of the non-physicists, but the fact that the new paradigm reveals something completely unexpected: the whole modern physics of the 20th century is just an illusion, a fairy story. None of the physical quantities we have ever introduced into our physical description of Nature describes existing, original property of Nature. Neither energy, nor mass, nor electromagnetic field (including any form of light), nor gravity, does exist for itself, or even is necessary for our Universe. And the creation of the Universe is in no way finished today. We all are its co-creators all the time.

The actual paradigm change in all sciences is so radical, that we have to carefully prepare ourselves to this mental act. We cannot keep in our mind, when crossing the paradigm boundary, any single theoretical concept from our „old scientific life" other than our bare individual

intuition, knowledge and experience. Let us be prepared for this scientific „re-incarnation“. If you are not sure whether you are able to make such a radical step, just follow me.

2

How can we create our Universe?

During my primary-school time in postwar Poland I have never given any thought to the question: What is Nature? No one of my associates did also consider this problem. Nature was just the freedom to go out and play with our companions. It was probably the opposite to home and school, although I have never considered this relation in that manner. Our school program included biology, geography, astronomy, chemistry and physics. However, the term Nature has never bin used in its general, holistic sense, as we are using it today.

During the first years of my physics study I have learned that such terms like energy or force are generally applicable in any situation considered in science. But even those general physical quantities were also never bound directly to the Nature as a whole. First the Einsteinian Relativity Theory has introduced the so-called „natural constant“, the speed of light in vacuum, which value should be obligatory for the whole Nature, always and everywhere. The 20th century physics has readily accepted this assumption and make it to a holy part of the paradigm still used in science today. Over the years I was told many times that Nature is generally more complex than we give it credit for. The generally accepted laws of the traditional physics were considered fundamental, although many of

them referred to idealized, closed systems.

First many years after my study, I have started to think about Nature as a wholeness. All phenomena and all processes we are able to observe with our senses, are natural phenomena and processes. This rather obvious realization led me to suppose that also our physics, being nothing less or more than our scientific description of Nature, should be considered as a wholeness, as a uniform theory describing the uniform Nature. However, even with this knowledge in my mind, I have written in my first book, „The cosmic carousel of life“ (2003), the following opinion.

> „In order to be able to concentrate ourselves on a certain sequence of the thoughts and ideas, we first try to use a simple, or even a primitive substitute of the definition of Nature. As „natural” we will view everything, which was not created by human hand in principle. Therefore, the Nature itself could be described as „the Universe around us that has not originated through our help”. After this simplifying definition, everything older than one to three million years surely belongs, or has belonged, to Nature itself. There were simply not yet *Homo sapiens* before this time. Quite similarly, everything outside the present-day Solar System - with the exception of the few spacecraft, which have already flown to outside of the Solar System - is also such pure natural object. If you like, we even include any intelligent creatures that possibly could exist there „outdoors” to our definition of the natural objects.
>
> Are we ourselves not also only a product of

> Nature? Surely yes, at least if considering purely philosophically. However, this environmentally conscious point of view doesn't take us further in our intent to describe Nature. We must see ourselves, at the moment at least, as a factor outside Nature. This situation has originated because we people want not only to understand Nature. We also want to be her „masters" or at least to have a control about her. Therefore, we must consider ourselves as protagonists acting outside Nature. In some situations, as in the question of the environment pollution, we must even consider ourselves as opponents of Nature. From this „external" perspective, we have presumably better chance to correctly understand the natural, unadulterated connections and processes. Only when we have understood them properly, we have the possibility to successfully realize our „interventions" into such processes, as, for example, the cure of illnesses or the manufacturing of new medicines."

The above proposed separation of ourselves and our products from the natural phenomena and processes was still forced in my mind not much more than ten years ago by the 20th century reductionistic and mechanistic paradigm in science.

Finally, not earlier than two or three years ago, I have truly realized that the wholeness of Nature can only be understood in its absolute version. The wholeness of all natural phenomena and processes has to be a product of an original Oneness, independent of the point of view, from which we are starting to describe the Nature. If we are

spiritually oriented in our search after the Oneness, we will tend to call it God or Creator. If we are scientifically oriented, we will prefer, as I do, to call the Oneness the Universal Creative Potential, from which absolutely everything, including, beside our whole cosmic home (with Earth and the Solar System), also our bodies, our thoughts, and our dreams, can be created. And this is the first important difference between the previous paradigm and the new one, the holistic paradigm in science of the 21st century.

Physics is our scientific description of Nature. If the scientific paradigm has changed, our physics has also to be changed. The uniform Nature demands a uniform physics as her description. My Unified Physics delivers for the first time in our written history such a uniform description. Although the mathematical basis of this new physics has been developed many years ago (*as will be described in one of the next Chapters*), its deepest interpretation is still emerging step by step on the surface of our knowledge. For example, for the past four decades of my work as physicist I was convinced that it is impossible to reach the last question of physics during a single human life. Now, after I have really reached exactly this point, I know that it is a great feeling indeed to have achieved what one has set out to do in one's life. The axioms of the Unified Physics have been simplified and generalized since their first formulation (in years 1990-1992) and the final question of physics: "How can we create our Universe?", now can be precisely answered.

Fortunately, the unified time does not flow infinitely, it circulates. Therefore the achievement of the last question is not the end of physics but just the end of the present

cycle of science. We are ready now to use our global consciousness and to begin to ask the Nature again. I am sure, our description of Nature will never end.

We can ask ourselves: Why should we continue to ask any scientific questions? A Chinese proverb said: „If you are planning for a year, sow rice; if you are planning for a decade, plant trees; if you are planning for a lifetime, educate people." In a previous version of the Vision of the Ervin Laszlo Center for Advanced Study we can read:

> „… According to Gregory Bateson, and for Heraclitus, the alchemists, Blake, Lamarck and Butler, scientific research emerges from our curiosity about the nature of humankind and our desire to construct a complete image of our place in the Universe. In this image both the ethical and aesthetic dimensions of consciousness arise through art and spirituality. The reward of this difficult intellectual task is not power, but beauty."

And theoretical physicist Lawrence M. Krauss said in a discussion with philosopher Julian Baggini:

> „… I continue to be surprised by the progress that is possible by continuing to ask questions of nature and let her answer through experiment. … The mysteries are what make life worth living and I would be sad if the day comes when we can no longer find answerable questions that have yet to be answered, and puzzles that can be solved. "

And what about our most important scientific question here: How can we create our Universe? Let us consider the answer according to our new paradigm step by step in the next parts of the present book. Before we do that, let us

describe what should we understand when speaking of a paradigm change.

3

What is a paradigm in science and how it can be changed?

In Prologue to the newest book by Ervin Laszlo, entitled: "*The Self-Actualizing Cosmos; The Akasha Revolution in Science and Human Consciousness*" (Inner Traditions, 2014), we read :

> "There is a major revolution under way in science today, a transformation that is both profound and fascinating. It changes our view of the world, and our concept of life and consciousness in the world. It comes at a propitious time.
>
> We know that the world we have created is unsustainable: we need new thinking to avert a collapse and set us on course for a sustainable and thriving society. The inspiration for the new thinking can come from science but not, or not only, from science as a source of new technologies. Rather, we need to view science as a source of orientation and guidance, as a wellspring of trustworthy ideas for rediscovering our relations to each other and the universe. The revolution under way in science offers a paradigm that can fill this need."

And in Chapter 1 (*Revolution in Science*) we read further:

> "In the natural sciences the turbulent phase of a revolution has already started. A number of unexpected, and—for the dominant paradigm—critically anomalous observations have come to light. They call for a basic paradigm shift: for a fundamental revolution that reinterprets science's most basic assumptions about the nature of cosmos, life, and consciousness."

The main task of science is to try to describe the world around us and inside of us by means of some logically interconnected terms. The fundamental tool in this task is a vision of the world we try to describe. But what does it mean, to have a vision of our world?

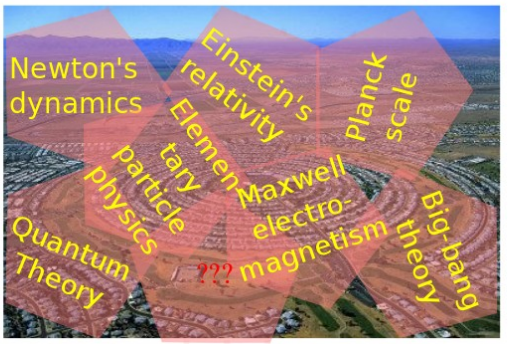
Before we are able to solve the main scientific task, we have to imagine to ourselves how the „real" world could be „constructed" and functioning. However, we cannot really know what is real and what is just an illusion in our world. And we cannot really know in which way the world came into existence or – in other words – has been constructed or created. We can only imagine all these things for ourselves and we can simply believe that our imagination is not far from truth.

A scientific paradigm is just a preliminary vision of the world we are living in.

Although our paradigm contains a „picture" of the whole world around us and inside of us, we have no possibility to prove its coincidence with this world in a single step of comparison. We have to solve our problem in smaller steps, like in the puzzle solving process. We have to

choose a proper form of the „puzzle elements“ available in our present science and try to cover with them the background picture of our paradigm.

The 20th century paradigm in science



The 21st century paradigm in science

based on the **Unified Physics** (*by P. Jakubowski*)

(*www.naturics.de and openscienceacademy.eu*)

Each of the „puzzle elements“ is filled with a partial theory describing a specific property of our world. Joined

together they give us a temporary description of this world, or at least a great part of it.

The actual situation during the 20th century could be imagined as in the top part of the picture above. The covering of the paradigm (the background picture) was already pretty well. But our feeling was growing stronger and stronger that this form of the „puzzle elements“ cannot cover the paradigm picture completely. Either we have produced too much of such elements or their form was not compatible with our task, or both of them.

> In order to change our scientific paradigm we have to change the „background“ vision of our world.

Then it becomes clear that no one of the old „puzzle elements“ can be reused in the new solution. The new vision requires a new form of such elements. The only part of the old solution of our task is the experience we have won hitherto, the ideas how the world could be functioning. The most important example of our experiences of the 20th century is the knowledge that the world (the whole Universe) seems to be quantized.

The new paradigm, the new background picture, suggests that we have to find one central „puzzle element“ inside of the new vision. And the form of all remaining „puzzle elements“ has to be completely different from the previous one, as shown in the lower part of the picture above.

It should be clear now that nobody trying to use one of the old theories („puzzle elements“) in their unchanged version can be successful in applying the new paradigm of the 21st century for to understand Nature better than ever.

Part Two

We create our Universe

A scientific paradigm is a preliminary vision of the world we are living in. In order to change our scientific paradigm we have to change the „background“ vision of our world. “There is a major revolution under way in science today, a transformation that is both profound and fascinating. It changes our view of the world, and our concept of life and consciousness in the world.” (*E.L.*)

Imagine, we have got a Universal Creative Potential, just a possibility to create everything else. This truly means a real possibility to create the first quantum of our Universe. This first quantum gives us the necessary place (or space) for our Universe and also the corresponding period of time, the life expectation of it. These both characteristics are just the quantum size and the quantum period belonging to this first quantum. It should be enough. The rest is routine.

4

How does the new scientific paradigm change our philosophy of life?

We have to change our imagination of the natural world, it means, we have to change our understanding and our description of it. The natural evolution of life on the Earth has recently developed our first global civilization. With its theoretical period between 1905 and 3023, this global civilization is still very young and we have to learn a lot about ourselves and about the cosmic place we are living in. We need a new, global consciousness for a reasonable management of our first global civilization.

Since no evolution in our consciousness is possible without a revolution in our thinking, we have to be prepared for some revolutionary thoughts and ideas. Are we ready for them? Let us check the most important new ideas.

1. All phenomena we are able to observe, to comprehend, or to copy (in our laboratories or factories) are natural phenomena.

2. All natural phenomena are *de facto* slowly (sometimes extremely slowly) running natural processes.

3. All natural processes are quantum processes, because they are always driven by a quantized energy transfer.

4. There are no processes in our Universe, including our thoughts and our feelings, being free of a corresponding energy transfer.

5. The single originally existing natural quantity is the Universal Creative Potential, creating the quanta of everything else in our Universe, including the energy itself.

6. The creation of any quantum of our Universe out of the Universal Creative Potential has always two components, the material one and the spiritual one.

7. These two components are constituting our Universe in an ideal partnership; none of them can be realized without the second one.

8. The material component of the Universal Creative Potential creates the quantum size and form for each quantum, as could be imagined like a snapshot of the quantum.

9. The spiritual component of the Universal Creative Potential creates the quantum period and circulation for each quantum, as could be imagined like a movie of the „material snapshots“ of this quantum.

10. A spirit without a material quantum (material object) is like a movie of empty snapshots, and reversely, a material object without any quantum of spirit (what means, with its duration shortened to zero) is like a movie with just a

single picture.

11. All physical quantities other than the quantum size (dimension r, and area A) and time (period t), are just mathematical abstract concepts introduced into science in previous centuries in order to describe the natural phenomena with our anthropomorphic way of thinking. They describe nothing more than an illusion, like force, velocity, electric or magnetic fields, and so on. All of them could be simply derived from the Universal Creative Potential.

12. There are also not any natural constants. Such numbers like Planck constant, vacuum-speed of light, Newton's gravitational constant, and so on, are also just an illusion. All of them could be calculated from the Universal Unity.

Surely, these are already highly shocking statements, also for non-physicists. The Universal Creative Potential, with its material and spiritual components, is creating our Universe, including ourselves, with all our ideas. However, it is difficult to understand the details of this creation without going into the deeper levels of the paradigm change. So, let us go some steps into the depth.

The natural medicine and the ancient science have a long tradition in our life. They have got enough time to reach a high level of compatibility with natural processes and phenomena. The industrial revolution and the modern science are much younger. This revolution has occurred more rapidly and not really ordered indeed. The medicine of the 19th and 20th century has tried to use the growing scientific knowledge concerning the inanimate matter for an explanation of the biological processes in living

organisms. This medicine cannot be successful, however, because the science of the industrial era did not understand the inanimate matter at all. Therefore, also our „mainstream“ knowledge of the animated matter is far away from the natural reality.

In the following we just touch twenty further, more practical new ideas emerging in our physical description of Nature, being necessary for the coming revolution in our global consciousness. This should help us to order the proper range of the necessary changes. It is obvious that these new ideas have to concern the inanimate as well as the animated matter with the same precision. Therefore, from now on we have to change our thinking to this uniform description of the whole Nature. Here are the practical examples basing on the new ideas given above.

1. There are no atoms and no molecules in a living body. In order to disassemble („moleculize“) our body onto individual molecules, we have to heat it to several hundreds of degrees Celsius. And in order to atomize our body, we have to heat it to several thousands degrees. On the contrary, Nature can pulverize each material object into dusty nanoparticles without any additional energy. Therefore we have to conclude that, in room temperatures, each material body, living or not, consists exclusively of nanoparticles.

2. Nature does not need our physics at all. All physical equations, units and constants are just a product of our limited understanding of Nature. All physical equations are shown in the Unified Physics to come directly from the single equation of the Universal Quantum Field (*which I have previously called the universal Field of Light*). And

all physical constants can be derived from just one of them, for example, from the Planck`s constant.

3. Nature does not need our four physical interactions (gravitational, electromagnetic, nuclear weak and strong). The only reasonable interaction describing the whole Nature is the universal, quantized energy transfer.

4. The Sun is not the only star in our Solar System. If a primary cosmic cloud collapses into a single center of mass, there remains no additional mass for any planets. Our Sun has obviously her planets, therefore, she had to have originated in a disturbed accretion, with a second center of mass at the edge of the accretion disk. A brown dwarf has been formed there. It has been destroyed 3.5 Mld years ago.

5. The Milky Way is not a large galaxy; today I am sure it is not a galaxy at all. Most of the stars we can see with naked eye do not belong to the „traditional“ Milky-Way galaxy but to the Large Magellanic Cloud. Our „own galaxy“ (whatever it is) is a satellite of the Large Magellanic Cloud.

6. The „vacuum“ speed of light (of 300 Mm/s) is not a constant of Nature. It is just a speed of the energy transfer in such a state of matter that makes the boundary between atoms and atomic nuclei. In our Solar System this specific state begins at the outer limit of the solar corona, where its temperature reaches about 3 million Kelvin.

7. Cosmic vacuum is not a universal state in the visible Universe. Both inanimate and animated matter come into existence directly from the Universal Quantum Field, an

average level of the Quantum Spectrum of Matter.

8. Photons are not elementary particles of Nature; they do not exist at all. There are no natural particles without mass in our Universe. The energy quanta have been completely misunderstood in the traditional physics. The natural, rotating energy quanta are the unique carriers of any information across the Universe.

9. Genes are not a „storehouse“ for a building plan of our body. The genes mirror our current energetic state of life and a bulk of our energetic (physical and psychical) history.

10. There are no incurable or malicious diseases. Each illness is a disturbance in natural processes. This disturbance can be removed, if one knows its cause, the course of the natural and disturbed processes, and the healing aids.

11. There are no skin diseases. Our skin is just a natural boundary between the animated world inside of us and the inanimate matter outside. The skin, the membrane limiting our interior, signalizes just the energetic (always quantized but only indirectly materialized) transfer from inside to outside and reversely.

12. The unified (natural) time does not flow, it circulates. Each natural process is always a quantum process. Therefore it has its own (internal) periodicity, reaching 5 THz in the Universal Quantum Field, but decreasing to far below a single Hz in our superbrain quanta and growing up to 10^{28} Hz in the quarks matter.

13. Bioresonances, a specific form of the energy transfer, are capable to regulate every disturbed energetic process in our body. We only have to learn the Quantum Spectrum of Matter, in oder to know the proper frequency and the proper power of the used therapy.

14. The origin of life does not lie in some mysterious point in the deep past of the Universe. The most primitive forms of life are so much abundant in the cosmic space as there are the various forms of the cosmic dust. They both are continuously created directly from the Universal Quantum Field. The fundamental „rule“ for life is very simple:

The simplest quantum of the living matter = dust particle + energy quantum + water drop.

15. The fundamental „rule“ for life on the Earth's surface in its trivial form is: dust + sun + rain = life. The Atacama desert (or each other desert) could be our exemplary terrestrial laboratory proving this rule every time after it has rained there.

16. Causal determinism (an idea known in physics as “cause-and-effect”) has been traditionally treated as contradictory to quantum physics. However, the quantum determinism seems to be real everywhere in our Universe, maybe with the exception of the Universal Quantum Field, where the new quanta of the living or inanimate matter appear spontaneously.

17. There are no chaotic natural processes. Therefore, no chaos theory has an application in the Unified Physics. On the level of the individual quanta of matter there always rules the deterministic cause-and-effect principle.

18. The cosmic-energy flux, reaching the Earth every moment and driving yearly the natural evolution-cycles of all living organisms, should also be a source of energy rich enough for our own species. We have to learn the Unified Physics in order to understand and to use this big source.

19. Earthquakes are predictable, because there is no effect without cause in the unified description of Nature. At the moment it is possible to predict the periods of the increased probability of the strongest earthquakes. For more precision we need to know all the energy flows in the Earth's crust.

20. The global-climate changes are predictable (*compare the Appendix*), because there is no periodicity in natural processes without some rotating cosmic objects energetically bound to the Earth. They are the objects of the Cosmic Hierarchy of the Solar System, with their natural hierarchical rotation, that are responsible for the causal determination of the observed changes in our global climate. The supposition of the anthropogenic influence upon these natural changes, except for the local and short-termed influence, is simply arrogant. We have surely not enough energy in our disposal to durable change the average temperature of the Earth's surface.

I hope, the above twenty examples clearly demonstrate the width and the depth of the necessary change in the “background” thinking connected with the new scientific paradigm. One of the most fascinating new possibilities opening themselves for us is the possibility to formulate, to discuss, and maybe to solve soon the mysterious spirit-matter duality in our World.

5

The spirit-matter quantum partnership in our world

The quantum period of any quantum in our Universe creates its spirituality, whereas the quantum area of this quantum creates its materiality. One of the most exciting new discoveries of the Unified Physics is the observation that a simple product of these two properties of any quantum is the quantum mass. Now, after Peter Higgs has obtained his Nobel Prize, we can made the simple relation public. According to the new paradigm, the Higgs particles are just an illusion too, as any other massless artificial construct of the 20th-century physics, like photons, for example.

The continuous evidence of some fundamental dualities in Nature suggests that also the undermost base of our physics, our scientific description of Nature, can be understood as a duality between the two main components of our reality: spirit and matter. This fundamental duality has to be found already on the level of a single quantum element of our world. As the eastern ancients teach us, such a fundamental duality cannot be realized as opposite polarity, but rather as a partnership originating from some unifying entity.

In the Unified Physics, this unifying entity is the original creative potential, termed Unified Unity, situated at the center of the dynamic plane of the Unified Family of all physical quantities (*we shall compare the details just a few pages below*). The two partner-components of the description are the spiritual axis of time and the material axis of dimension. In our reality, there is no existence without some temporal (spiritual) component, without a quantum period, and there is no experience without some extended (material) component, without a quantum area. The whole observable Universe is a result of a quantized creation from this creating potential of the Universal Unity. The creation is never ending. And all creatures (including us as well as the stars and galaxies) are also co-creators of the Universe. The Universe is changing through every new creature, whether a bacteria, a human being, or a galaxy; and even through any new thought or idea. So, let us change our World simply by thinking about it. If we are thinking positively, the change will also be positive.

Wave-Particle Duality

Already a quarter of a century ago, when preparing my first article concerning the Unified Physics[1] (*for the references to the present Chapter please see page 53*), I became aware of the fact that the so-called quantum „wave-particle duality“[2] is just an observable experimental manifestation of the intrinsic duality of the very nature of our quantized world, which cannot be solved or removed theoretically. In this early work, I have used the mathematical statement that any physical vector field may be divided into a source field (vortex-free field) and a

vortex field (source-free field). These two components are not separable from each other.

I have also understood that the electromagnetic field has always its two components, the vortex-free electric field and the source-free magnetic field. We have to use some very specific reference frame, if we want to observe just only the electric field or the magnetic field alone. The simplest proof of this mathematical rule is the absence in Nature of any magnetic monopoles (*the single sources of the magnetic field*) and of any electric vortices (*the separately circulating elements of the electric field*).

Despite of this obvious conclusion of the Unified Physics, there are still physicists among us looking for the mysterious magnetic monopoles. In the Introduction to the paper by Canadian physicist James Pinfold[3], we read for example:

> „In 1864 the Scottish physicist James Clerk Maxwell published the 19th-century equivalent of a grand unified theory, which encompassed the separate electric and magnetic forces into a single electromagnetic force []. Maxwell banished isolated magnetic charges from his four equations because no isolated magnetic pole had ever been observed. This brilliant simplification, however, led to asymmetric equations, which called for the aesthetically more attractive symmetric theory that would result if a magnetic charge did exist. Thirty years later, Pierre Curie looked into the possibility of free magnetic charges and found no grounds why they should not exist, although he added that it would be bold to deduce that such objects therefore existed [].

> Paul Dirac, in a paper published 1931, proved that the existence of the magnetic monopole was consistent with quantum theory [3]. In this paper he showed that the existence of the magnetic monopole not only symmetrized Maxwell's equations, but also explained the quantization of electric charge. To Dirac the beauty of mathematical reasoning and physical argument were instruments for discovery that, if used fearlessly, would lead to unexpected but valid conclusions. Perhaps the single contribution that best illustrates Dirac's courage is his work on the magnetic monopole. Today, magnetic-monopole solutions are found in many modern theories such as grand unified theories, string theory and M-theory. The big mystery is, where are they?"

Now, we are ready to answer this question: Nowhere! Magnetic monopoles cannot exist, because any magnetic field is the source-free component of the vectorial electromagnetic field. So, what should the wave-particle duality teach us about the reality? The best answer to this question I have found on Internet has been given by Australian physicist Tim Davis[4] (*the reference warmly recommended not only for physicists*). In his explanation of the electron diffraction we read:

> „The bizarre thing about the diffraction experiment is the electron wave doesn't deposit energy over the entire surface of the detector, as you might expect with a wave crashing on the shore. The energy of the electron is deposited at a point, just as if it was a particle. So while the electron propagates through space like a wave, it interacts at a point like a particle. This is known as wave-

particle duality. … This is what happens with photons, electrons and even atom waves. Naturally enough, this conundrum upset a lot of scientists, Einstein included. It is usually swept under the carpet and glibly referred to as „the collapse of the wavefunction“ on measurement. … And as for reality? I think Professor Feynman has the last word on that one, too: “ … the paradox is only a conflict between reality and your feeling of what reality ought to be.”

Other Dualities

A very wide discussion of the other dualities in ancient philosophy and modern science can be found in the book by Ervin Laszlo and Jude Currivan[5]. On page 43, we read there:

> „The intrinsic reflections of „dualities“ that are not separate but complementary aspects of each other abound in Nature. They find their expressions in the relationship of space and time itself, such fundamental polarities as the wave/particles of quantum entities and the generic attributes of passive yin and active yang principles throughout our universe.
>
> The ancients understood that the seed of one complement emerges from the full expression of the other in an ongoing relationship. Sometimes this can be discerned, but in other circumstances, such relationships are subtle or hidden. Until very recently, this has been the view of quantum physicists in regard to what they have termed

quantum „wave-particle duality“. Some 80 years ago, physicist Niels Bohr stated the principle that these two attributes cannot both be perceived at the same time; with regard to a quantum of light, for example, it acts as a wave or it acts as a particle.

In 2004, physicist Shahrair Afshar undertook an experiment that challenged quantum theory and Bohr’s contention and caused uproar within the physics community. What Afshar did was to design a special type of the so-called double-slit experiment that had originally showed that light has both wavelike and particle-like properties. However, Afshar’s experiment, which he revised and repeated in 2006, enables both the particle and the wave aspects of light to be perceived together, as it measures the path of photons (particles of light) while at the same time showing up their wavelike interference patterns.“

And on page 37, we can follow the unbelievable wisdom of the ancient philosophers:

„The Taoist philosophers of ancient China saw the world as arising from the sundering of unity into the universal polarities they termed yin and yang. With profound insight, they depicted the universal symbol for yin and yang as being complementary rather than opposing principles. And ever emerging from within the outgoing expression of yang and the inward expression of yin – the cosmic male and female – is the immanent presence of its partner. As did another ancient wisdom teachings, the Taoists recognized the innate tension between this dual relationship and sought resolution within a

third aspect, the balance of the two. In the symbol of yin/yang, this is accomplished by the wave that flows between them. And it is on this flowing threshold between light and shadow, positive and negative, that co-creativity is realized.

The Vedic sages of ancient India perceived the same dance of creation even more explicitly, considering all phenomena to arise from a trinity of interweaving cosmic forces they called gunas. These and many other spiritual traditions have understood that it is the interplay of such cosmic principles wherein lies the deep mystery of existence and experience. All these wisdom teachings comprehend the universe as an interrelated whole, within which the relationship of these ever-changing and yet eternal principles underlie the explorations of our consciousness.“

And finally continuing on p. 44:

„The Chinese sages perceived the innate presence of a third cosmic principle through which the co-creative expression of yin and yang is resolved and expressed. It is the three-in-one of this universal trinity through which form and phenomena are co-created.“

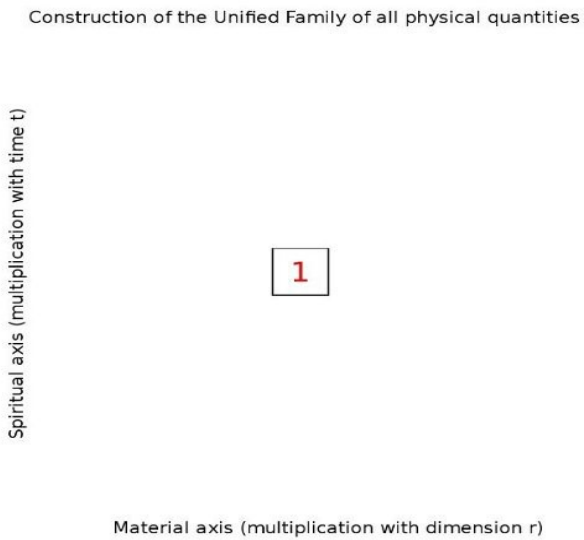
The Unified Family of all physical quantities

The continuous evidence of some fundamental dualities in Nature suggests that also the undermost base of our physics, our scientific description of Nature, can be understood as a duality between the two main components of our reality, the spirit and matter. This fundamental duality has to be found already on the level of a single quantum element of our world. As the eastern ancients teach us, such a fundamental duality cannot be realized as an opposite polarity, but rather as a partnership originating from some unifying entity.

In the Unified Physics, as already mentioned above, this unifying entity is the Universal Creative Potential, which has been practically termed Unified Unity, situated in the center of the dynamic plane of the Unified Family of all physical quantities. The two partner-components of the description are the spiritual axis of time and the material axis of dimension. We have also mentioned above that, in our reality there is no existence without some temporal (spiritual) component, it means without a quantum period, and there is no experience without some extended (material) component, what means, without a quantum area. The whole observable Universe is a result of a quantized creation from the creating potential of the Universal Unity. The creation is never ending. And all creatures (including us as well as stars and galaxies) are also co-creators of the Universe.

We are beginning our construction with nothing more than the single quantity, the Universal Unity, seemingly lost in the nothingness in the center of our reference-frame plane.

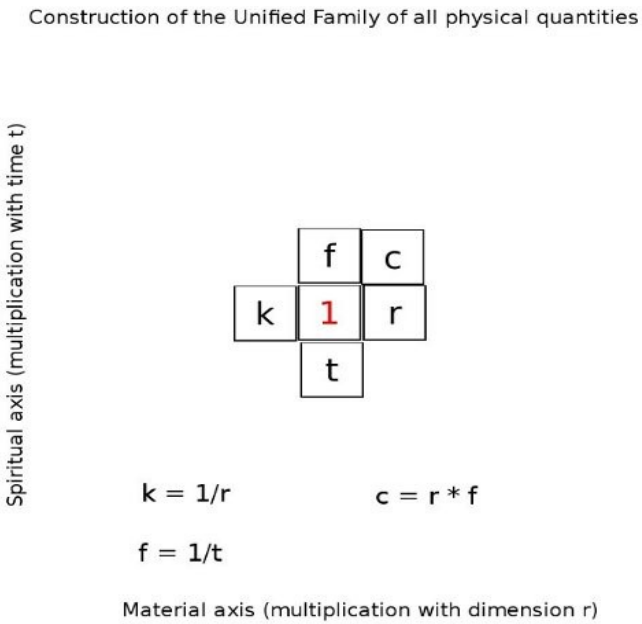
Nevertheless, it is the mightiest physical quantity I have ever thought of. It it the majestic potential to create everything else, the creative potential of our Universe, the Universal Creative Potential. At first, it creates his own two components. First of them is the exclusively material axis (*going to the right*), allowing us to create all possible objects (quantized creatures). Owing to this aspect of the creative potential, all these creatures obtain their original quantum form and size. The second component of the Universal Creative Potential is the exclusively spiritual axis (*going down*), allowing all those "material" quantized creatures to exist, what means, to survive for at least one period of their circulating quantum time.



These two components of the creative universal potential are not competing against each other, they are co-operating, creating the Universe in a partnership. A pure existence possibility, without any material objects to exist, is as unrealistic as a pure material forms never being

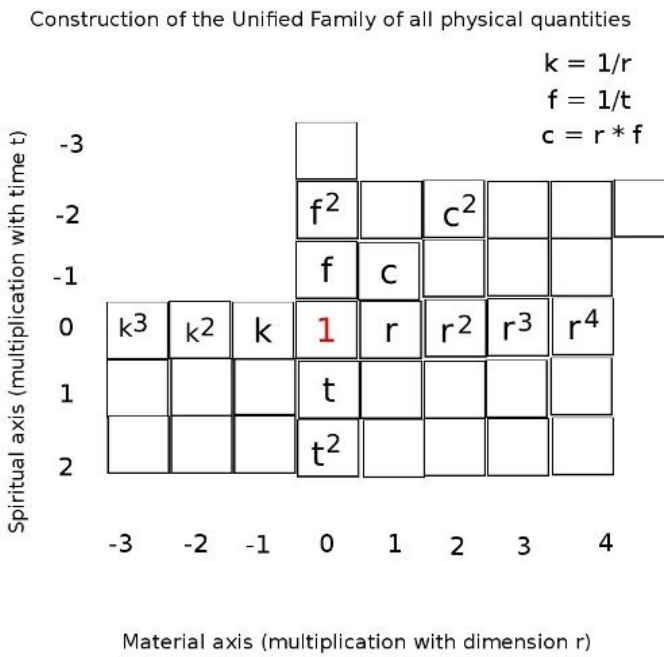
allowed to exist, that means, with their “life time” shortened to zero.

We have put the quantum time and the quantum size directly next to the Universal Unity along the corresponding axes of our reference frame. Now, at the opposite site along each axis we can place the reciprocal physical quantities of the dimension r and the time t. They are called wave vector k and frequency f, respectively. However, it is important to understand that these two additional quantities (*as well as all other physical quantities*) are not more some new components of the original creative potential. They are just mathematical constructions introduced by scientists during the long ages of our desperate efforts for understanding of the Universe and our role in it.

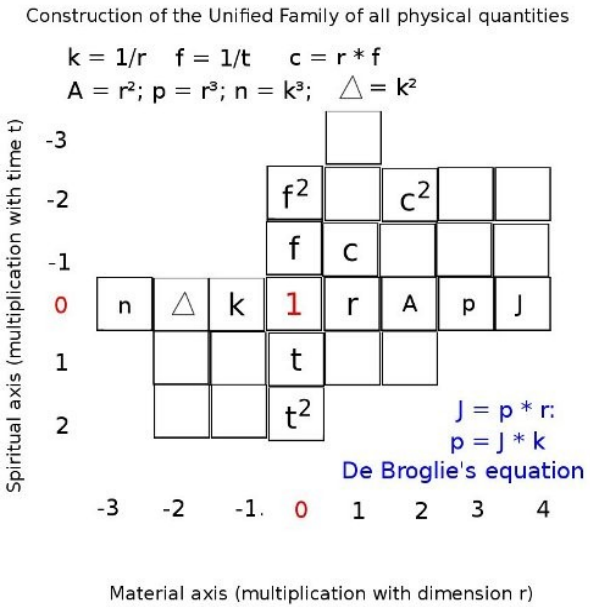


The reciprocal quantum time (the quantum frequency f), is necessary for our physical construction of the Universe, because it is a convenient way to define the probably best known physical quantity, the quantum speed c. As noted in the picture above, the quantum speed c is defined as the product of the quantum frequency f and the quantum dimension r, c = f * r. Note that it is our first physical equation created directly from the Universal Unity.

Let us prepare some place for the other physical quantities. A simple multiplication of the Universal Unity with the material and spiritual potentials, r and t, and their reciprocal quantities, k and f, directly leads to the physical quantities shown in the following diagram.



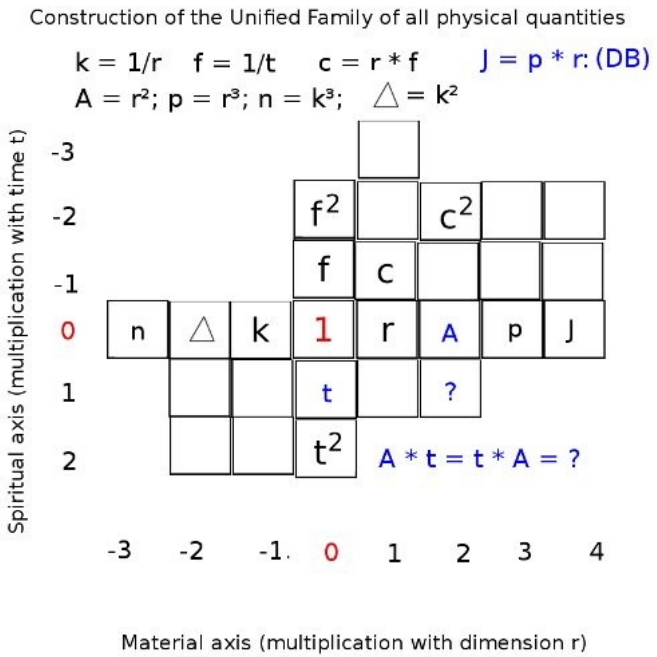
Do the new physical quantities seem to be unknown to you? Not really, as we demonstrate immediately on the next diagram. What seems unknown are just the somewhat non-conventional names of these new physical quantities, r^2, r^3, k^2, k^3, and so on. On second thougth we recognize most of them. We see that r^2 is just the quantum area A, r^3 is the quantum volume V, k^2 equals the quantum Laplacian Δ , and k^3 is simply the quantum spatial density.



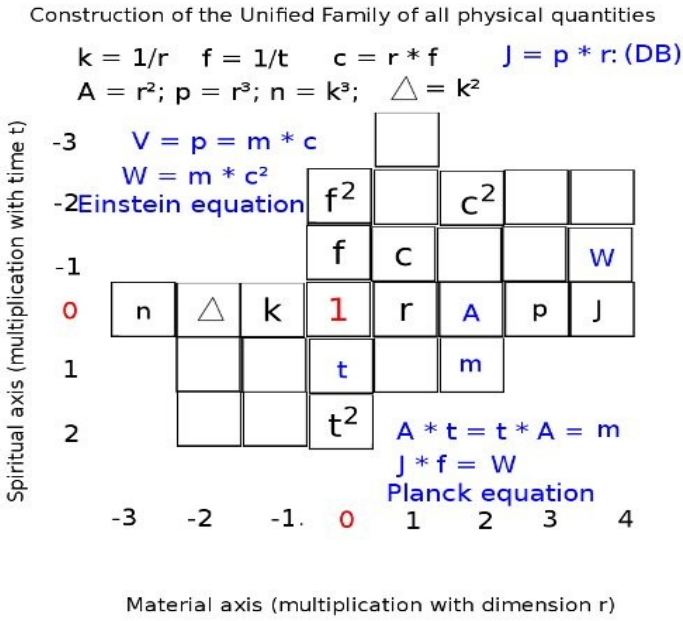
However, we have to admit that some of the new rules shown above are non-conventional in the traditional physics. For example, why should the quantum volume V be equivalent of the quantum impulse p? Before we answer this question, let us see that if it is really the case, we directly obtain the first physical equation, whose discoverer, Louis de Broglie, has been honored with the Nobel Prize in physics 1929: quantum impulse p of a

quantum particle equals the quantum action J (*in the traditional version simply considered as the Planck's constant*) times the wave vector k of the particle.

This means that the quantum action J should be the quantum dimension r in the fourth power, r^4, indeed. It was the most fundamental discovery of the Unified Family with regard to the numerical unification of all physical constants. According to this relation, the Planck's constant is equivalent to the fourth power of the universal size of all quanta in our Universe. It is an invaluable general information about our Universe. Because the value of the Planck constant is $6.6*10^{-34}$ Js, the universal quanta have a size of about $5.07*10^{-9}$ m, or 5 nanometers, exactly at the boundary between the living and not-living worlds.



So, what does the equivalence mean: the quantum impulse equals its volume (in our unified time-space), $p = V = r^3$? Let us formulate another intriguing question at first. Which property of the Universe do we create if we combine the material property, the quantum area A with its spiritual property, the quantum period t? We have already mentioned the answer: It is the quantum mass.

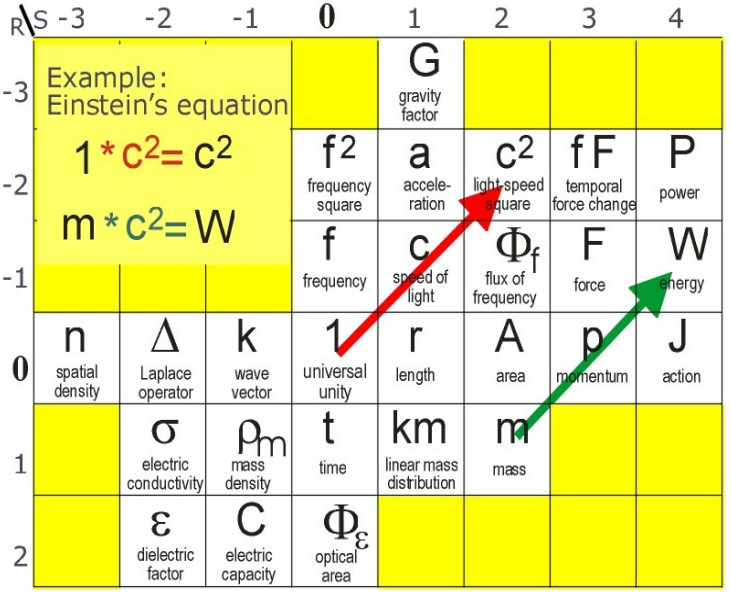


It is probably the most important discovery of the Unified Family of all physical quantities. The simple product of these both creative properties exactly results in that quantity which our scientific fathers have termed mass and abbreviated with m: A * t = t * A = m. This observation solves the old mystery of mass, one of the greatest mysteries of the ancient philosophy and the modern science; What is mass? The mass of a quantum object with a size A is a measure of its potential for existence on this

area, t * A, or reversely, the mass of a quantum object with a characteristic period t is a measure of its potential for extension during this period, A * t.

Of course, this discovery has very profound consequences for the whole unification of our physical knowledge about Nature. Three of these consequences are presented in the above extension of our previous diagram.

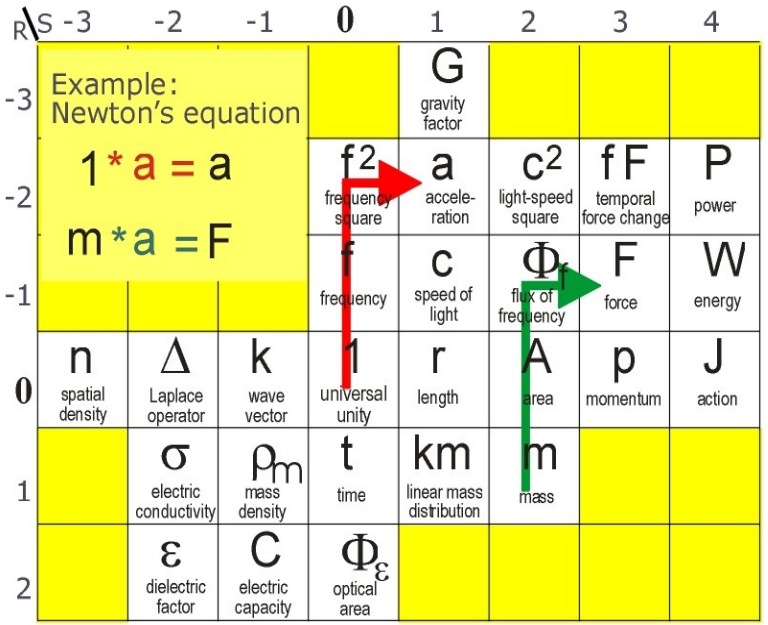
First of all, we see that the quantum impulse p, being a product of the quantum mass m and the quantum velocity c, is really an equivalent quantity of the quantum volume V; $V = r^3 = p = m * c$. It is because any movement on our unified plane along the diagonal line parallel to the line joining the Universal Unity with the quantum speed c means simply a multiplication with this speed c.



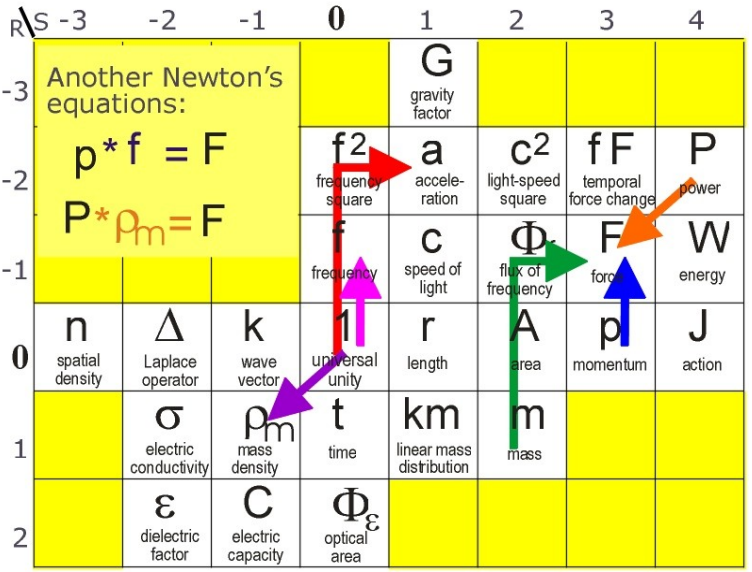
Now we also know where the quantum energy W finds its

place in our Unified Family. (*Note here, that we have to use the symbol W, from "work", for the unified quantum energy, because its usual symbol E should be reserved for the unified quantum electric field, which has not an alternative abbreviation for itself.*) And we immediately "re-discover" the equations by Planck and Einstein, combining the energy W with the quantum of action J (through frequency f), W = J * f, and with the quantum mass m (through the quantum speed squared c^2), W = m * c^2 (where c^2 equals simply c * c) (*compare the last picture above*).

As one further example, let us "re-discover" one another famous equation of the traditional physics, the Newton's equation joining the quantum mass m with its acceleration a into the quantum force F, as shown below.



However, there are also another possible ways to define the quantum force. Two of them are shown below. The “blue” equation is very well known in the traditional physics, but the “orange” equation, connecting directly force F with power P is completely unknown there; you can feel yourself as its original discoverer.



I think, for anyone having studied the above introduction, it should not be a problem to understand the completion of the Unified Family of all physical quantities, as described in the educational blog of the Open Science Academy[6] and in the earlier *Naturics*-blog[7]. Now, before we can apply our new paradigm to answer the maybe oldest question of the humankind, what is life, we have to explain one of the oldest enigma of the ancient and traditional science, the enigma of a mysterious number preferably used in whole Nature, the so-called “golden ratio”.

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3. J.L. Pinfold, „*Dirac's Dream - the Search for the Magnetic Monopole*“ (http://moedal.web.cern.ch/content/diracs-dream-search-magnetic-monopole)

4. Tim Davis, „*Explainer: what is wave-particle duality*“ (http://theconversation.com/explainer-what-is-wave-particle-duality-7414)

5. Ervin Laszlo and Jude Currivan, „*CosMos; A Co-creator's Guide to the Whole-World*“, Hay House, 2008

6. *Open Science Academy* - educational blog (http://www.openscienceacademy.eu)

7. *Naturics* - educational blog (http://www.naturics.eu)

Part Three

The Enigma of the Golden Ratio

A basic scientific research can sometimes yield only after years its fruits. Many discoveries in science take place completely in isolation, apparently without any connection with the “trendy” research. Nevertheless, they can have an extraordinary meaning which is recognized only after years. Now we describe such an example.

6

The idea of the Cosmic Hierarchy of the Sun

Before we are going forwards to considering some further consequences of our quantized cosmic home, our Cosmic Hierarchy, let as look back for a while in order to understand where did the idea of this hierarchy appear in my physics from.

> We can define our Cosmic Hierarchy of the Sun and the Solar System as an energetic arrangement of the cosmic objects in our nearest and the most distant cosmic environment into a hierarchically ordered system.

Let us treat this hierarchical arrangement as an example of the natural hierarchical systems. Of course, our hierarchy came into being in a natural way. Its next property is its stability. We can assume that it exists in that form already for a couple of milliards of years. And thirdly, it is surely nothing extraordinary in the Universe.

The astronomers observe many milliards of stars in our cosmic environment. We can suppose that they all belong to our own or to some other, similar hierarchies. They are in a continuous, cyclical motion around their hierarchical centers of mass. It is thus very probable that such hierarchical systems penetrates sometimes into another similar systems. Therefore, we can say for sure that huge cosmic collisions are a quite natural consequence of these

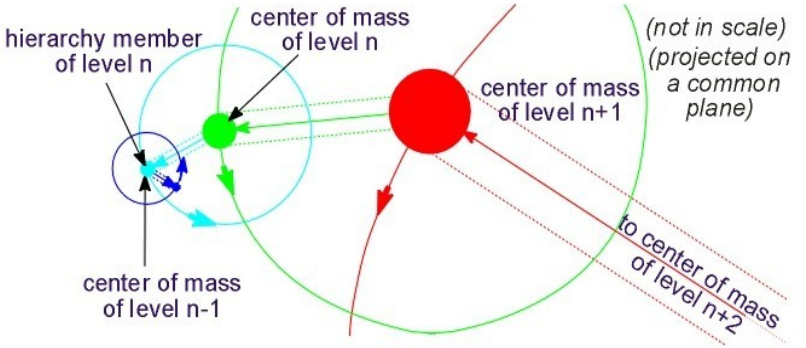
structures. We even know from the observations that such cosmic collisions are pretty frequent happenings. It seems also to be quite natural that any hierarchical system moves after such a collision in a differently "disturbed" way, until its energetic arrangement somehow relaxes to some new, energetically stable arrangement. But is it really so? Does Nature tolerate such “differently disturbed” reactions indeed? Or maybe, we just have yet not recognized some simple rule for this natural disturbance?

What we are discussing at first in the present section, are the natural hierarchical systems being relatively long after their last collision. We could call them approximately collision-free natural hierarchical systems. Some another example of such a system could be a molecule, with its nuclei and electrons ordered into some energetically stable arrangement. There are electrons belonging to each nucleus, there are electrons belonging to more than one nuclei, and there are electrons belonging to the whole molecule. The nuclei could also be arranged in certain energetically stable sub-systems, components of the larger molecule. As long as no collision with another objects (molecules) does occur, such a system is our collision-free natural system.

Let us repeat the main properties of our starting point, the Universal Quantum Field. This field is an abstract field of the Universal Creative Potential, mathematically defined as the Universal Unity of the Unified Family of all physical quantities. It is a powerful possibility (or ability) to create everything else in our Universe, including not only the quantum space and the quantum time but also the quantum energy and the inanimate as well as the animated matter.

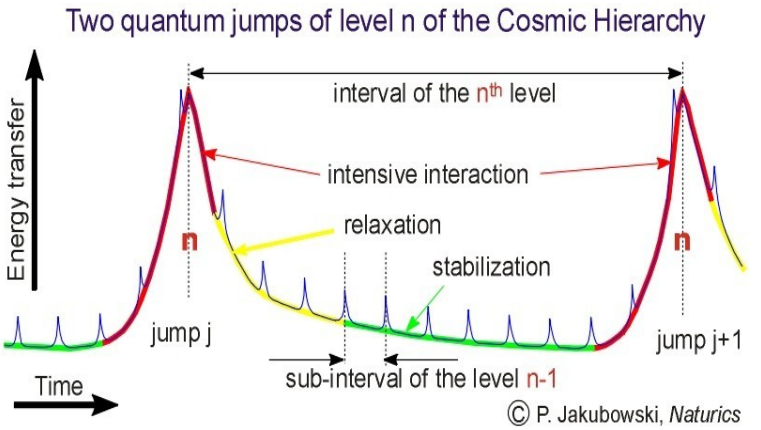
It's fine. However, we cannot discuss space, time, energy, or matter until we have allowed the Universal Creative Potential (the Universal Unity) to create at least one quantum of the cosmic „reality“ that we are used to call our Universe. Furthermore, because no single quantum can build a „reasonable“ universe, we have to consider at least a single cosmic hierarchy of the cosmic objects, like our own Cosmic Hierarchy of the Solar System.

"Energy bridges" between three adjacent levels of the Cosmic Hierarchy



The energy absorbed (mostly during cosmic impacts) by a coloured object (here green, cyan or blue) reaches its maximum when this object crosses a differently coloured "bridge" (for instance, the red one) between a higher hierarchy member and its center of mass.

Such a hierarchy can be schematically understood as a hierarchically ordered series of sub-systems beginning with an individual star-system (for example, the blue dot in the figure above, considered in most cases together with its planetary system) and growing up in size to the technical limit of our present observational equipment.



One remark is very important here, at the very beginning of the description of our cosmic home. Considering the proposed structure of our cosmic environment, we have to keep in mind, that the traditional natural sciences are still today (five hundred years after Copernicus, and four hundred years after Galileo) not able to solve the enigma of the origin of our Solar System. Worse even, there is a pessimism among the traditional scientists that maybe this enigma could be principally unsolvable. For example, Mark A. Garlick writes in his book not so long ago („*The Story of the Solar System*“, Cambridge University Press, 2002) these words:

> “There is still a long way to go before we truly have a model that can faithfully reproduce the observed properties of every known planetary system, including ours. Indeed, it is likely that no model will ever be found.”

I cannot explain for myself such an unbelievable mistrust in the "mother-nature" in any other manner, as by a complete breakdown of the traditional paradigm.

From the very beginning of my work on the quantum structure of our Solar System and its Cosmic Hierarchy, I have used the best then available observational data concerning such cosmic structures in which our Solar System seems to be embedded. The (seemingly) best known of all of them was our own "mother" galaxy, the Milky Way. There are, however, two other levels of this hierarchy, intermediate between the Solar System and the Milky Way. First of them is the Local Group of stars, the Sun's direct stellar neighborhood. This Local Group of stars is a satellite of the next higher level of the hierarchy, a local cluster of stars, called Orion-Spur that stretches between the Sagittarius and Perseus arms of the Milky Way. I referred to this level of the Cosmic Hierarchy as our local "Minigalaxy of Orion". Only next comes the level of the Milky Way. Our quantized model orders the Large Magellanic Cloud on the next higher level of the Sun's Cosmic Hierarchy, direct above the Milky Way (in contrast to the hitherto assumed order) and immediately below the Andromeda Group of galaxies.

New discoveries have actualized some of those hierarchy levels. We are fortunate today to live in an exciting era of the observational revolution caused by the technological development of better and better astrophysical equipment. The revolution begun with the Voyager Mission to the outer planets of our Solar System (a mission launched 1977), followed next by the Space Hubble Telescope (positioned on its orbit in years 1990-1993), and completed with some dozens other devices working today. Thanks to those new observations, our knowledge about our cosmic home, the Cosmic Hierarchy of the Solar System, is rapidly growing and changing from its very basic concepts, as shown in the table below.

The previously supposed versus the newly discovered levels of the Cosmic-Hierarchy of our Solar System

L	**Original object** (till ~1989)	**Object now** (2013)	**Radius** [ULy]
9	Coma Supercluster	Sloan Great Attractor	$3585*10^6$
8	Hydra Supercluster	Great Attractor	$295.2*10^6$
7	Virgo Cluster of Galaxies	Virgo Cluster of Galaxies	$24.30*10^6$
6	Andromeda Group of Galaxies	Andromeda Group of Galaxies	$2.002*10^6$
5	Magellan Cloud	Magellan Cloud	164878
4	Milky Way Galaxy	Omega Centauri Cluster	13578.3
3	Orion Minigalaxy	Orion Association	1118.22
2	Local Group of Stars	Ursa Major Moving Group	92.0896
1	Solar System	Solar System	7.58390
0	Proto-Sun	Proto-Sun	0.62456

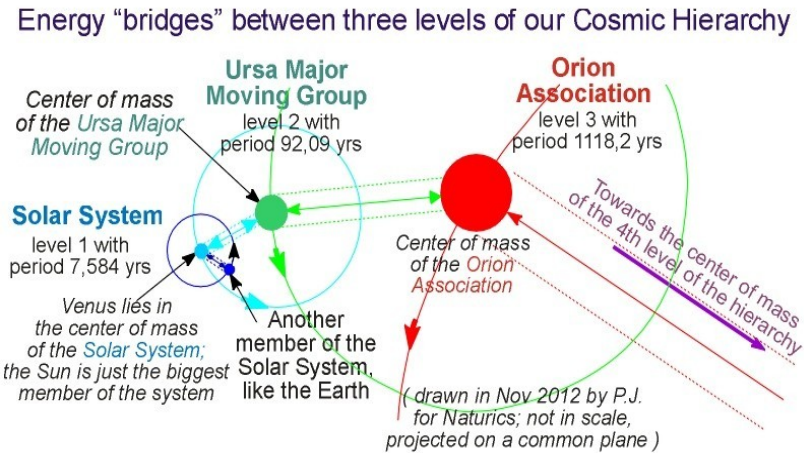
Notes:

a) The scaling factor is 12.1428, according to the Cosmic Hierarchy definition of the Unified Physics (*for more details compare the references 6 and 7 in the previous Chapter, p. 53*);

b) The Universal Lightyear (ULy) is a distance light is traveling with the universal speed of the Unified Physics (*being four orders of magnitude slower than the traditionally considered speed of light in vacuum; however, the distances expressed in light years are independent of the actual value of the speed of light; our values are thus compatible with observations*).

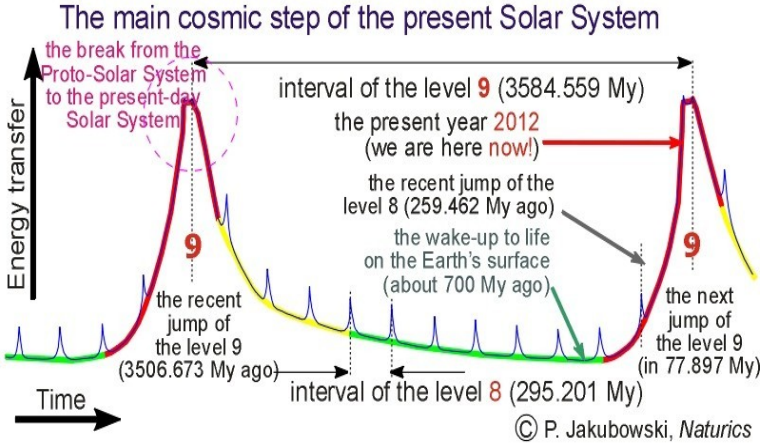
All known results of observations, as the interstellar gas distribution and velocities, Magellanic Stream of gas sweeping away from the Large Magellanic Cloud towards the Andromeda Group, the exactly "measured" distances of our Sun from the Large Magellanic Cloud and Andromeda, and the finally accepted superimposed role of the Andromeda galaxy in the so-called Local Group of galaxies, underpin our here proposed hierarchical order.

Using the data of the above table we can imagine the first levels of our Cosmic Hierarchy as presented here below.



Let us note in the table above that the "object" (just a conglomeration of different stars and cosmic clouds), which we usually call Milky Way, traditionally considered as our own galaxy, is very probably not a galaxy at all. In my opinion, it is just a cross-section of the energy bridge between our present point of view and the highest observable center of the level 9 (*on the picture above we can see just three lowest of them*). If we consult the Cosmic Scale of Time resulting from our definition of the

Cosmic Hierarchy (*as given in Appendix*), we see that our Solar System is "living" today in a very last fragment of the present period of the level 9, as shown with the red arrow in the picture below.



So we are looking with our telescopes almost directly along the mighty energetic "arm" (or bridge) bonding 8th level of our hierarchy (the so-called Great Attractor) with its center of rotation along the center of mass of the 9th level. A sensational discovery (by Sloan Project) of the largest structure ever found in the directly observable part of our Universe, with exactly such dimension as shown in the table above (about 3.5 Mld lightyears), has been announced in January 2013.

We have to wait still one or two more years to the end of the observational work by the group of Steven Majewski (from the University of Virginia), until our supposition concerning the Milky Way can be confirmed. This project called APOGEE-2 (Apache Point Observatory Galaxy Evolution Experiment 2) will explore the formation

history of the Milky Way using the spectral record provided by hundreds of thousands of individual stars belonging (supposedly) to the Milky Way.

One further space observatory (Gaia galaxy-mapper) able to confirm the new arrangement in our Cosmic Hierarchy has been successfully launched on 19th December 2013. The Gaia mission has been developed to determine the position and velocity of a billion stars, creating the largest and most precise 3D map of the (traditionally assumed) Milky Way.

And the mission "*New Horizons*", being able to discover the additional mass of millions of remnants of the *Andrea-Star*, the broken brown dwarf accompanying our Sun since its very beginning, is approaching Pluto region in 2015.

7

The Undisturbed Motion Law

The main question we are now concerned with is: Why does Nature prefer such natural hierarchical systems at all? Why is it profitable for Nature to develop such highly ordered systems instead of the (traditionally considered as natural) ideal-gas-like systems symbolizing the highest state of disorder?

My intuition says me that such an energetically ordered arrangement reduces the collisions frequency to some "acceptable" minimum, guaranteeing the relatively long periods of a quiet evolution of the Universe and the life inside it. But it is of course not the whole answer that lets me rest content with. It happened that at the beginning of my professional life I have discovered a new physical law that could explain the natural tendency to arrange the sub-systems of any larger natural system into such hierarchical order. But although I have made it public, nobody cared about it. Therefore, I have first recognized this explanation possibility more than thirty years after the discovery was done. Now, I am going to present this "pioneering" discovery here below in order to complete my description of the idea of the Cosmic Hierarchy of our Solar System. And in order to explain (in the next Chapter) one of the most persistent enigmas of the whole science.
The story begins during my doctor studies, many years

ago. In that time I had not any idea about the possibility to develop the Unified Physics during my life, and still less about my future contribution in this development. It was an ancient time of the computer science, not only in Poland, before any PC was available for an individual person. I was learning to use the first generation of the ALGOL and FORTRAN languages on RIAD and CYBER "computing machines" for a numerical solution of my first own scientific problem, the electronic structure of the lightest atoms, from Helium to Neon. And like almost always at the very front of the theoretical science, my discovery begun with a mathematical error. I was solving the Schrödinger equation for those atoms under different circumstances. This equation allows us to describe a theoretical distribution of different energetic states of the investigated systems. And the mathematical "correctness" of the used method demands to finish the calculations with a procedure called a standard normalization of the used wave-function. It just means in my case a supposedly necessary condition that the described individual electrons of the investigated atom should become "integral entities", and not just some broken parts of them. Mathematically, this normalization procedure means also that the wave-functions, or, as the quantum chemists were used to call them, the molecular orbitals of those electrons, become orthogonal to each other.

In one of my trials I have simply forgotten this last step of the normalization. However, the resulting values of the calculated energy arrived much better than in all previous trials. I cannot say today for sure why, but I have trusted to my intuition, or my destination to discover something new in science, or just in some kind of my "scientific angel", more than to the mathematical convention, and I made the

“nonorthogonal” orbitals to my main study object for the next two or three years. This work has been summarized in a series of articles (*Best optimized One-Electron Wave-Functions", International Journal of Quantum Chemistry*, Vol. **X**, pp. 719-746; 1976).

My steadily growing experience with the electromagnetic properties of matter, on the one side, and with the beautiful “classical” electrodynamics used to describe these properties, on the other side, has led to more and more signals that the observations concerning just a few charged particles, could not be adequately interpreted by means of the commonly accepted version of this electrodynamics. The problem was not solvable by any additional quantum modification of the electrodynamics, though the quantum electrodynamics was already known in that time. The quantum electrodynamics became even the best cherished physical theory of that time.

Nevertheless, the problems I have encountered in my work, were rooted deep in the very fundamental levels of the traditional electrodynamics. Inspired by those fundamental problems (and additionally by the efforts done by Paul Dirac in his search for a symmetrical version of the electromagnetic theory, hypothetically resulting in a discovery of the mysterious magnetic monopoles), I have found out that the Maxwell's equations cannot be symmetrized with regard to the electric and magnetic fields, unless one has accepted the existence of some non-vanishing, omnipresent reference field. In that way, the precursor of my universal *Field of Light* was born (it was winter 1980/1981). This universal field evolved during the next two decades into the Universal Quantum Field of the Unified Physics, giving now a physical basis for the

universal field of *Akasha*.

The year 1981 was a year of a relative scientific freedom in Poland, so I was allowed to attend my first international conference abroad. I have prepared a poster for the 1st European Conference on Atomic Physics held in Heidelberg (Germany) in April 6-10, 1981 (*published in the Program-book, pp. 50-51*). It was entitled: "*A New Law in Physics? The Undisturbed Motion Law*". I have introduced this short message very cautiously:

> "Some standard calculations of atomic and molecular physics suggest that the nature respects the law of undisturbed motion of charged particles. The purpose of the present note is to signal this possibility and discuss the simplest of the proper calculations. More details will be given elsewhere. The extreme indeterminism of quantum mechanics demands a complete neglect of history of a given system, in the sense that any new constituent completely reorganizes the system it enters, and the former, older system is by no means an observable constituent of the new, greater system. From a more deterministic point of view, however, it is quite sensible, if not necessary, to take into consideration all of the historical events taking place during the system formation. It is then quite natural to speak about an older or younger particle in the system. In such terminology the undisturbed motion law may be formulated as follows: *In any physical system any younger sub-system does not disturb the motion of any older one* ."

I have also finished the message in that cautious manner:

> “To summarize: the behavior of each successive particle entering a given system is wholly determined by the history of the system, a result which is going to be proved.”

And I have proven this hypothesis during the next years, though the “free“ science in Poland was restricted again, already a few months later. I have considered the natural systems "free" of collisions, at least, those remaining “free” for some longer period of time. I have shown that the whole observable matter is a structure in the Universal Quantum Field, our universal level of the whole Universe. The question appears, however, how do the natural, energetically stable systems form from those "available units” - or more scientifically – quanta of matter?

One of the fundamental assumptions of the Unified Physics states that our whole Universe is quantized. This means that any material system of the Universe is quantized too. It seems to me to be quite straightforwardly to assume that the natural motions of any quantized system should be collision-free motions for the most of the length of periods of their life expectation. Otherwise such systems could not develop and remain stable on a cosmic scale of time. The only naturally acceptable period of collisions can thus be some kind of “cosmic quantum jumps”, when the hierarchical motion of an upper-level sub-system energetically influences all lower-level sub-systems of the hierarchy. The idea of the internal dynamics of the Cosmic Hierarchy of our Solar System, graphically presented in pictures of the previous Chapter, was born precisely from those considerations.

The natural systems seem to be organized always in one specific manner. On any level of the hierarchical structure, the sub-systems originate with a central mass, a kind of “nucleus”, and the corresponding satellites circulating around it. (*Note that we are back, not far from Bohr's idea of an atom*). The number of the satellites on any level is also determined through the quantization rules. The new physical law of the undisturbed motion seems to govern the formation of such natural quantized systems. It is based on "seniority hierarchy" of the system components:

> In any collision-free physical system every younger sub-system takes such an energetic place in the whole system on which that younger sub-system does not energetically disturb the motion of any older sub-system.

In other words, every younger sub-system becomes energetically adjusted to the global energetic situation it encounters as the new member of the system. This simple rule seems to determine the energetic place of any new member in the system. The system can grow larger and larger, but the "primary" motion of the internal satellites around their centers of mass (nuclei) remain energetically undisturbed during the natural growth process.

However, very soon after the discovery I have asked myself: Do we really need any new physical law? And the answer was clear: Nature does not need any new law; either she already always “works” according to its sense, or the idea of the law is false. Thus I have never published it separately. However any way, I had already won an enormous advantage of this idea. By considering it, I have better understood how the Nature "works", first of all, how

our Solar System could become formed not in one, but in two separate steps, during two consecutive cosmic quantum jumps of the level 9 of our Cosmic Hierarchy, 7.1 and 3.5 Mld years ago (*the latter being seen on the left side of the last picture in the previous Chapter; p. 63*).

There are many other important consequences of this discovery. Here I am presenting just four of them directly connected with the structure of our Solar System:
1) the Sun was born together with the *Andrea-Star*, a brown dwarf, Sun's stellar companion;
2) this *Andrea-Star* had been destroyed 3.5 Mld years ago and exists today as the four gaseous "planets" (Jupiter, Saturn, Uranus, and Neptune, including all their moons) and the Kuiper Belt consisting of Pluto and millions of similar objects;
3) the total mass of the debris of *Andrea-Star* is still about eighteen times the Jupiter mass;
4) this additional mass is the reason why the center of mass of the whole Solar System lies (today as always since its origin) exactly where proto-Venus has been formed as one of the four proto-planets of the Proto-Sun.

The more general conclusions, reaching far outside our Solar System, and demonstrating that the new paradigm gives already a matured description of our cosmic home and its influence upon our life in it, can be summarized that way:
1) the quantization of the whole Universe is real;
2) the Cosmic Hierarchy of the Sun is a real structure;
3) our own galaxy (whatever it is, but certainly not the traditionally accepted Milky-Way galaxy) is a satellite of the Magellan Cloud galaxy (and not reversely, as we have been told in our schools).

The most important practical advantage of the idea of the universal quantization is a possibility to use the same quantum constant to scale all physical properties of all natural objects existing in this Universe, shortly speaking, of all possible quanta of matter. This possibility has resulted in the idea of the Quantum Spectrum of Matter.

Quantum spectrum of matter
with material dependence of physical quantities
(in units relative to the universal field of light values)

Material level	Const.: Φ_f, P, B, E	$\sim\mu^1$: r, c^{-1}, U, H	$\sim\mu^2$: t, W, i, D	$\sim\mu^3$: p, a^{-1}, Φ_H, C	$\sim\mu^4$: m, J, q, $\tilde{\mu}$	Electro-magnetic radiation in "vacuum"
Superbrains						
	−1	-10^6	-10^{12}	-10^{18}	10^{24}	
Brain cells		-10^5	-10^{10}	-10^{15}	10^{18}	Radio waves
	−1	-10^4	-10^8	-10^{12}	10^{16}	
Nerve cells		-10^3	-10^6	-10^9	10^{12}	Microwaves
	−1	-10^2	-10^4	-10^6	10^8	Submicrowaves
Simple biological cells		-10^1	-10^2	-10^3	10^4	Far infrared
Membranes	−1	−1	−1	−1	1	Infrared
Molecules		-10^{-1}	-10^{-2}	-10^{-3}	10^{-4}	Visible light
	−1	-10^{-2}	-10^{-4}	-10^{-6}	10^{-8}	Ultraviolet
Atoms		-10^{-3}	-10^{-6}	-10^{-9}	10^{-12}	X-rays
	−1	-10^{-4}	-10^{-8}	-10^{-12}	10^{-16}	
Atomic nuclei		-10^{-5}	-10^{-10}	-10^{-15}	10^{-20}	γ-rays
	−1	-10^{-6}	-10^{-12}	-10^{-18}	10^{-24}	
Quarks						

This diagram presents the Quantum Spectrum of Matter, the “library” of all possible quantum states of the living matter and the inanimate matter in the whole observable

Universe. The unique state of membranes, the physical state of the Universal Quantum Field (*remember that its original name was the Field of Light*), separates the states of the living matter (above) from those of the inanimate matter (below). In the traditional spectrum of the electromagnetic waves (*included in the outer column on the right*), this universal state lies in the range of the infrared waves. That is the reason why every natural body (alive or not) always radiates energy in those infrared rays.

The physical quantities belonging to the same class of the material dependence (in Unified Physics being expressed with the material factor exponent μ in different powers) are here collected in five separate columns. We already know some of the exemplary physical quantities here: the quantum size r, the quantum speed c, the quantum period (or time) t, the quantum energy W, the quantum impulse p, the quantum acceleration a, the quantum mass m, or the quantum action J. The other are the most common electromagnetic quantities: the electric potential U, the magnetic field H, the electric current i, the electric planar density D, the magnetic flux Φ_H, the electric capacity C, the electric charge q, and the magnetic dipole moment μ~. Note that the quantum speed c has been represented here by its reciprocal quantity c^{-1}, because c alone has a reversed material dependence in relation to r; the smaller the quanta size r, the higher their characteristic quantum speed c (what simply means the higher speed of light connected with that state of matter). Similarly, the quantum frequency f (not directly listed in the diagram) is to be understand as the reciprocal quantity to the quantum time t (as discussed previously); the smaller the quantum area (r^2), the higher their quantum frequency f.

The quantum temperature, also not directly shown in the diagram, can be nevertheless directly read out from it, because the quantum temperature T is proportional to the reciprocal quantum speed c^{-1}. It means mathematically that the ratio of the quantum temperature to the quantum speed is a constant for all possible quanta of matter. Practically, it means further that the smaller the quantum size r, the higher the corresponding quantum temperature T. We can see thus immediately - from the third column of the diagram - that the characteristic temperature for a molecule can be ten to hundred times the universal temperature of 244,4 K, and the characteristic temperature for an atom has to be considered one hundred to ten thousands times the universal one. Therefore no a single atom or a single molecule can exist in our body as long as we stay alive.

It is also interesting to mention the important role of the physical quantities belonging to the second column of the diagram, here exemplified with the quantum circulation Φ_f, the quantum power P, the magnetic induction B, and the electric field E. These quantities (and in addition also the electric conductivity σ) should be considered to be mathematical “extensions” of the Universal Unity, because they all are material independent, what means, they remain unchanged for all possible quanta in our Universe, whether an atom, a nerve cell, or a galaxy. They all together “compose” our whole physics, with all equations, units, values and constants. We can conclude that our whole unified description of Nature relies exclusively on the “extended” Universal Creative Potential indeed.

Let us close this Chapter with some further examples of a direct advantageous application of the idea of the Universe

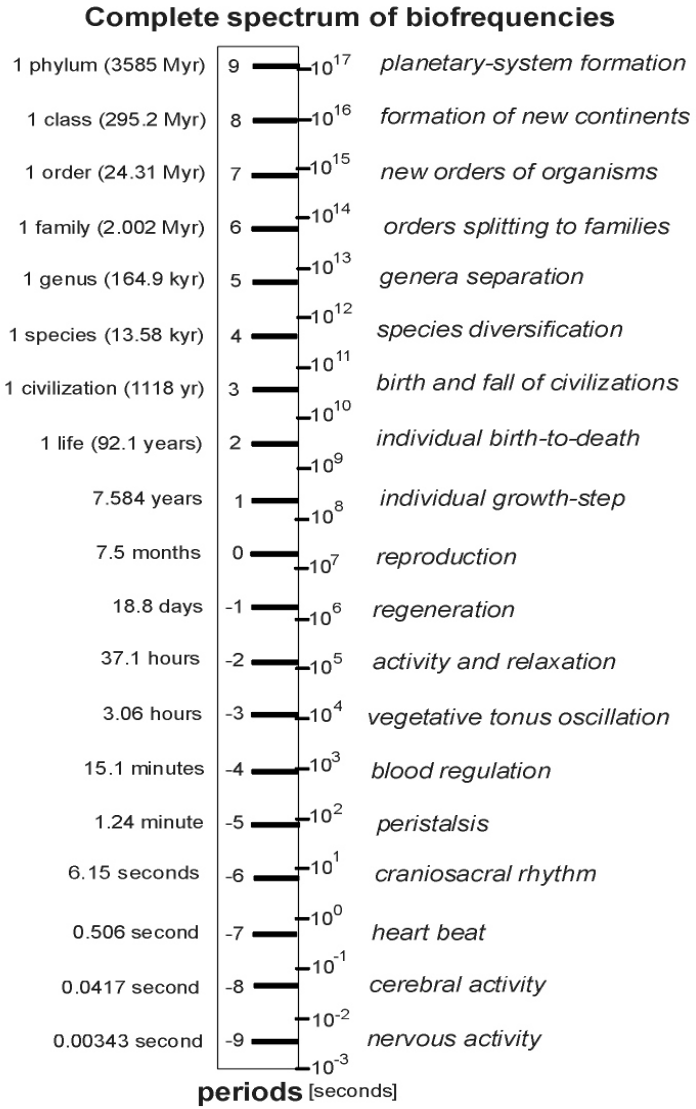
quantization to our understanding of Nature. Such new description can be used as a starting point to any more detailed classifications of the natural structures and processes, including the animated matter with the same precision as the inanimate matter, by means of just single physical quantity, like the quantum size or frequency, used as the scaling parameter in the examples below.

Hierarchical classes of size of the living organisms and their systems

(Scaling factor, the cosmic quantum number: 12.1428)
(to compare: the Earth-Moon distance is about 384 Mm; the Earth-Sun distance is about 150 Mld m)

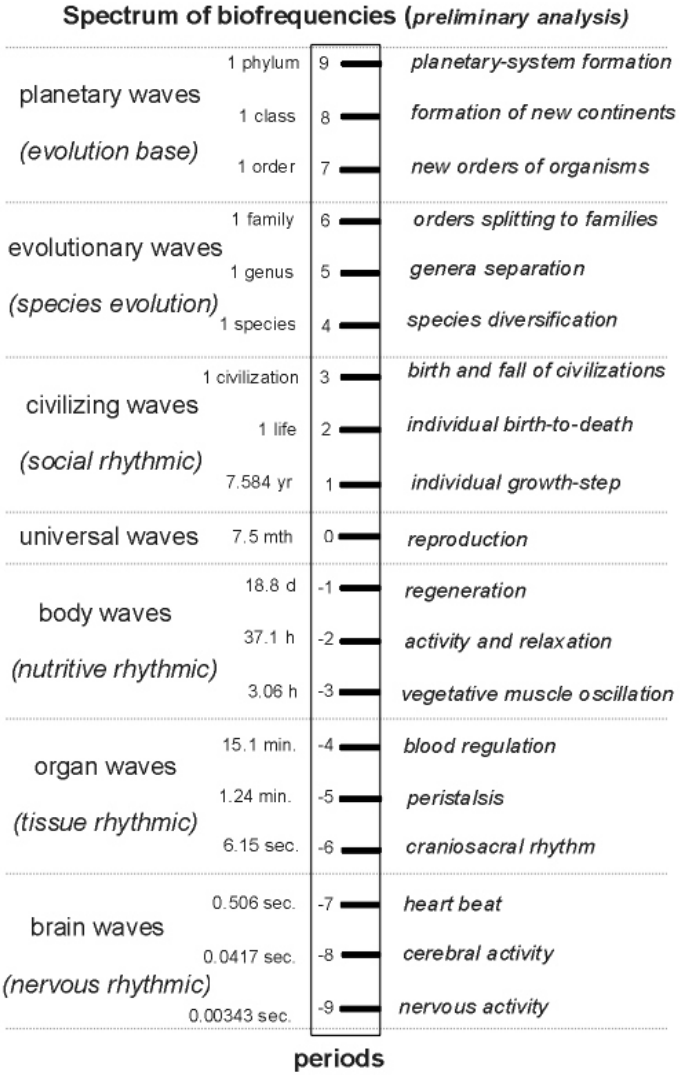
Level	Quantum Size	Quantum Object
0	5,04 nm	universal quanta of life
1	61,2 nm	viruses
2	0,74 µm	bacteria
3	9,02 µm	simple cells
4	110 µm	complex cells
5	1,33 mm	smallest animals
6	1,61cm	insects
7	19,6 cm	cat-size organisms
8	2,38 m	man-size organisms
9	28,9 m	largest animals
10	351 m	largest plants
11	4,26 km	small ecosystems
12	51,8 km	medium ecosystems
13	629 km	largest ecosystems
14	7630 km	continents
15	92,7 Mm	planets
16	1,13 Mld m	planets-moons systems
17	13,7 Mld m	large moons systems
18	166 Mld m	planetary systems

Let us treat this order of sizes simply as a proposal for some future investigations.



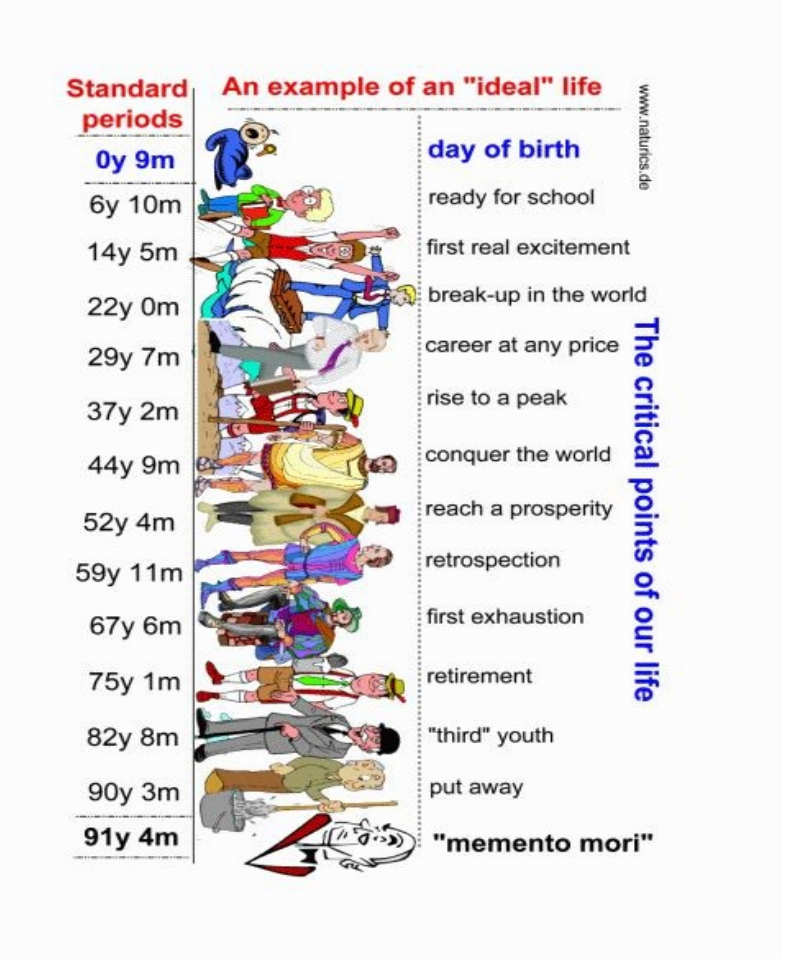
A similar hierarchical order of the quantum frequencies, as

presented above, has been already accepted by many healers working with the bioresonances techniques.



This order of biofrequencies can be also proposed to further investigation, as suggests the above diagram.

Yet another proposal for a further investigation is the following order of twelve individual growth-steps periods of the level 1 (of 7.584 years) of the Cosmic Hierarchy, if we assume one period of the level 2 (of 92.09 years) to be a biological “standard” for a healthy human life.



Of course, not everyone's life ends after such an ideal plan. But everybody lives through such cycles. It is important to know it for myself, for my partners, and for my doctors.

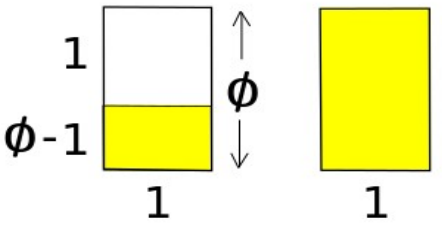
8

The Golden Ratio in Nature

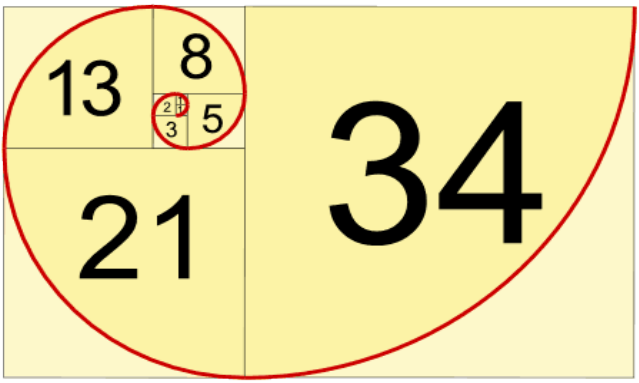
In preceding Chapter we have put the question about the reason why does Nature prefer the natural hierarchical systems. And we have proposed the answer that such an energetically ordered arrangement of all hierarchical sub-systems, being based on the rule of undisturbed motion, reduces the collisions frequency between the sub-systems to some "acceptable" minimum. In the largest dimensions of the whole observable Universe, such a hierarchical arrangement guarantees for long periods of a relatively “quiet” evolution of all smaller sub-systems, allowing also the highly-developed life on at least one of its planets. In the smallest dimensions of atoms and molecules the same arrangement guarantees for energetic stability of the living and inanimate materials.

But how can the naturally idealized, undisturbed motion be realized? Is it achievable with a single rule for all natural systems, or has the optimum to be found in any case separately? Exactly in this very moment we touch the old enigma in its central point. Nature “uses” a single rule indeed; always and everywhere the same rule, in all her systems. It is the rule of the *golden ratio* (or golden section) and the *golden angle*, which allows any natural system to bring the possible energetic disturbance to its minimum.

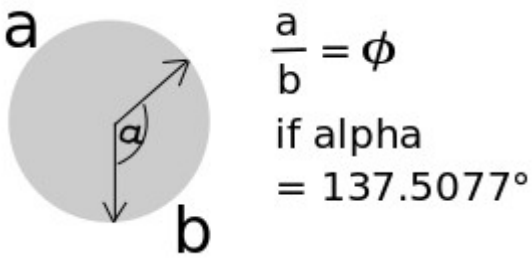
From the mathematical point of view, the golden ratio, traditionally denoted as Φ, is a number of approximately 1.61803, being the single number of all, fulfilling the following simple equations: $\Phi^2 = \Phi + 1$ and $1/\Phi = \Phi - 1$. A geometric definition of the same number can be expressed by means of two sections a and b fulfilling the following rule: $a/b = (a + b)/a = \Phi$. Or it can be shown as the following construction of a series of rectangles.



Given a rectangle having sides in the ratio 1:x, Φ is defined as the unique number x such that partitioning the original rectangle into a square (1 x 1) and new rectangle, as illustrated above on the left, results in a new rectangle which also has sides in the ratio 1:x. This means that the yellow rectangles shown above are similar. Such a rectangle is called a golden rectangle. A successive points correspondingly dividing the following golden rectangles with a growing size into squares with the same proportion lie on a logarithmic spiral, as shown in the next picture. The numbers on this picture, corresponding to the relative size of the emerging squares, belong to the so-called Fibonacci sequence, where every next number equals the sum of the two preceding numbers: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, …, and so on. The emerging logarithmic spiral is sometimes referred to as the *golden spiral*.



The corresponding *golden angle* is a division of the circumference of a circle in two parts a and b such that a/b = (a + b)/a = Φ, as shown below.



The *golden spiral* and the *golden angle* is the long looked for solution of the enigma of the undisturbed motion law in all natural systems. It is also the main principle of any harmonic flow of energy through the natural systems, *the principle of harmony and beauty in Nature*.

The Golden Ratio is just the simplest natural possibility to avoid collisions, to not disturb something else in a direct proximity. I suppose, it has not been advantageously

developed by Nature herself from the Universal Creative Potential at any specific point of time (nor has been given to her by her Creator at “the very beginning”) in order to make Nature better or more harmonious. It is just a result of the unbelievable simplicity of the kind how Nature is functioning in all her processes.

We are also a product of Nature. Therefore, we, human beings, as any other living creatures, were born into this extremely harmonious world, with all our senses, including our mind. This is why we are discerning beauty in art, music, and architecture always according to the same golden-ratio harmony.

Let us return to the harmony of our Solar System. The ideal "spiral" structure of the proto-Solar System still betrays the ideal orbits of its proto-planets, although the proto-Solar System itself has been radically rebuild a very long time ago.

In Nature there are spiral forms nearly everywhere, in the inanimate systems (like galaxies) and in the living matter (like plants or animals). The best known example of a spiral in the cosmic scale is probably a spiral galaxy, named the galaxy M81 in the Big Bear or the beautiful Andromeda-nebula. In our model of the Cosmic Hierarchy, we suppose deliberately that the original, "ideal" structure of the proto-Solar System, as well as the present structure of this hierarchy, has been defined by the golden-ratio relation resulting in the golden spiral.

It appears that the "ideal" orbits of the proto-planets had been ordered according to the same principle in the space around the proto-Sun, like the leaves along the axis of a

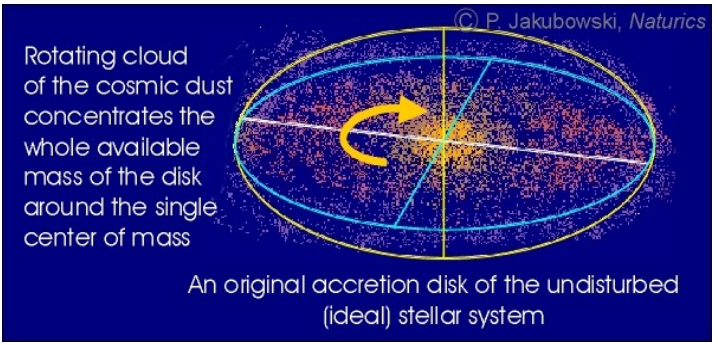
willow twig. This happens even with the same natural aim; every new member of the group (a leaf or a planet) takes its place always possibly far from the preceding ones, without to disturb the energetic consistency of the previously existing system. Just, like the leaves, which are arranged after the golden angle, give themselves mutually a minimal shade, similarly arranged planets have a minimum risk to influence themselves energetically.

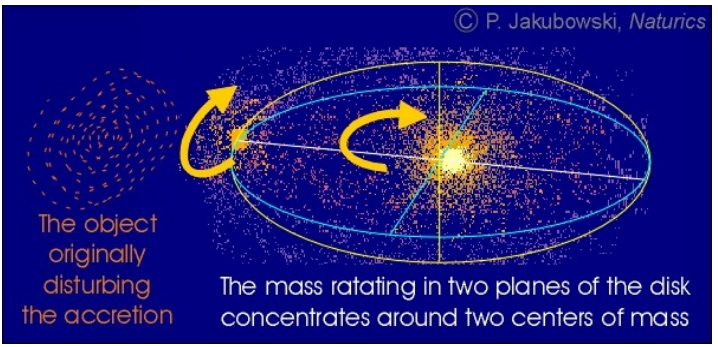
Now, let us take a closer view upon the numerical values in our model of the proto-Solar System.

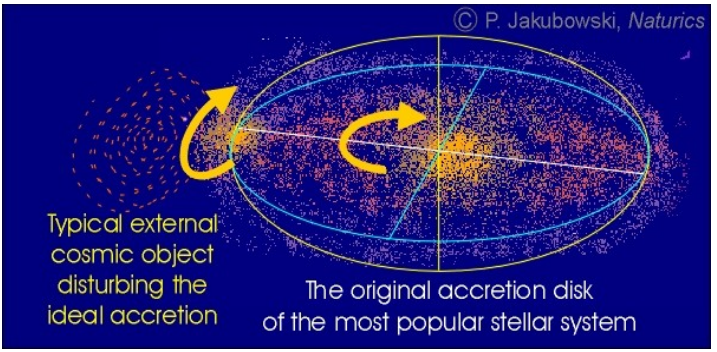
The mass of a huge primordial cosmic cloud has once determined the dimension of the whole Cosmic Hierarchy. Also the mass of that part of the primordial cloud, from which the proto-Solar System has became formed, was determined at the same time. This has also predetermined the universal length of our physics, namely the universal length r_u, describing today “our” observable Universe. Equivalently, the mass of the primordial cosmic cloud has predetermined the universal quantum of action, being just Planck constant h. But also the distance of the brown dwarf to the center of mass of the proto-Solar System was thereby unambiguously predetermined. The single rule being at work during the whole phase of creation of the proto-Solar System and its Cosmic Hierarchy, was the rule of the undisturbed motion resulting in the spiral form of the hierarchy. And finally, the same spiral order was responsible for the natural, "ideal" positioning of the proto-planets around the proto-Sun.

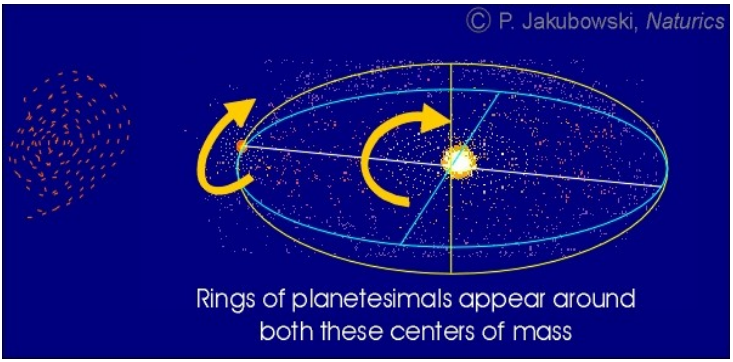
Because of the mass relation of about 50:1 between the proto-Sun and the brown dwarf (*a typical value observed by many other “solar” systems*), the center of mass of the

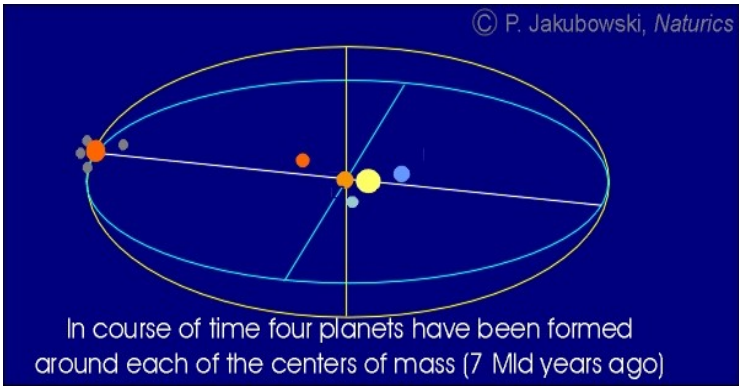
double-star system was located in the area of the forming proto-planets of the proto-Sun. The pictures below present a graphic illustration of the proto-Solar System accretion.











So it is rather sure that the position of one of those just appearing four proto-planets orbiting the proto-Sun should coincide with the global center of mass. This center had collected the remaining mass especially effectively. It was proto-Venus, which has originated exactly in that point of the proto-Solar System. It was also the reason, why the circulation period of the proto-Sun around the global center of mass of the original double-star system resembled then (as well as it does today) the (traditionally misunderstood) circulation period of the proto-Venus around the proto-Sun. This period of 0.6151877 years (= 224.701 days) became the graduation for the whole ideal

structure of the proto-Solar System. In this manner the basis was also fixed for the orbits of the remaining proto-planets. Every next was placed in the "spiral" relation of 13/5 (= 2.6) to the previous one. Thus one gets the other ideal orbits by the application of the factor 13/5 for periods and $(13/5)^{2/3}$ for the radii (in accordance with the Kepler's mathematical law connecting the both parameters), as shown in the following table.

Ideal orbit parameters of the proto-Solar System
(*in comparison with the present values*)

Planet	Ideal period	Ideal radius [AU]	Present radius [AU]
Mercury	86.423 d	0.38255	0.38710
Venus	224.701 d	0.72333	0.72333
Earth	584.223 d	1.36769	1.00000
Mars	4.1587 yr	2.58605	1.52366
Jupiter	10.8125 yr	4.88973	5.20336
Saturn	28.1126 yr	9.24558	9.53707
Uranus	73.0928 yr	17.4817	19.1912
Neptune	190.0412 yr	33.0546	30.0690

As we see here, apart from the total destruction of the brown dwarf, practically only the orbits of Earth and Mars have suffered a serious setback during the “re-incarnation” of the proto-Solar System into the present Solar System 3.5 Mld years ago. During the whole long period, our planet (together with its moon) is approaching the center of mass (the Venus), whereas the repelled Mars (or more exactly, that what has been left of it) is veering away from

the point of its collision with proto-Earth on the previously ideal orbit of the proto-Earth. Therefore, the present Mars is still the planet with a largest percentaged discrepance between its ideal and its present positions.

We can ask, how strong was the push of the proto-Earth towards the Sun (or more exactly towards the center of the Solar System)? Can we observe the approaching of our planet to the Sun? Maybe surprisingly for the most of us, the answer is yes. We can observe it and we even can calculate it theoretically. The corresponding search-term is tropical year (http://en.wikipedia.org/wiki/Tropical_year). There we read:

> “From the time of Hipparchus and Ptolemy, the year was based on two equinoxes, or two solstices that were a number of years apart, which both spread observational errors out, and averaged out the effects of nutation (irregular motions of the axis of rotation of the earth, the main cycle being 18.6 years) and the movement of the Sun caused by the gravitational pull of the planets. These effects did not begin to be understood until Newton's time. To model short term variations of the time between equinoxes (and prevent them from confounding efforts to measure long term variations) requires either precise observations or an elaborate theory of the motion of the Sun. The necessary theories and mathematical tools came together in the 18th century due to the work of Pierre-Simon Laplace, Joseph Louis Lagrange, and other specialists in celestial mechanics.”

The length of the tropical year has been computed by Leverrier and Newcomb, giving the year shortening by

0.0000624 days in a millennium and 0.0000614 days in a millennium, respectively, which corresponds to about five seconds in a millennium.

It is a unexplainable situation from my point of view. The most important conclusion appearing from the calculations is that the tropical year gets roughly a half second shorter each century. However, the length of the tropical year is derived from a model of the Solar System. So it should be obvious that any advance that improves the Solar System model potentially should also improve our understanding of the results. But seemingly nobody cared about the reason, why the tropical year gets shorter and shorter. Although the regular observational confirmation of the theoretical result during the recent thousands of years is well known in the astrophysical literature, the true reason for this change has not been discussed, as far as I know, till now.

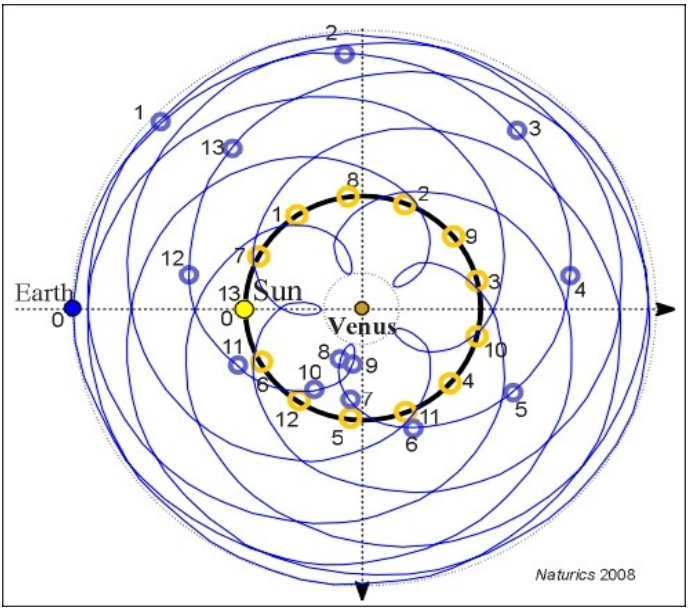
According to our model of the Solar-System formation, the proto-Earth was pushed in a single event of the impact of the proto-Mars on her towards the center of the system. Following this event, the Earth's radial component of the approaching motion had to be a motion with a constant velocity, remaining constant for all the time since the collision. The simple calculation of the shortening of the distance from 1.3677 AU to 1.0000 AU during the recent 3506.673 My (*compare the table above*) results in the tropical year shortening by 5.395 seconds or 0.00006245 days in a millennium. The coincidence with the theoretical results by Leverrier and Newcomb, calculated by means of the best known celestial mechanics, cannot be denied in any way.

Therefore, we have to accept the above value of the approach velocity of $6.24*10^{-6}$ days/100 years, and consequently also our model of the Solar System structure, including the Moon's formation and the presence of the *Andrea-Star*, the small companion of our Sun. The tropical year was 218.4 days longer 3.5 Mld years ago than it is at the present. The Earth was then about 50 million km further away from the Sun than today. The corresponding average surface temperature of the young Earth (shortly after the collision) had to be about 40 degree Celsius lover than today (about 240 K), deep under the 0°C water-freezing point (at 273 K). Consequently there was no liquid water on the Earth for the first 2.5 to 3 billion years of its existence, there were no oceans there. The evolution of the terrestrial life had to be completely rewritten indeed.

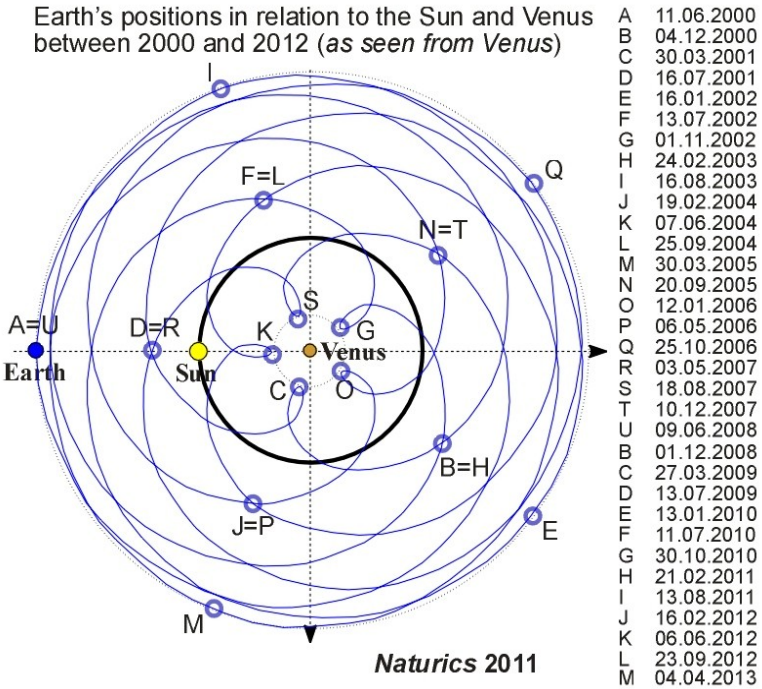
As we see, the main conclusions from this simple calculation are evidently not so negligible as it could seem from the small value of a half second in hundred years. I am glad to have explained its importance. And I am also very glad to have finally understood the physical background of the prominent significance of the golden ratio appearing in art, architecture, sculpture, and anatomy. But there is also one further cosmic example of the beauty connected with the spiral symmetry of the golden ratio which I simply cannot leave untouched here.

Let us take a look at the following picture. It presents a really beautiful rosette-like form, doesn't it? It is the spiral orbit of the Earth rotating around the Sun, and together with the Sun around the Venus, the global center of mass of the whole Solar System. During every eight years the Earth revolves of course eight times the Sun, but in almost exactly the same period of time the Sun revolves the

Venus (traditionally thinking astronomers would say, the Venus revolves the Sun) thirteen times. According to the golden ratio, our 8 revolutions around the Sun rotating 13 times around the Venus results in 5 revolutions of the Earth around the Venus (do you remember the Fibonacci numbers 5, 8, and 13? Here we meet them again.). For a better orientation, let us follow the pairs of numbers, one for the Earth's position and the second one for the Sun, beginning with 0-0, than 1-1, 2-2, and so forth. After eight years we are back at the positions 0-0 again. Note that the distance of both numbers building such a pair is always the same, and equals the radii difference between the outer circle and black one. It is because the distance of the Earth to the Sun is in the picture scale always the same. In this scale, the Sun remains also in a constant distance to Venus (on the black circle).



We should be aware that exactly this rosette represents the true orbit of our planet inside the Solar System, and not a single Kepler's ellipse we were indoctrinated in our schools. The analogous picture below lists, for example, the true points of time between summer 2000 and spring 2013, when the Earth crossed the corresponding points of her orbit, as marked with capitals and listed at the right side of the orbit. These are the real positions where the Earth was really observed in relation to the Sun and to the Venus simultaneously.



After that great portion of the natural elegance let us change to the main question of this book: What is life? We have seen that our new paradigm allows us to ask quite a lot of new questions and to look for solutions seemingly

impossible in the traditional point of view. Let us see which new, maybe surprising answers become possible also for this very important question.

Part Four

What is Life?

In order to reach the necessary progress in science, we have to be courageous enough and leave all aspects of the old paradigm definitively behind us. Let us see how it changes our point of view upon the main question of the present book: What is life?

9

What is life according to the new paradigm?

Our world is changing. We all are members of the first global civilization living on the Earth. This new situation requires new unifying ideas leading us towards a better understanding of our place in our cosmic environment, and our role in the Cosmic Hierarchy of the Solar System. What is life? This is one of the oldest questions of humanity. In this Chapter we consider this important question in order to demonstrate the new way of thinking and the necessity to change our scientific paradigm as soon as possible.

Some interesting answers based on the still used scientific paradigm of the 20th century

In his small book „*What is Life?*“ Erwin Schrödinger has considered this important question probably for the first time from the point of view of the then young quantum physics. He has proposed to see the living matter like an aperiodic crystal, a kind of crystal that has become known as liquid crystal during the following decades. However, already in those early years of the quantum physics, still being practically reduced to the quantum mechanics alone, Schrödinger was deeply convinced that life is much more

than just a mechanical phenomenon.

After Schrödinger, many other scientists have considered the origin and the nature of life. However, in my opinion, a truly substantial progress in this research has not been reached until the wide scientific (and first of all the geophysical) community have revised their own opinion concerning the role of the cosmic influence upon the evolution of the terrestrial life.

One of the most impressive books I have ever read to this topic is a small one by Niles Eldredge „*The Miner's Canary; Unraveling the Mysteries of Extinction*“ (Princeton University Press, 1991). It is symptomatic for the conservative attitude of the mainstream science that just not much more than twenty years ago Niles Eldredge still felt obliged himself to entitle the Chapter 1 of his book with the statement: „Extinctions Are for Real“.

That book by Eldredge was surely a very big progress towards a new paradigm in science. And also a big step forwards in answering our present question: What is Life? Already in Prologue to his book, Eldredge writes:

> „Extinction – truly massive, global extinction – is indeed a fact of the history of life. ... Extinction is a fact of life in the modern world.“

By the way, the last sentence is the main message of his book directed to our global community. Nevertheless, as to the origin of life Niles Eldredge shares the common traditional (it means, based on the old paradigm) opinion that:

> „ ... the earth had already seen a number of critical moments in life's history, most notably life's very

invention at least 3.5 billion years ago.“

We will see here below that the new paradigm contradicts this opinion; despite the fact that the „invention“ of life is as old as the „invention“ of the Universe itself, the life is continuing to be „invented“ also today.

Four years after the book by Niles Eldredge, another impressive book, written by mother and son, has appeared. Lynn Margulis and Dorion Sagan have written the book: „*What is life?*“ (University of California Press, 1995), with foreword by Niles Eldredge. The authors make clear that our terrestrial life cannot be understood without its cosmic environment. They write, for example, in the last section: „Rhythms and Cycles“:

> „Life is a material phenomenon so finely tuned and nuanced to its cosmic domicile that the relatively minor shift of angle and temperature change as the tilted Earth moves in its course around the sun is enough to alter life's mood, to bring on or silence the song of bird, bullfrog, cricket, and cicada. But the steady background beat of Earth turning and orbiting in its cosmic environment provides more than a metronome for daily and seasonal lives. Larger rhythms, more difficult to discern, can also be heard.“

This meaning could be directly taken over into our new description of Nature (*as presented here in the preceding Chapter*). Nevertheless, already on the first pages of this great book we also read the „old-fashioned“ opinion:

> „When certain chemicals – in water and in oil – came together long ago, life was the result.“

We encounter such a mixing of the visionary ideas concerning life with the statements of the old-paradigm physics or chemistry a lot of times in this book. For example, in the section „Self-Maintenance“ we read:

> „Islands of order in an ocean of chaos, organisms are far superior to human-built machines. Unlike James Watt's steam engine, for example, the body concentrates order. It continuously self-repairs. Every five days you get a new stomach lining. You get a new liver every two months. Your skin replaces itself every six weeks. Every year, 98 percent of the atoms of your body are replaced. This nonstop chemical replacement, metabolism, is a sure sign of life. This „machine“ demands continual input of chemical energy and materials (food).“

And one page later, we read:

> „In our view, viruses are not (alive). They are not autopoietic. Too small to self-maintain, they do not metabolize. ... The cell is the smallest unit of life.“

In the new scientific paradigm, neither is the Universe chaotic, nor even a single atom can be found in a living organism; the quantum Universe is completely regulated by the quantized energy transfer between all adjacent regions; atoms cannot exist in temperatures below several thousand degrees; and viruses are alive, in contrary to the Margulis and Sagan opinion. However, even they are not the smallest units of life. The smallest quanta of the living matter are only 5 to 10 nm in size. They are not actively transferring the energy confined within their membranes, but they are separating these quanta of the „potentially living energy“ from their inanimate environment. This is

the first step towards the living organisms. When they „enter an autopoietic entity: a bacterial cell, the cell of an animal, or of another living organism“, they deliver their energy to support (to feed) the life.

In the following section „So, what is Life?“ of the book by Margulis and Sagan, we find one further example of the mix, being written with even more direct words:

> „It is a material process, sifting and surfing over matter like a strange, slow wave. It is a controlled, artistic chaos, a set of chemical reactions so staggeringly complex that more than eighty million years ago it produced the mammalian brain that now, in human form, composes love letters and uses silicon computers to calculate the temperature of matter at the origin of the universe. Life, moreover, appears to be on the verge of perceiving for the first time its strange but true place in an inexorably evolving cosmos.
>
> Life, a local phenomenon of Earth's surface, can in fact be understood only in its cosmic milieu. It formed itself out of star stuff, shortly after Earth 4,600 million years ago congealed from a remnant of a supernova explosion. Life may end in a mere 100 million years when, embattled by dwindling atmospheric resources and increased heat from the sun, systems of global temperature regulation finally fail. Or life, enclosed in ecological systems, may escape and watch from safe harbor as the sun, exhausting its hydrogen, explodes into a red giant, boiling off Earth's oceans, 5,000 million years from now.“

In the new scientific paradigm life is not restricted to the Earth's surface. It can be found everywhere in cosmos, where the relatively stable energetic conditions keep the temperature around the universal level of 244.4 K (or -28.7°C), like in the tropopause of the Earth's atmosphere (*compare the next section just below*). The cosmic dust, the „stuff of life“ is not necessarily coming from dead stars. It is created all the time (from the Universe beginning - if any - up to its end - if any, too) directly from the universal level of the Quantum Spectrum of Matter (the Universal Quantum Field, or the *Akasha*, as Ervin Laszlo called its humanistic generalization). And the Earth, together with the whole Solar System, will find her end not later than in 77.8 million years (*compare the last Part of the present book*). And a continuation of the terrestrial life will become impossible most probably in no more than a half of this time, as can be concluded from the Universal Cosmic Scale of Time (*compare also the table of the Cosmic Time in Appendix*).

Ervin Laszlo is preparing the paradigm change in science for already four decades. It is impossible to comment all his books to this topic in a single Chapter. However, a summary of his point of view was given by himself, for example, in the online article: *„New Concepts of Matter, Life and Mind“* (PhysLink.com; Physics & Astronomy Online). Nevertheless, even in this extremely modern point of view, we still find from time to time an outdated aspect of the old paradigm, like the „life emergence out of nonlife“, unnecessarily involved in this highly advanced quotation here below.

> „In the on going co-evolution of matter with the vacuum's zero-point field, life emerges out of nonlife, and mind and consciousness emerge out of

> the higher domains of life. This evolutionary concept does not 'reduce' reality either to non-living matter (as materialism), or assimilate it to a nonmaterial mind (as idealism). Both are real but (unlike in dualism), neither is the original element in reality. Matter as well as mind evolved out of a common cosmic womb: the energy-field of the quantum vacuum. The interaction of our mind and consciousness with the quantum vacuum links us with other minds around us, as well as with the biosphere of the planet. It 'opens' our mind to society, nature, and the universe. This openness has been known to mystics and sensitives, prophets and meta-physicians through the ages. But it has been denied by modern scientists and by those who took modern science to be the only way of comprehending reality. Now, however, the recognition of openness is returning to the natural sciences.“

In summary to this short overview of the traditional ideas, the most frequently repeated thoughts concerning life, remaining based on the old scientific paradigm, are those stating that

→ life emerges out of the inanimate matter;

→ life begun long ago and then evolved without a new creation;

→ the hypothetical „Big-Bang sequence“ should apply not only for the inanimate matter but also for life: Nature should have created the living cells from a primordial energy, through light, elementary particles, atoms, molecules, and membranes.

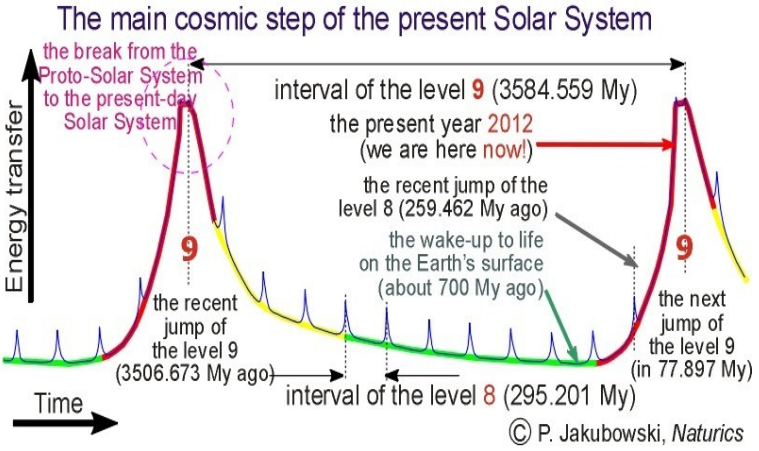
Our answer based on the new paradigm of the 21st century

Are we courageous enough to leave all aspects of the old paradigm ultimately behind us? Let us see how far are we ready to go in a new direction, towards a new solution of our main problem: What is life?

The fundamental form of life, the simplest quanta of the living matter, is created in our Cosmic Hierarchy all the time since the present quantum of the level 10 of our Cosmic Hierarchy (far outside of our present observational limit) came „into existence“ somewhere between 7.1 and 43.5 Mld years ago (*what means 3.585 Mld years times the scaling factor of the Cosmic Hierarchy, 12.1428*). Its present sub-period of the level 9, in which we are still living today, begun 3506.673 million years ago, when the Proto-Solar System (containing the Proto-Sun and its smaller brother, a brown dwarf) has been rebuilt and extended up to its present dimension marked with the Kuiper Belt, where the main part of the brown-dwarf mass, broken in many smaller parts, is still orbiting a common center of mass of the whole Solar System.

Prior to this recent quantum jump, during the previous period of the level 9 (*only partly shown on the diagram below*), the Proto-Earth has revolved the Proto-Sun in a constant distance of 1,37 AU (one third longer than today; *compare the table in Chapter 8*) and thus in a constant temperature of about 240 K, only four degree lower than the universal temperature of 244,4 K (-28,7°C). Some kind of an early atmosphere was surely there, around the proto-Earth. And one of the levels of this atmosphere was probably a few degrees warmer, like our tropopause today.

Inside of this level, the Universal Quantum Field has surely continuously created new quanta of the living (as well as the inanimate) matter. However, as long as the physical conditions around the Earth, and on its surface, remained to be constant, there was no reason for the primitive life to evolve during this long period of time.

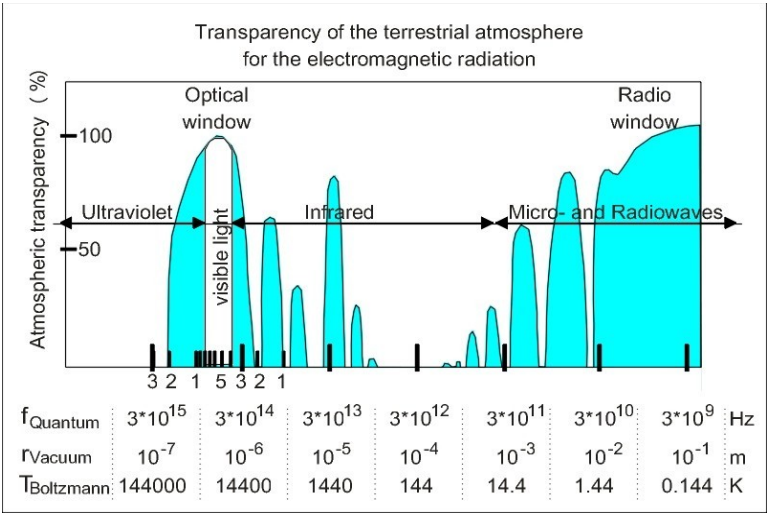


First after the quantum jump of the level 9 (3506,673 My ago), after the collision of the disturbed Proto-Mars with the Proto-Earth and the formation of the Moon, the Earth had obtained a push towards the Sun. Therefore, the distance between the Sun and the Earth-Moon system was continuously decreasing since then, reaching a distance we have declared as 1,00 AU today. Of course, during this approach, the average temperature of the Earth's surface continuously increased. The atmosphere had to adapt itself to the rising temperatures, but, as I suppose, one level with temperatures reaching the universal value of -28,7°C was always included into it. The primitive life was always in contact to the Earth's surface.

Not earlier than about 700 Mln years ago the Earth-Moon system has reached the distance corresponding to the average surface temperature of 0°C, allowing the hitherto frozen water to fill all available sinks of the Earth's crust, building the first ice-free oceans in the Earth's history. The primitive life on the Earth's surface had to evolve in order to fill the new niches in those oceans and shortly after that also on land. It was the true reason for the „mysterious“ explosion of the higher developed life-forms exactly in that time (sometimes also called as “Eudiacara explosion of life”). Note here that our discovery concerning the time of the origin of the terrestrial oceans is standing in a sharp contrast to the traditional hypothesis (see, for example, in the book by Jennifer Hoffman, “*Science 101; Ocean Science*”, Harper Collins Publisher, 2007), assuming that a period of heavy rains that lasted some 20 million years formed the oceans about four milliard years ago.

Let us repeat once more that part of the above description being important for our present topic. Independently of the actual average surface temperature, the Earth's atmosphere has always confined one layer not far above the Earth's surface with a temperature near the universal temperature of -28,7°C. This layer has always served as an „incubator“ for the terrestrial life, and therefore we can be sure that it acts also today in that important way. The terrestrial tropopause is a probably unique place in our Solar System, where life continuously originates.

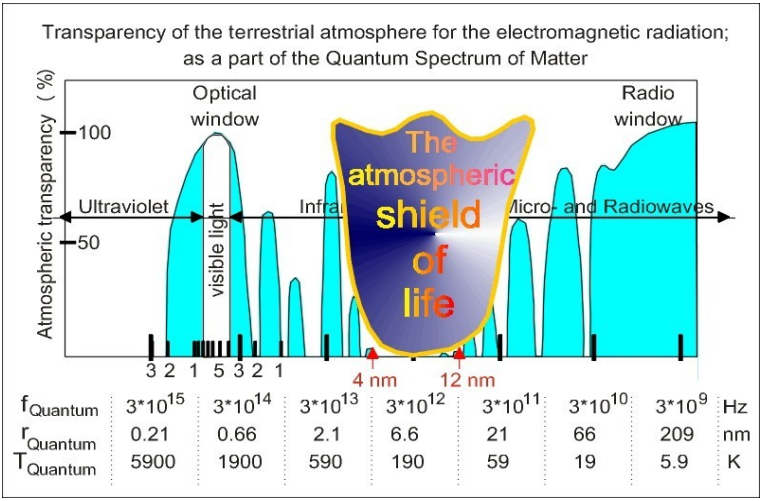
The necessary change in our thinking about the life origin can be most readily realized if we consequently exchange the old-paradigm description of the traditional spectrum of the electromagnetic waves with the new, unified one.



The above picture shows the transparency of the terrestrial atmosphere for the electromagnetic radiation. We see two „windows“, the optical and the radio one, through which the corresponding electromagnetic waves can reach and leave the Earth surface, allowing us a communication with other partners on the Earth and also with our spacecraft and other devices in the cosmic space. Below this diagram we see the theoretically calculated wavelengths and temperatures traditionally combined with the frequencies of the used electromagnetic waves.

When looking at these values we can ask: What kind of very hot (14400 K) „material objects“ in our atmosphere with their size of about 1 μm (or 10^{-6} m) should be responsible for the atmosphere transparency in the „optical window“? Or, which 1 cm (or 10^{-2} m) large but extremely cold (1.44 K) objects should help to transmit the radio waves? It's the highest time today to recognize that those traditional values are completely unrealistic. On the other

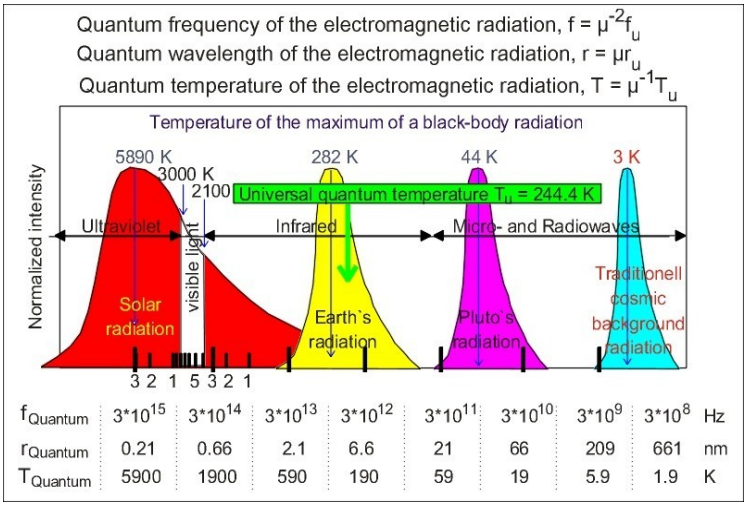
side, if we recalculate them according to the new paradigm, we see that the hypothetical „windows“ become rather a kind of „inanimate-matter boundaries“ on both sides of the atmospheric shield of life, as shown below.



The quanta of matter appearing in the range of this shield, with their universal size of 5 to 10 nm, are the smallest possible quanta of the living matter. They are so much abundant in the tropopause that they do not allow the cosmic (not only solar) radiation to endanger the higher developed life below the shield. During extremely strong monsoon rains they can even fall down to the Earth's surface and be observed as the mysterious „red rain“, especially known in southern Asia.

The diagram below makes it quite understandable that the Earth (or correctly, the Earth-Moon system) is crossing the so-called habitable zone during the recent hundreds of millions of years. The universal temperature of our Cosmic Hierarchy (or maybe of the whole observable

Universe) is still not far from the electromagnetic „spectral temperature“ of the Earth (the former one being pointed with the green arrow).



When I am writing this Chapter, one further, very strong proof of the reality of the “Shield of Life” in the terrestrial tropopause becomes just announced during the American Geophysical Union’s 46th annual Fall Meeting (San Francisco, 9-13 December 2013). The scientists report that several kilometers under our feet move and prosper puzzling living beings. Where the loose earth has given way to hard rock, microbes prosper. Enclosed in the hot depth rock the beings tap some unknown energy source to survive, with which they live since primeval times very well. Now a genotype analysis reveals that the creatures in the whole world are alike. Researchers have examined the genotype of the underground microbes from different world regions - and have made an astonishing discovery: 13 of the living beings are alike no matter whether they live under South Africa, Indonesia or in the ground of the

Pacific. However, how is the close relationship about distances from up to 16,000 kilometers to be explained where the microbes move in their life hardly from the place? Nobody can explain how they outlast in the depth. Scientists on the AGU conference speculate that the beings have developed in the early time of the Earth at a common place and were distributed in the course of time with the drift of the continents in all world. Therefore, the depth creatures could be the prototype of the life on the Earth.

Our Unified-Physics explanation is clear immediately. The “Shield of Life” has been present in the Earth's tropopause since the Earth's formation. The most primitive “units” of life, originating in this layer of the terrestrial atmosphere all the time (independently of the actual constitution of the atmosphere) had rained onto the Earth's icy surface and had been included into the rocks, sinking next into depth during various tectonic movements. They gave not directly any “active” help for all higher developed forms of life, but they can be indeed considered to be the “passive” remnants of the primordial phase of the life evolution.

As we already know, the animated matter needs no atoms or molecules to her origin. And she also contains none, as long as she lives. The quanta of the living matter come into being directly from the Universal Quantum Field, from the membranes level of the Quantum Spectrum of Matter. This level joins (or separates) the animated matter with (or from) the inanimate one. The characteristic temperature of this „creation process“ is -28,7°C. And the characteristic size of the emerging quanta is 5,073 nm. At the present, there is no other scientifically explainable way to create an original quantum of the living matter. All advanced processes, like the developing or reproduction

processes with living cells, concern always the quanta bigger than 5 nm. On the other way, no quantum of matter with its size below 5 nm can be alive.

However, we have to understand that the characteristic size or the characteristic temperature of a quantum of matter are just arbitrarily chosen characteristics of each quantum. In our unified description of Nature, we can choose also any other physical quantity to differentiate between the living and non-living quanta. But also the reversal is valid. If we estimate one characteristic property of a quantum, all other properties become estimated simultaneously, because the Unified Family of all physical quantities connects them all together.

If life does not need „nonlife“ at its origin, why does the inanimate matter exist in our Universe? The answer seems obvious for myself: in order to support the emerging life. Of course, we can imagine a small membrane-closed unit of the living matter independent of any quantum of the inanimate matter. But it is all about this particular unit of life. It can even exist forever in a habitable zone somewhere in the Universe. But it is not able to do anything else. No evolution is possible for such a lonely quantum. In order to evolve or develop, the quantum has to „eat“, to consume energy. Consuming energy make the original quantum larger. But then increases also its risk to be destructed through collisions with any „next quantum of energy“ in a form of radiation or another smaller or larger object of living or inanimate matter. Only the quanta of life living on some bigger background (mostly of the inanimate matter) can reach a larger size or join a colony of similar quanta as the first higher step of evolution.

On the other side, it is enough to think about a cosmic-dust particle which crosses a habitable zone around a star (or a stellar system). If this particle meets a „portion of humidity“ and water-ice will cover it, than it seems possible that an additional quantum of a stellar radiation will be able to create a quantum of living matter “covering” this dust particle. Such a quantum does not need a special membrane. It will exist on the dusty grain like a slime-mold unit, being the membrane by itself.

In that point we should explain one readily repeated misunderstanding of the observational astrophysics. There are organic molecules abundantly observed around many stars. The traditional interpretation of these observations says that the organic molecules are produced in stars, during a unknown phase of physical-chemical evolution of stars. As we now know, the molecules cannot be produced or ejected from the much to hot stars. They can be produced however in the atmospheres of the stars companions, where the temperature does not exceeds several hundreds degrees. The other possibility is that the scientists do really observe the most primitive forms of life in the atmospheres of some planet-like objects, but their experimental devices are tuned for the spectra of the organic molecules alone.

So what is life?

Lynn Margulis and Dorion Sagan ask at the end of each Chapter of their book (*mentioned here above*) exactly this question. So what is life? The best practical answer to this question I can give today seems to be the following.

The Universal Creative Potential creates quanta of life directly from the Universal Quantum Field, which has been created by the same potential in the form of our Cosmic Hierarchy.

In the present book we don't care what is beyond this hierarchy, or beyond our observable Universe, or when exactly did the creative act happened and why. These are philosophical questions beyond the present version of the Unified Physics. We just accept the possibility to have created life from the Universal Creative Potential as described in previous Chapters of this book.

Each quantum of life possesses two components, the material one (the quantum size and form) and the spiritual one (the quantum period, or time). The quantum is able to exist (to occupy a part of the cosmic space of the Cosmic Hierarchy) through its material component, and to experience (to communicate with its cosmic environment) through its spiritual component. Therefore I suggest to refer to the quanta of life as the quanta of spirit-matter.

> Elementary life is an ability to produce the quanta of spirit-matter with a size of at least 5 nanometers, being stable enough to exist for many quantum periods of the order of picoseconds or longer.

They can be created in any place of our Cosmic Hierarchy, where the temperature constantly remains in the range of the universal temperature of -28,7°C. However, the higher developed life, with nerve cells, and still more with brain cells, demands already large bodies of the inanimate matter (like planets), with a protecting atmosphere, moving for a long time (of the order of millions of years) inside a habitable zone around a stable source of the cosmic energy.

Are we alone here? We cannot be sure, but it is obviously not easy to find such a “friendly” habitat in the whole observable Universe, because we have not discovered any else beyond our Earth till now.

Part Five

Our Past and Our Future

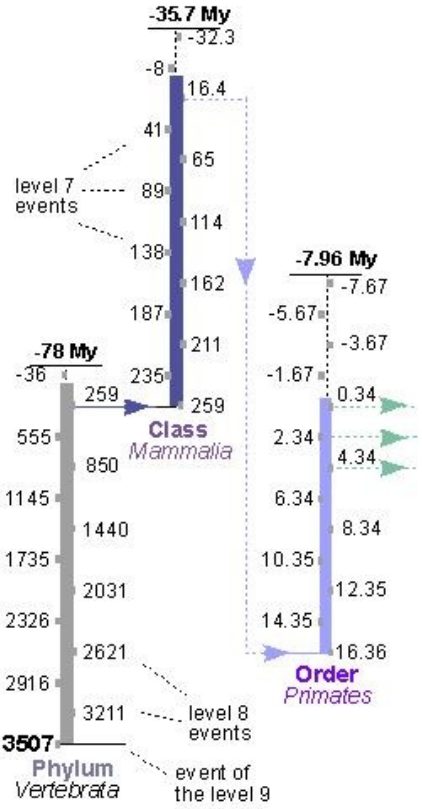
We have now learned to ask new questions based on the new paradigm, the new vision of the World around us and inside of us. The most interesting questions concern always our future. However the best guide into the future comes from the experiences and impressions made in the past. We thus have first to understand our past as good as possible and only then our future will appear as an emotional, imaginable prolongation of the past. Let us try how it works.

10

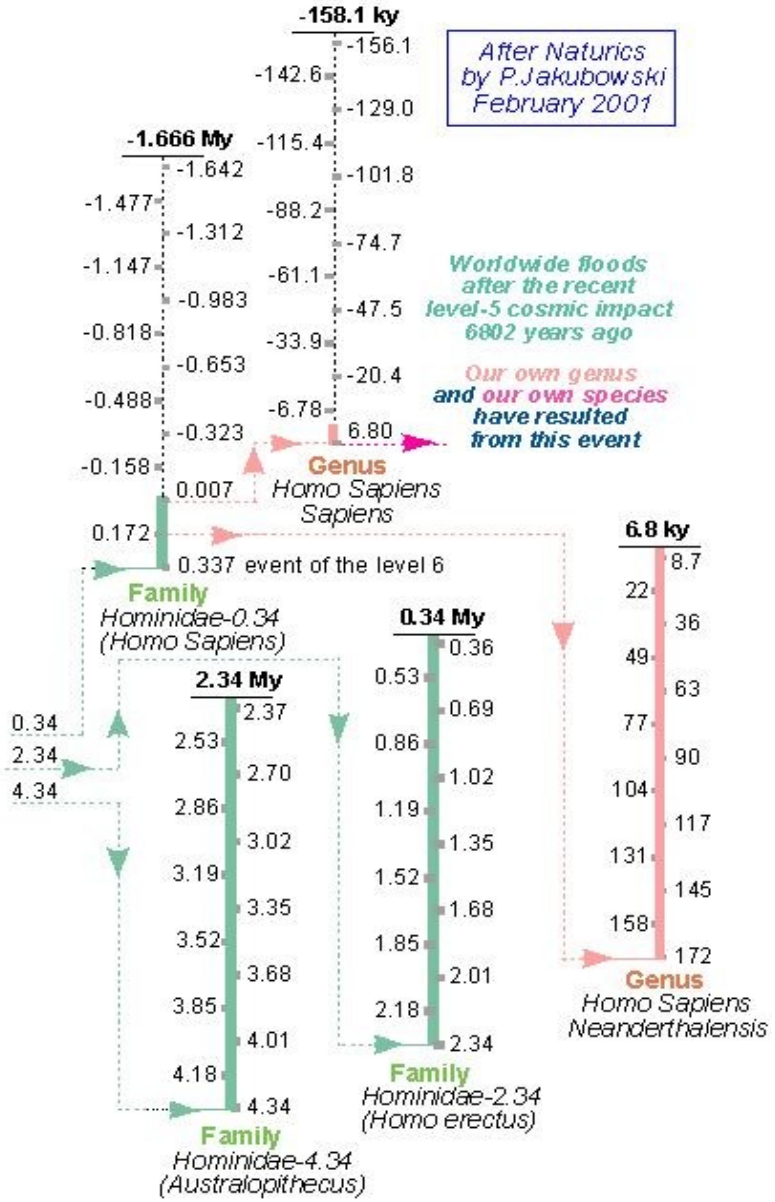
Where did we come from?

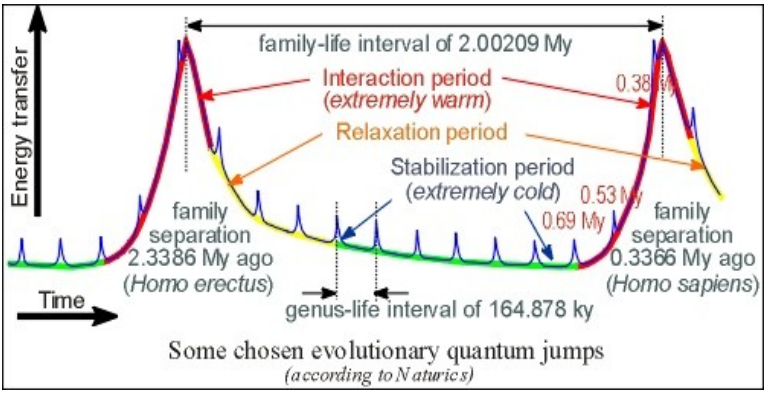
Who is “we” in that question? Is it we, the “modern” men of the 21st Century? Or we, the “relatively modern” men of our first global civilization, which started theoretically around the year 1905? Or maybe some more general we, the descendants of the Greek, Roman and medieval civilizations? Or maybe looking still further back in the past, should this “we” mean the descendants of the first members of our own species *Homo Sapiens Sapiens “modernus”*? Exactly yes, I really mean this last question.

We are surely coming from the past of our Earth. On a scale of a single human life, we, as the uniform species of the human beings living today on the Earth, are seemingly coming from a very deep past of the Earth. However, on a geophysical scale of the Earth's history, we are just the youngest species of the Order *Primates.* And this our own order is a result of the recent splitting of the Phylum *Vertebrata* (259 Mln years ago) on the Class *Mammalia*, and next, the recent splitting of this class on the Order *Primates* (16.4 Mln years ago), as shown in the diagram below. This one and the two similar diagrams, shown farther below here, is based on the Cosmic Scale of Time of our Cosmic Hierarchy (see *the corresponding table in Appendix*).

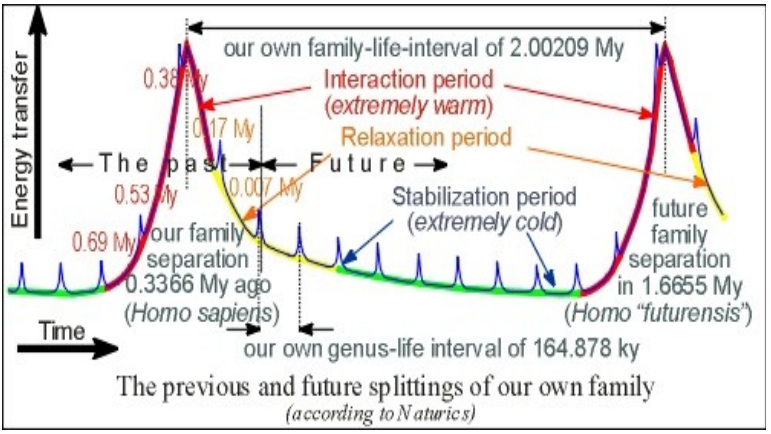


If we further follow our own genealogy, we have to note the splitting of the Order *Primates* onto eight families, three recent of them carrying a common scientific name of *Hominidae* (*compare the next diagram*). The oldest of them, which originated 4.34 Mln years ago and extincted 2.34 Mln years ago, is the Family *Australopithecus*. The last but one, originated 2.34 Mln years ago and extincted 0.34 Mln years ago, is the Family *Homo Erectus*, as can be also seen in another form in the diagram on page 117.


-158.1 ky
-156.1
-142.6
-129.0
-115.4
-101.8
-88.2
-74.7
-61.1
-47.5
-33.9
-20.4
-6.78
6.80
After Naturics
by P.Jakubowski
February 2001
-1.666 My
-1.642
-1.477
-1.312
-1.147
-0.983
-0.818
-0.653
-0.488
-0.323
-0.158
0.007
0.172
0.337 event of the level 6
Worldwide floods
after the recent
level-5 cosmic impact
6802 years ago
Our own genus
and our own species
have resulted
from this event
Genus
Homo Sapiens
Sapiens
Family
Hominidae-0.34
(Homo Sapiens)
6.8 ky
8.7
22
36
49
63
77
90
104
117
131
145
158
172
Genus
Homo Sapiens
Neanderthalensis
0.34
2.34
4.34
2.34 My
2.37
2.53
2.70
2.86
3.02
3.19
3.35
3.52
3.68
3.85
4.01
4.18
4.34
Family
Hominidae-4.34
(Australopithecus)
0.34 My
0.36
0.53
0.69
0.86
1.02
1.19
1.35
1.52
1.68
1.85
2.01
2.18
2.34
Family
Hominidae-2.34
(Homo erectus)



Finally, our own Family *Homo Sapiens*, has originated 337 thousand years ago and is still alive (but how long yet, it depends on you and me, on all of us). Our Family has passed just about 17 percent of her life expectation of 2 Mln years (*the same as for any other genealogical family; compare the diagram below*).



During this short time of life, our Family has developed just two genera (*pl. from genus*), one still not being named

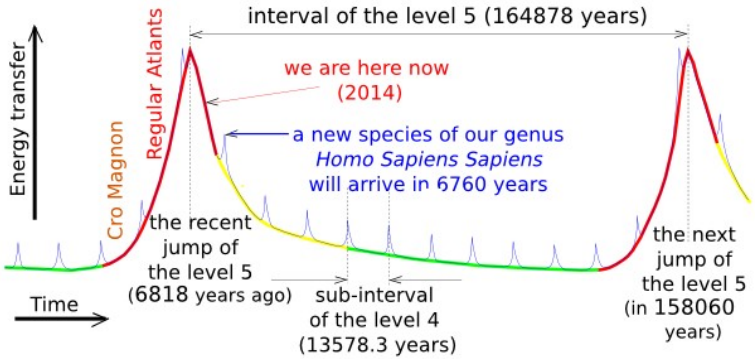
scientifically, which existed on the Earth between 337 and 172 thousand years ago (sometimes temporarily called by myself the Genus *Homo Sapiens Heidelbergensis*), and the second one, the Genus *Homo Sapiens Neanderthalensis*.

There are many speculations in science around the “blood relationship” of the extinct Neanderthals to our own species, populating the whole Earth's surface today. These speculations base on a misunderstanding concerning the difference between the theoretical life expectation of a genus, like that of *Homo Sapiens Neanderthalensis*, and the life expectation of a single species, like ours.

The life expectation of a genus is 12.1428 times the life expectation of a species, because the period of a genus belong to the fifth level of the Cosmic Hierarchy of our Sun, with a duration of 164878 years, and the “life period” of a species lasts only 13578 years, corresponding just to the level 4 of the hierarchy. As shown in diagram on page 116, the Genus *Homo Sapiens Neanderthalensis* has given a birth to the full number of twelve consecutive species of our predecessors, who all should be called Neanderthals, beginning from three first and most primitive species living between 172 and 131 thousand years ago, through six more advanced although still not really identified species (living between 131 and 49 thousand years ago) to the three much more “modern” species including the really advanced species of Cro-Magnon (somewhere between 49 and 22 thousand years ago), up to the last one (living between 22 and 6.8 thousand years ago), which I propose to call Atlants, after the people of the Plato's Atlantis (*compare the following diagram*).

Most of the scientists and interested laymen are used to

think that we still know nothing for sure about the existence of the species of Atlants. However, this is a serious misunderstanding. Independent of our belief or no in Plato's report about some ancient civilization, there is one sure proof and several almost sure proofs of the existence of some very advanced and highly-developed civilizations of human beings living on the Earth between 22335 and 6818 years ago, during the last part of the life period of Neanderthals. The period of *Regular Atlants* (from 22335 to 8757 years ago) has been marked on the diagram below.



The absolute sure proof of their existence is simply by our own existence. In order to better understand the proof, we have to realize the subtle though dramatic difference between the extinction of one species and the evolution of another one. Let us compare the ongoing extinction of the species of tiger with the (hopefully continuous) evolution of our own species.

It is generally known that the tiger’s situation has grown desperate during the 20th century. A hundred years ago, there were over 100,000 in the wild, with more than 40,000 in India alone. Currently, the total number of tigers

worldwide is calculated at fewer than 3,500. Three subspecies — Javan, Bali, and Caspian tigers — vanished during the 20th century. A fourth, the South China tiger, has not been seen in the wild for about 30 years now and is assumed to have gone extinct during the 1990s. The extincted species are irrecoverably lost. In the case of tiger it is evident that not the Nature but the men is directly responsible for its extinction. Therefore only the men can try to rescue the remaining populations of tiger — including 1,850 Bengal tigers and a few hundred each of the Siberian, Indochinese, Malayan, and Sumatran subspecies. With natural processes alone and with the inhuman behavior of the human beings, the tiger species has no chance to evolve to some new species, never more.

On the contrary, our own species was more fortunate than that of tigers, because 6818 years ago, when human beings were in a similar situation - very close to a final extinction, there was no such other bestial species as ourselves on the whole Earth. No one was arranging a systematic hunt for the few survivors of the natural catastrophe of the cosmic quantum jump of the level 5 that reached its maximal intensity exactly 6818 years ago, as shown in the last diagram. It is the subtle but dramatic difference. We were just more lucky 7000 years ago than the tigers are today.

The very last species of the Neanderthals genus, being “born” theoretically 8757 years ago (the species which I call the “evolutionary species of Atlants”; *compare the Time-Scale of Family Homo Sapiens in Appendix*) had no time to develop their own species in a full length, because every cosmic jump of each n-th level occurs always not exactly after 12 or 13 but after 12.1428 periods of the level n-1. The members of this exceptional species, independent

of their traumatic experiences during their individual biological life on Earth, were “obliged” to fulfill a single task at least, to preserve the biological continuity of their own, naturally dying genus. Those people had had not only to give a birth to a large enough amount of children. These children had had to be secure for a time long enough to be able to continue this indispensable task by themselves. And we have to imagine that the catastrophic geophysical and climatic conditions on the Earth's surface during the cosmic quantum jump of the level 5 had surely lasted over the lifetime of dozens of generations of the last *Atlants* (or the last Neanderthals).

The sequence of happenings during each quantum jump of the level 5 and higher is always the same. The Solar System is entering a cosmic region with rapidly growing energy density, intensifying the cosmic impacts on the whole Earth's surface. Of course, those impacts are never a punishment send by God, but just a natural expression of the intensified energy transfer, which cannot be realized with any known kind of radiation alone. The size of the largest impactors depends on the actual level of the cosmic jump. The results of those impacts are also quite obvious: strong earthquakes, extreme volcanism, and the worst of them, the giant tsunamis, with waves many times higher than the Sumatra tsunami in December 2004. Around 6818 years ago, they had almost immediately and completely erased any civilization from the Earth's surface, which was settling not far from the seashore in the years before. And the people had always liked to live at the seaside.

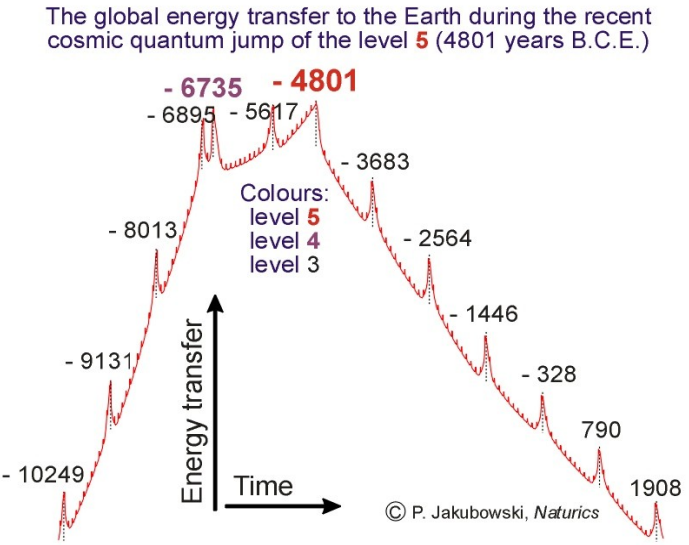
About 7000 years ago there were also three additional effects making the catastrophe almost unimaginably dramatic. Firstly, as we have already mentioned, it was the

end of the long “life period” of the Neanderthals of almost 165 thousand years. During this long period, the highest cosmic jumps were twelve of those of the level 4, with a much lower intensity. Nobody of the living civilizations could have even expected such tremendous events arriving soon. No historical experience could help to prepare themselves for such a cataclysm.

Secondly, the increasing flux of the cosmic energy has also accelerated the end of the last ice age. The oceans were rising rapidly during the recent ten thousand years preceding the top of the quantum jump, rising in this period by more than 120 meters, already before the giant tsunamis were activated (*compare the Post-Glacial-Sea-Level.png by Wikipedia*). Many local land barriers between two adjacent masses of water became broken, as for example, between Africa and Europe at Gibraltar and at Bosporus. Mediterranean was isolated (at least partly) from Atlantic again at that time, as already many times before. Because much more of its water evaporates than becomes delivered through the few big rivers ending in it, the sea level of the Western Mediterranean was much lower around 7000 years ago than today, until the break by Gibraltar has been initiated by a post-impact tsunami. Huge water falls were the direct consequence. The whole Mediterranean Basin, including the Plato's Atlantis located very probably between Malta and Sicily, and short after that also the Black Sea (*compare http://en.wikipedia.org/wiki/Robert_Ballard#Black_Sea*), were deluged as a direct result of this cosmic quantum jump.

And thirdly, we have to properly understand the realistic scale of time of this largest event during the hitherto passed life period of our family of *Homo Sapiens*. The

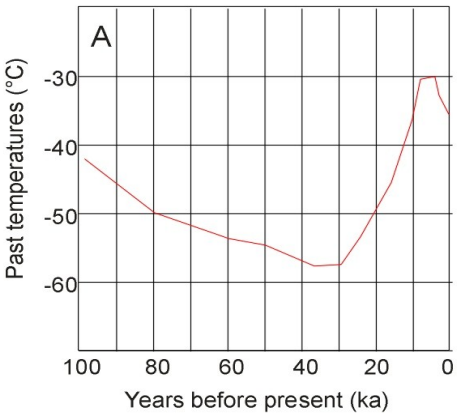
sharply marked point of the curve on the previous diagram must be increased on its time scale, because the cosmic quantum jump lasted in reality thousands of years. Therefore, it should be better considered along such enlarged time scale, as shown below.

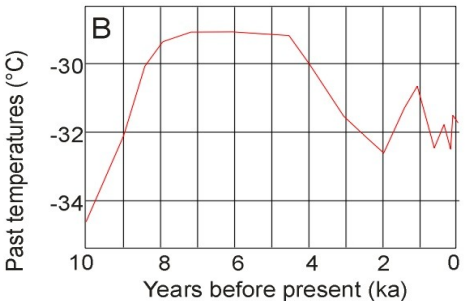


Note here the culminating point of the level 5 (4801 years BCE) and the single visible one of the level 4 (6735 years BCE). The black data of the cosmic quantum jumps mark here the consecutive starting points for the individual civilizations (*with their life expectation of 1118 years*) for the species of *Regular Atlants* (prior to the level 4 jump), of the *Evolutionary Atlants* (between that event of the level 4 and that main one of the level 5), and of our own species *Homo Sapiens Sapiens "modernus"* (after the jump of the level 5). Note also that today we are using the date 1905 (and not longer 1908) for the beginning of our own civilization (*with correspondingly shifted other data*). This energy transfer has delivered a tremendous amount of

energy to the Earth's surface, so that it was relatively easy to measure it in the icy “library” of the Arctic and Antarctic glaciers. The best measurements of this kind, I have found in the scientific literature of the recent decades, was done by Dahl-Jensen *et al*., which I have redrawn from their paper cited here below.

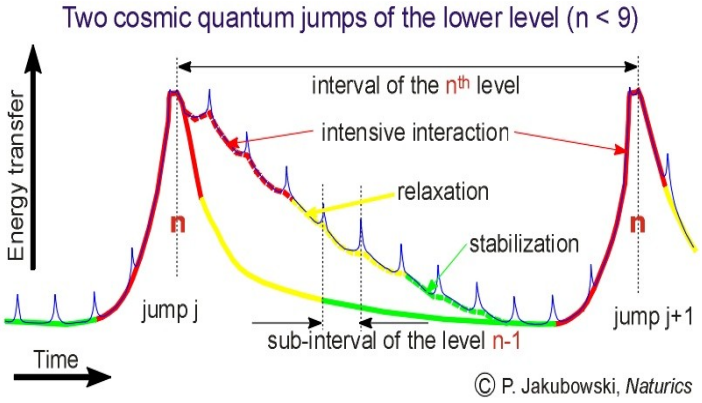
Past Temperatures Directly
from the Greenland Ice Sheet
D. Dahl-Jensen,* K. Mosegaard, N. Gundestrup, G. D. Clow,
S. J. Johnsen, A. W. Hansen, N. Balling
9 OCTOBER 1998 VOL 282 SCIENCE www.sciencemag.org
pp. 268-271





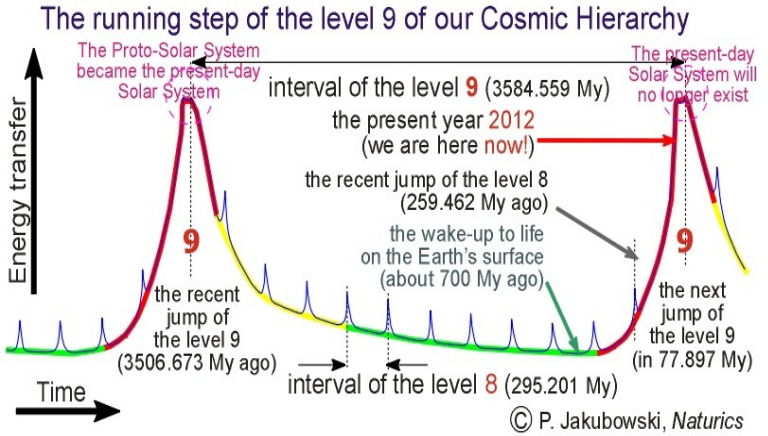
If we compare the right part of the period of time shown in their picture a, being enlarged also on the part b, we see the same form of the observed temperature change as our theoretical suggestion above. The smallest quantum jumps of the level 3 cannot be observed in the ice records, because the global temperature change during those relatively small jumps lies below the observational limit of the used method.

The additional information won from the Greenland measurements is not less important for the interpretation of our theoretical results. The part a of the measurements covers almost the whole life time of the Genus *Homo Sapiens Neanderthalensis*. As we see, the relaxation phase since the quantum jump of the level 4, which gave a birth to this genus 172 thousand years ago, runs down much slower as we have predicted in our previous diagrams (*as recently on pages 117 and 119)*. We have to correct the actually used diagrams in accordance with the following one, with relatively elongated relaxation (yellow) phase.

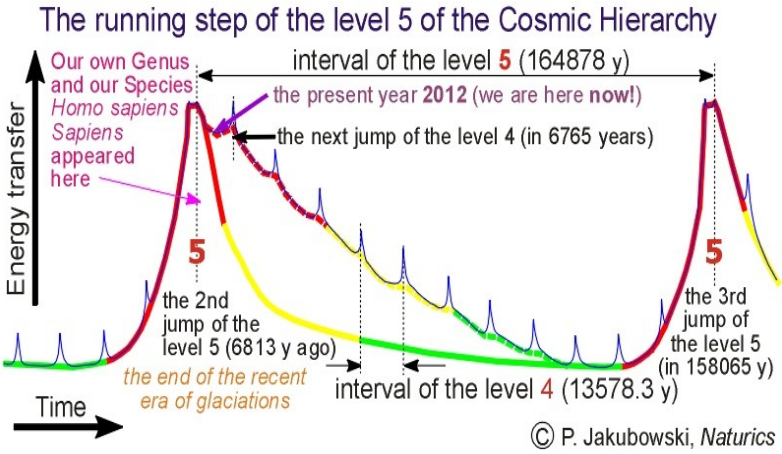


The reason for this deviation is clear and frightening at the

same time. It is because on the level 9 of our Cosmic Hierarchy, we are already approaching the end of our time on the Earth (*compare Chapter 12*), as shown once more with the red arrow here below.

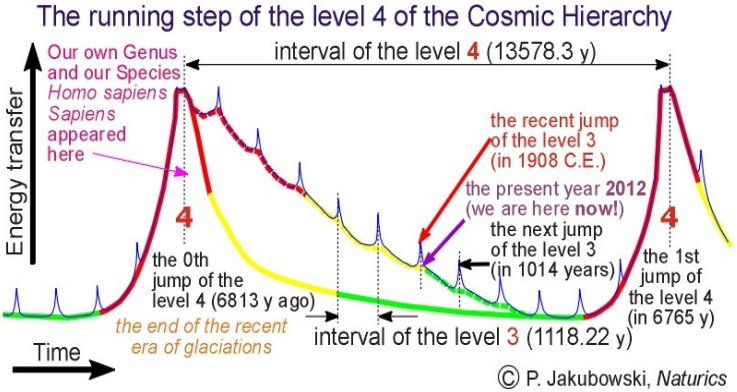


Therefore, the diagram from page 119 should be actually replaced with the following one.

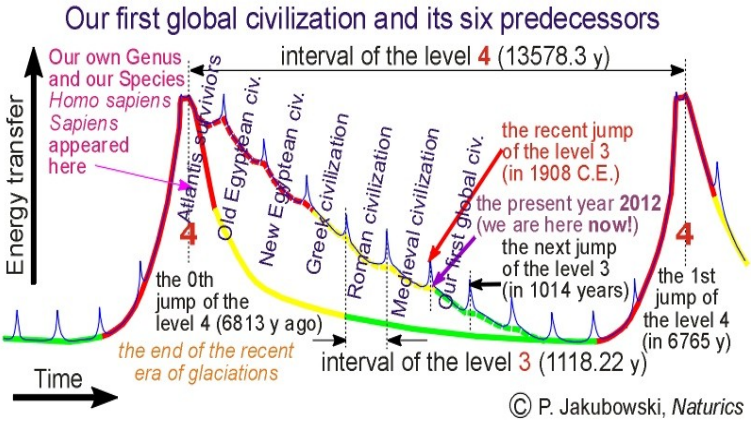


Here we see the true reason, why we are still "lucky" to live in our warm "interglacial" phase. However, because

the “Little Ice Age” between 1100 and 1700 was a real event, the next such cold phase (coming between 2200 and 2800; *compare the third Appendix*) will surely be not less cold for our successors. It can be seen in more details on the following diagram of the level 4.



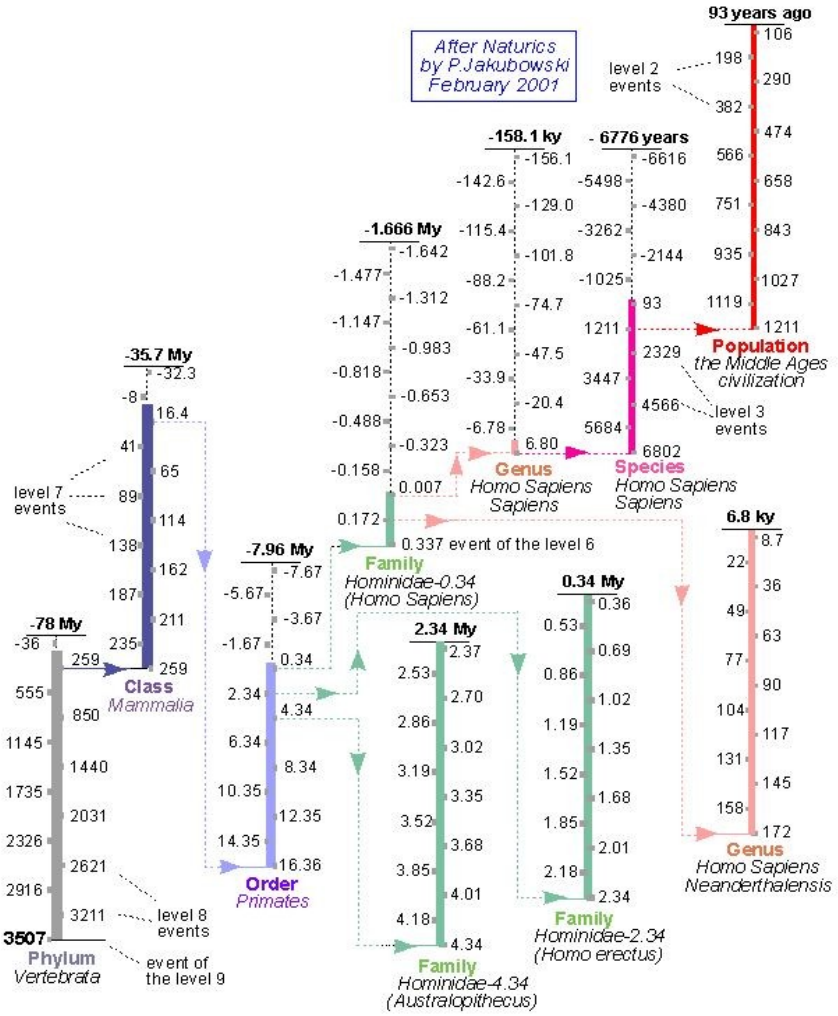
As we see here (*and on the right side of the enlarged curve on page 123*), our species has already successfully passed six previous civilizations. Let us explicitly name them as presented in the diagram below.



Returning to the title question of the present Chapter, “Where did we come from?”, we have to admit now that the birth of our own species is not longer the same great mystery, as it was all the time before we have applied the Unified Physics to its explanation.

Nevertheless, we now also understand that this was not a light birth. Considering all continents, surely more than 90 percent of the inhabitants of the Earth of that days have been killed directly or died shortly after those events of the levels 4 and 5. No a single offshore civilization rescued the cataclysm. Only some small tribes living in a deep jungle or on the highest mountain plateaus have survived in larger groups. Such groups (like those living in the present Tibet and Peru, or in the jungle of Africa and Asia, or Australian aboriginal people) gave birth to the new genus, the Genus *Homo Sapiens Sapiens*, and within it, to the first new species, our own Species *Homo Sapiens Sapiens “modernus”*.

Note that the term “*modernus*” has been added by myself in order to differentiate between the name of our own genus and that of our own species; of course, this addition should be linguistically improved, if someone has got a better idea for it. Note also that this extension has not been included into the name of our species in the diagram below. This diagram, summarizes our genealogical tree, from Phylum *Vertebrata* to our own civilization (population), the first truly global civilization on Earth. Finally, note once more that the reference year for this diagram is 2001, when I still have dated the begin of our civilization in year 1908; however, the present - more rational, but still being under consideration - dating is about 1905.



The described here situation of a continuous evolution from the species of *Regular Atlants* to the civilization of "*Post Atlants*", the first one of our own species, is typical

for a decay of all individual civilizations known to us from our own history, though occurring on a much lower scale of the “natural impulses”. According to Arnold J. Toynbee (a British historian theorizing on a decay of civilizations; *for more details see by Wikipedia*), all civilizations pass through several distinct stages: genesis, growth, time of troubles, universal state, and desintegration. Toynbee argues that the breakdown of civilizations is not caused by loss of control over the environment, over the human environment, or attacks from outside. Rather, ironically, societies that develop great expertise in problem solving become incapable of solving new problems by overdeveloping their structures for solving old ones. He argues further that the ultimate sign a civilization has broken down is when the dominant minority forms a "Universal State," which stifles political creativity. Finally, he argues also that only a small part of the old civilization, being able to transcend during a period of social decay, give birth to a new point of view with new and stronger spiritual insights, around which a subsequent civilization may begin to form after the old has died.

This social picture of a decay of civilizations is highly compatible with my physical picture of a decay of the genealogical units. From this picture we can see now that our own genus has not yet had enough time to develop any second new species. And exactly this is the reason, why we all, inhabiting the whole Earth today, belong to a single species. We have gone till now only half of our way to a new species.

This theoretical picture gives also the answer to such important questions like those: Does the question about the first human being have any scientific sense? How deep

into the past have we to go, in order to meet the first "modern" human beings? Can we really hope to find a sharp boundary between still non-human and already human beings? If yes, how sharp could it be; one generation or many generations of living organisms like ourselves?

In summary, I think that all this being said here above is an absolutely sure proof of the existence of some very advanced and highly-developed civilizations of human beings living on the Earth between 22335 and 6818 years ago.

Now, what are the other proofs of this existence?

The last splitting level, the "creation" of our own species, defines exactly the beginning of the series of six "great" civilizations preceding our present one, the first global civilization on the Earth (*compare the last but one diagram here above and the time-table of our Family in Appendix*). The most characteristic members of those civilizations were: Post-Atlantis, Old Egypt, New Egypt, Greek, Roman, and the Medieval civilizations. The exact theoretical "life periods" of those civilizations (of 1118,22 years) are precisely documented historically and thus are serving as an additional observational proof of the reality of the cosmic timescale of our Cosmic Hierarchy, and consequently, of the Cosmic Hierarchy itself. No matter which book about the chronology of the ancient civilizations are we actually consulting (here I give just three examples of them: "*The British Museum Book of Ancient Egypt*"; "*Handbook to life in Ancient Egypt*", by Rosalie David, at Oxford University Press, 1998; "*The First Emperor, China's Terracotta Army*", by Jane Portal,

at Harvard University Press, 2007), the dates of the "boundaries" between Old Egypt and New Egypt, between New Egypt and Greek, or between Greek and Roman civilizations, are always the same, very close to our theoretical values of 2568 BCE, 1450 BCE, and 331 BCE, respectively.

Do we really realize, where are we "sitting" today on our genealogical tree? We have just reached the half of the step to the first splitting of our genus allowing a new species of the genus to appear in 6760 years. Eleven such splittings will follow during the present period of the level 5. Therefore we have to understand and to accept that our collectively traumatized species was not continuously growing intellectually and civilizing all the time since its origin 6818 years ago. Quite on the contrary, our development was highly destructive rather than constructive during this time. We were steadily loosing, forgetting, and damaging more of the advanced knowledge and culture of the ancient civilizations than gaining a new knowledge and ideas. The fantastic techniques to build pyramids, sphinx, or megalith objects, the knowledge to organize large human communities, cities, the understanding of our role in the cosmic environment, the ability to communicate across the oceans, the healing techniques of the Australian aboriginal people, and probably much more above that, has been erased from our global memory.

Only now, in our first global civilization, with its unique technical possibility to build a global network of hearts and minds, we have also a new possibility to "read out" the Universal Quantum Field, the *Akasha* Field, searching for the lost information. It seems that we have now a real

chance to change the negative direction of the human development to the positive once again. The primary condition for this change is the obligatory paradigm change, not only in the natural sciences and in humanities, but also in our consciousness. It is exactly what our visionary leadership like the Club of Budapest is trying to reach today. We have to support them with all our knowledge and intuition.

Let me mention here one further problem of the present science, which seems to be on a right way to become explained in the next future. Most of us are lucky to live today in a world without a war since a couple of decades. We have also enough to eat and we are consuming mostly a “healthy” food. And we are growing higher and higher with it. The present men of the wealthy living societies have become taller by about 10 cm in average during the recent 150 years. The continuous growth seems to be a natural development under such positive circumstances. Let us just mention the example of dinosaurs growing unimaginably large during their long life period without any serious competitors.

Now, if we consider that at the end of the life time of the genus of Neanderthals, during the 13.5 thousand years of the life time of the *Regular Atlants'* species (between 22335 and 8757 years ago; *compare the Appendix*), the civilizing and cultural development of this species had to have reached the highest level of the whole long era of the Genus *Homo Sapiens Neanderthalensis*. Following, we can realize that the members of the recent civilizations of this species found themselves in a similar positive situation for much a longer period than our 150 years. With the same growth rate as our own one, those people

had to growth taller by two meters in every 3000 years. It seems therefore very plausible to me that the members of the recent two civilizations of the Neanderthals, the *Evolutionary Atlants*, who directly gave a birth to our own species, were simply giants in comparison with the shrunk postures of the traumatized and hungry people on the other side of the "quantum-jump-5" limit. It has to be assumed that the abundant "gigantic" individuals among the *Post Atlants* and the more and more rare becoming such members of the following civilizations living in the historical and even in the present times (*compare, for example, the website http://www.genesis6giants.com/*), are just a biological relict of those truly gigantic civilizations of the end of the Neanderthals era. This conclusion also changes our point of view concerning the megalithic architecture of those times around 7000 years ago.

We have to wake up, to stop our negative evolution in all parts of our World, and to grow again, physically and mentally. There are many fantastic tasks waiting for us in the near future.

11

Where are we going in the near future?

One of the most frequently used rhetorical embellishments in almost all scientific discussions of the recent decade is surely the statement: the World is changing. But they are mere words, like the probably even more frequently used platitude: the global climate is changing. The reality is that the global climate can never be unchanging. It is because of the simple physical reasons, which I have already presented here above (*compare also the Appendix*). Shortly speaking, the Earth is not an isolated island in the Universe.

Similarly, the World is always changing. But there is a big difference indeed between the present global climate change and the present change of the World we all are living in. The present climatic change is a “cosmic jump” across the boundary between two consecutive periods of the shortest climatic cycle of 1118.2 years (*compare the Cosmic Hierarchy cycles once more*). The hot phase of this jump has begun about 1850 and will become definitively finished in just nine years from now (beginning with winter 2023/24). On the other hand, the present change of the World is unique during the whole history of the humankind. Today, for the first time in our species history,

we all – more than seven milliard citizens of the blue planet – belong to a single global civilization, the first global civilization on Earth.

This *WorldShift*, called that way by Ervin Laszlo, is unique also from some other points of view. For example, technically, we have reached that point, when a practical connection between any two people is becoming reality. But the most important point of view is concerning our global consciousness, our common way of thinking about our own role on the Earth and our place in the Universe.

Theoretically, we all belong to this first global civilization since 1905. Today, our most urgent task is to educate ourselves in order to understand not only our place and role, but also the rapidly growing risk of our activities according to "the same procedure as every year". The World War I and II and the atomic bombs on Hiroshima and Nagasaki were, from the global point of view, the transition phase and our "entrance fee" into the global civilization. We had to learn in that tragic way that a war is never a proper way to solve our global problems. Any next war, no matter where, would just be a proof of our immaturity to think and act globally and probably the final accord of the symphony of our species life.

I am just a physicist. I cannot stop any violence and any misuse of a power. But with this present book, I am trying to show to anyone, who wishes to know, how a simple but rigorous change in our thinking about the World can open quite new perspectives for all of us, the perspectives from which we will recognize, how senseless and even stupid it would be, if we continue to carry on our usual aggression and/or our global passivity in this changing world.

The traditional physics has considered the “physical bodies” as material points or other imaginary non-living objects. The traditional reductionistic point of view has forced the researchers to reduce any extended moving object, like even the biggest airplane, to a structure of such material points. Even in such cases, where the investigated object was a living organism, like an insect, a bird, or we ourselves, the “object” motion was always approximated with the Newtonian movement of material points.

Now, we can simply observe the paradigm change in our own physical understanding of the world around us, if we compare this traditional approach with the new holistic approach, in which we suddenly are allowed to ask many new questions. For example we can ask a “moving body” (like our friend or ourselves): where are you going? The previous consideration of a simple passive reaction to some external forces can be replaced now with the purposeful activating of the corresponding energy transfer in a desired direction with a desired intensity, allowing us to go, to run, or to jump without any collision with another body (at least in most of the real cases).

Of course, the possibility to ask some new intriguing questions does not mean to have immediately got any simple solution to such questions. However, if we are allowed to ask a new question, we can go the next step forwards and consider the possible way for the proper answer.

One of such new questions I have recently asked myself is: What can our science learn from our religion? Our religious history is much longer than the history of our

science. Our religion has evidently started as a system of attitudes, beliefs, and practices directed to many different deities, presumably located in almost all material objects in our cosmic and terrestrial neighborhood. However, supposedly more than ten (or maybe twenty) thousand years ago an idea appeared that such a polytheistic point of view reduces the magnificence of the very idea of God, the Creator of all things. There is just one Nature and therefore also her creator should be understood as a Oneness. The monotheism has been thus born as the adaptation of our previous polymorphic beliefs to our uniform understanding of Nature.

At the end of the 19th century, our science stood at a similar point like our religion thousands of years earlier. To that time we have discovered many dozens of scientific "deities", like energy, force, acceleration, mass, or electric charge. Each of those "deities" has got its own followers. Our science became more and more polymorphic. The whole domains of science became increasingly separated from each other, creating their own "temples" (research institutes and universities), for example, of magnetism, electricity, or kinematics. However, owing to Einstein and other visionaries, the scientists intuitively recognized that the polymorphic science can never correctly describe the uniform Nature. The search for a unified description of Nature began.

The ancient humans have been forced, or maybe only motivated, to change their religious paradigm and abandon their "private" deities. They were forced to accept that also the holy tree and the holy mountain in their direct environment had to be created by the same "universal" God. In a similar way, all scientists of our global

civilization have to change their scientific paradigm today. They have to accept that their private holy terms, whether in quantum physics, in elementary particle physics, or in electrodynamics, have all been created from one scientific Oneness, the Universal Creative Potential, the Universal Unity of the Unified Family of all physical quantities. Neither energy nor mass, nor electric charge, nor any other physical quantity, should be considered separately in our new physics. The polymorphic physics of the 20th century has to be replaced with the Unified Physics, the first uniform description of the surely uniform Nature.

If we have already changed our scientific paradigm, we are standing on the new-paradigm side (*compare the picture on page 25*) without our previous "physical body". But we are completely free. Free to build our new "body" of physics without the diseases of the old one. Free to reach new wonderful horizons.

The boundary between the old and new paradigm is a sharp cut, much sharper than a threshold between two rooms in the same flat. The paradigm change is even much more than a change of clothes in a fitting room of a department store. To change a paradigm is like crossing the death limit between our present life and our next life (if reincarnation should be possible). As the reincarnation means a rebirth of our soul in a new human body, our appearing on the other side of the paradigm boundary means that we have left our previous "physical body" and are beginning to build our "new body". All physical quantities of the previous "physical body", all polymorphic "deities" of the 20th century science have to remain on the old-paradigm side of the boundary. All what we have to take with us across the boundary is our

scientific “soul”, our knowledge, our experience and, first of all (*if we follow Albert Einstein*) our intuition. In our case here, it practically means first of all the knowledge that the whole Universe, including the Universal Creative Potential itself, is quantized. And it means also the conviction that the uniform Nature can be described with our human brains. And perhaps also the supposition that the spontaneous fluctuations of the Creative Potential, which I have called “*fluctuons*”, are the first step on our way to create everything else. That is all. This knowledge should be enough if we are going to describe the creation of our Universe. On the new-paradigm side we are free to unfold a quite new perspective. And this new perspective is wonderful. I know it, because I am already here, waiting for you. You can simply follow me.

As mentioned in the section “So what is life?”, one important question remains, however, unanswered. Who has created the Universal Creative Potential? It is exactly that question, by which we have to accept the spiritual aspect of our science. It seems to me today to be impossible to give any scientific answer to this simple question. Therefore, the answer can only be searched for in the religious part of our consciousness. I am far from the banality to say the Universal Creative Potential is God himself. As a scientist I have only to admit that I still have no idea, what the best answer to this question could be.

Where are we going in the next future? The answer is already given by the members of the Club of Budapest, and especially by its president, Ervin Laszlo, in his book (“*The Self-Actualizing Cosmos; The Akasha Revolution in Science and Human Consciousness*”, Inner Traditions; 2014). We read in Chapter 6 (*Cosmos*) about the first

principles of the Akashic cosmology:

> "The cosmos is an integral system actualizing in the interaction of two dimensions: an unobservable deep dimension and an observable manifest dimension. The deep dimension is the Akasha: the "A-dimension." The observable dimension is the manifest "M-dimension." The A- and the M-dimensions interact. Events in the M-dimension structure the A-dimension: they alter its potential to act—to "in-form"—the M-dimension. The A-dimension "in-forms" the M-dimension, and the in-formed M-dimension acts on—"de-forms"—the A-dimension. The M- and the A-dimensions do not signify a cosmos split in two. The cosmos is one, but for observer it is meaningfully considered under the heading of two dimensions: a fundamental dimension and an experienced dimension. The diversity of events in the experienced dimension is a manifestation of the unity that governs their interaction in the fundamental dimension."

This basic tenet of Akashic cosmology lies already very close to our fundamental physical point of view. Our Universal Quantum Field (UQF) has also two components created directly from a cosmic, "eternal and eternally unchanging Oneness" (the Universal Unity). It is the material component (creating the dimensional properties of every quantum of matter) and the spiritual component (creating the temporal properties of the same quantum). Although none of these dimensions is really "hidden", the purely material component cannot be experienced by us, if we do not "observe" it for a finite period of time, and the purely spiritual component cannot be perceived, if we are

not able to recognize any finite size of the “observed” quantum. In a metaphor we can say that a “movie” presenting just a single photo, or a “movie” presenting just some objects with their size reduced to zero, cannot be perceived as a real movie. We always need to perceive both these components of our quantized reality, in order to feel ourselves alive. The material (spatial) component of a quantum of matter is what Laszlo calls the A-dimension, and the spiritual (temporal) component of this quantum is Laszlo's M-dimension. The material component of our quantized reality is her fundamental property, and the spiritual component of this reality is her experienced property. The real experience is only possible, if the fundamental property changes in time. In our metaphor once more, the film is only running, if something of the material (fundamental) objects is changing from time to time. In yet another Laszlo's metaphor the body of water in an ocean is the A-dimension, and the waves that appear on its surface are events in the M-dimension.

In Chapter 5 (*The Akasha*) of Laszlo's book we read also:

> “In his classic Raja Yoga, Swami Vivekananda (1982) gave the following account of the Akasha: “It is the omnipresent, all-penetrating existence. Everything that has form, everything that is the result of combination, is evolved out of this Akasha. It is the Akasha that becomes the air, that becomes the liquids, that becomes the solids; it is the Akasha that becomes the sun, the earth, the moon, the stars, the comets; it is the Akasha that becomes the human body, the animal body, the plants, every form that we see, everything that can be sensed, everything that exists. It cannot be perceived; it is so subtle that it is beyond all

> ordinary perception; it can only be seen when it has become gross, has taken form. At the beginning of creation there is only this—all the phenomena, in principle. . . . At the end of the cycle the solid, the liquids, and the gases all melt into the Akasha again, and the next creation similarly proceeds out of this Akasha."

I have read such old reports already many times in the past decades. The basic questions I was asking myself, when I was reading them, were these: Where have our forefathers got this knowledge from? Where and when they could learn it, and from whom? These are the same questions, which are asked in the ancient archeology, paleontology, and oceanology. And the additional questions arrive: When exactly has our present species originated? Who were the people belonging to our direct predecessors? Did they already live in great civilizations? How advanced were their civilizations? How far were they developed scientifically, culturally, and socially? Now, we see that many of these questions become answerable with our new scientific paradigm. However, we have to be courageous enough to accept also the consequences of these new ideas.

Once more, returning for a moment to the previous Chapter, it must be clear to everybody reading the above ancient description of Akasha, that this idea could only enter the knowledge of a highly developed civilization; it could not be developed in a cave or in a jungle by a lonely person, how clever he could be. And it is really astonishing for me, how exactly the transference of this basic idea was possible (primarily in the verbal version only) over the thousands of years between her appearance

and our receipt, and that in spite of all disasters which happened in the meantime. It makes me hopeful that we have yet many more such grandiose ideas waiting for us to be read out from the Akashic Record of our Neanderthal masters.

I see the major task of the Unified Physics for the next years in the study of our global consciousness. This problem came also to me through the books by Ervin Laszlo. In Chapter 7 (*Consciousness*) of the book cited above, he writes, about consciousness:

> "Thus our brain is imbued with the totality of the information that pervades the cosmos. This claim is theoretically sound, but it is not corroborated by experience. Clearly, our consciousness does not display all the information that exists in the world. But this does not mean that such information would not be available to our brain; it only means that our brain filters out all but a tiny segment of this information. In the everyday context we perceive only those aspects of the world that are relevant to our life and aspirations.
>
> The censorship of the brain does not mean an absolute limitation; in nonordinary states of consciousness this limitation can be vastly expanded. The experience of transpersonal psychiatrists and psycho therapists shows that in nonordinary, altered states of consciousness we can receive information from almost any part of the world, and from almost any time. It appears that, at least in potential, we do have access to the complete and permanent record of all things in space and time— that we can "read" the entire

"Akashic Record.""

And in the next Chapter 8 (*Perception*) we read about perception:

> "In the context of our experience the Akashic deep dimension is a source of intuitions, hunches, creative ideas, and sudden insights. These elements of our experience are not given credence in the modern world; we usually ignore or repress them. Doing so is based on a mistaken understanding of the nature of the world, and of the potentials of our perception of the world."

From our physical point of view, the "deep dimension" is not really a hidden dimension. We just realize its existence not with our "normal" senses, but with our brains. This is the next future aspect of our investigation: our brain as our sense organ for the spiritual property of all quanta of the Universe, whereas the "normal" senses react sensible on the material component of those quanta. In exactly the same direction thinks also Laszlo, as we can read below from the same Chapter of his book:

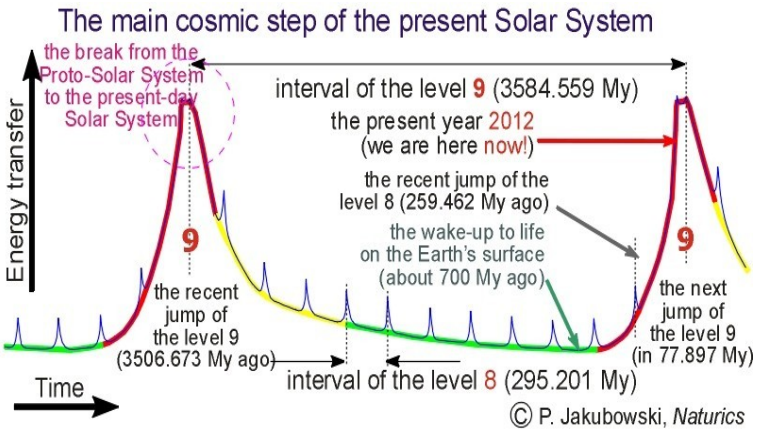
> "Everyday experience is dominated by information conveyed by the five senses: these are the sights, sounds, smells, flavors, and textures of the world around us. Until recently most people, including scientists, believed that this is the only information we can obtain from the world.
>
> This reduced the scope of our experience to the elaboration of sensory data. New developments in cutting-edge neuroscience show that the classical concept is too narrow; it ignores an essential element of human experience.

> Sensory information is processed by neurons connected by synapses in the brain's neuroaxonal network. This network is only one of the systems that process information from the world: there is a vast hierarchy of information-processing networks below this level, extending all the way to quantum dimensions. This "network of networks" processes information in a nonlocal (I would say *global*; P.J.) mode. The brain's subneuronal networks are built of cytoskeletal proteins organized into microtubules. The microtubular networks are connected to each other structurally by protein links and functionally by gap junctions. Operating in the nanometer range, the number of elements in these subneuronal networks substantially exceeds the number of elements in the known neuroaxonal network: there are approximately 10^{18} subneuronal microtubules in the brain, compared with "merely" 10^{11} neurons."

As we see, the new paradigm opens so many possibilities to see Nature from a quite new perspective, that we cannot describe all theses new aspects in a single book. Let us treat this present one as an invitation to change our paradigm as soon as possible and to begin the 21st century in our science, culture, and consciousness with no more delay.

12

How long are we still allowed to use our blue planet?



Let us consider this theoretical diagram very carefully. It demonstrates the main steps of the Earth's long history and the very exact point of the irrevocable finish of this story. In details, it shows two cosmic quantum jumps of the level 9 of the Cosmic Hierarchy of our Solar System and the corresponding jumps of the level 8 of this hierarchy. If we remember the dramatic results of the recent jump of the level 9, that culminated 3605.673 million years ago (the destruction of the brown dwarf to Jupiter, Saturn, Uranus, Neptune and millions of smaller parts of the Kuiper Belt,

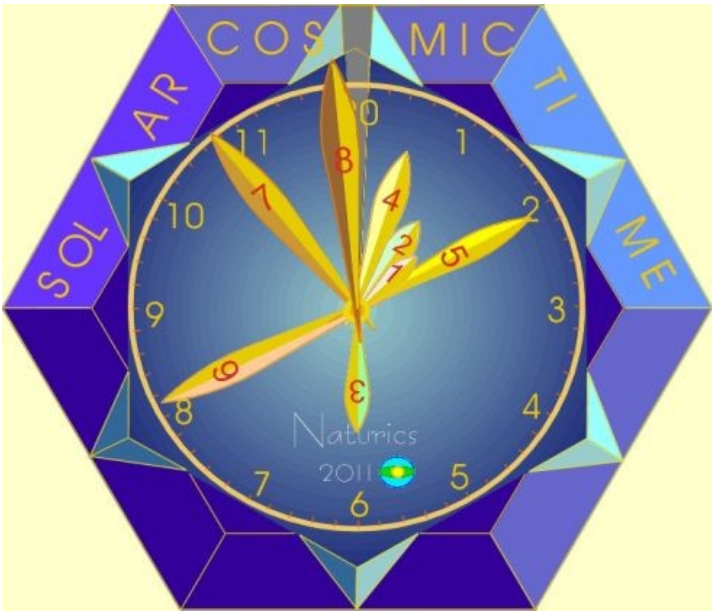
the destruction of the proto-Mars ending in its collision with proto-Earth and formation of our Moon), we can be sure that our countdown is already going on. We cannot expect that the next cosmic jump, going theoretically to culminate in 77.897 million years, will be less dramatic than the previous one. Astrophysicists had already found out that the observed conglomeration of stars, traditionally counted to the (hypothetical) Milky Way galaxy, were "produced" in intervals of 3.5 Mld y, and that the next phase of such enhanced "productivity" has already began.

Nevertheless, there are still several millions of years for us to live here, and we cannot just sit and wait, and do nothing. We have to live day after day, generation after generation, and even a civilization after civilization. The next species of our genus Homo Sapiens Sapiens will theoretically appear not earlier then in 6760 years. However, it depends only on us ourselves, on the active level of our global humanity, whether this new species will be given any chance to live here, or we will be indeed the very last species of our genus.

An old proverb says that a picture stands for thousands words. So let us show here one picture more which should help us to understand how urgent out global civilization has to act in order to save the future for our children and yet many next generations of humans on our exclusive spacecraft.

The picture shows a graphical version of the cosmic scale of time (as presented in Appendix), allowing us to see from the first sight, how much time we still have to be here for each level of our Cosmic Hierarchy. The smallest hand of the clock shows the actual position (in 2011) of

the level 1 of the hierarchy, and the largest one, of the level 8 of this hierarchy. As we already know, this is the last full period of this level during the running out period of the level 9. However, the hand “1” counts the periods of our individual lives, according to the last picture of Chapter 7, and needs one period of the level 2 for a full revolution, a full “hour” of the level 2, comparable with a theoretical life expectation of a healthy living person. One full revolution of the hand “2” measures the life expectation of a civilization. As we can see, our own, the first global civilization, has just (in 1997) absolved her first “hour”; we are still a very young civilization.



Note that the conical sector introduced into the clock-face between the 12 and 0 o'clock stands for the rest of the scaling factor of 12.1428, used in the Cosmic Hierarchy of the Solar System.

The hand “3” of the clock stands shortly after six o'clock, remembering us that our species has just started to live its seventh civilization, which shows us an optimistic message that during the following six civilizations we can develop our World without any larger cosmic jumps standing before us. The hand “4” shows us that the next species of our own genus, taking our place on Earth, will theoretically become its chance to appear at one o'clock of this level “4”. The problem is, however, how high will we decide to keep their chance to appear indeed.

On the other side, the hand “5”, standing short after two o'clock, remembers us on our nearly-extinction events 6818 years ago. Therefore, let us forget this one and the higher levels of the Cosmic Hierarchy, and concentrate our dreams and our activities on the solutions of those tasks solvable during the next, say hundred thousand years. There should be enough to do for everyone of us.

Epilogue

A word about superhumanity

Let us shortly think about our hopes and fears for the next future.

A hundred years ago there were about one milliard people on the World. Now we are more than seven milliards. If we should believe in most of the media reports, our future looks like a dark and desperate time. There is a great problem with the style we are living today. Some people say that continuing this style, we are “borrowing” the planet from our grandchildren. The native Americans have once very cleverly described our global situation: “only when the last tree is cut and the last river is poisoned, they will understand that they cannot eat money”.

There are many unanswered questions in that context. What are our responsibilities and obligations to the future generations, what do we owe them, what do we owe the future? The first, maybe still naive answer is that we all have a responsibility to be a good “master” for the next generations. We have to pick up the right fundamental values for them. But how can we know that what are we doing now has a positive impact onto the future?

I think, we have to trust Nature again and use the same new paradigm which, as we have shown in this book, describes our past and our present situation on the Earth

much better than any other point of view has previously done. First of all we can consider a kind of superhumanity as the next step of our biological and social evolution, which will allow us to use our “superbrain” quanta for solving our future global problems. Let us begin, for example, with the following “definition” of a superhumanity (as *cited after the book by Lynn Margulis and Dorion Sagan, „What is life?“, University of California Press, 1995, p. 235*).

> “Superhumanity is neither a simple collection of humans nor something other than aggregated humans and their devices. Plumbing, tunnels, water pipes, electric wires, vents, gas, air conditioning ducts, elevator shafts, telephone wires, fiber-optic cables, and other links enclose humans in a rapidly growing net. The way superhumanity behaves is in part the result of uncountable and unaccountable economic decisions made by people – singly and in groups – within the context of an increasingly planetary capitalism. “The problem with money,” says a character in a recent film, “is that it makes us do things we don't want to do.”
>
> “Whether or not superhumanity's tendencies are conscious beyond us, individual humans should not be surprised if the aggregate of planetary humanity shows unexpected, emergent, seemingly purposeful behaviors. If brainless bacteria merged into fused protists, which cloned and changed themselves over evolutionary time into civilization, what spectacle will emerge from human beings in global aggregation? To deny the existence of superhumanity by insisting it is merely the sum of human actions is like claiming that a person is

merely the sum of the microbes and cells that constitute the body."

However, next we have to realize, that according to our new paradigm, also such a superhumanity has to be understood as a quantized entity. And exactly here we touch the really serious problem of our present style of life. What is a quantum of superhumanity? What is a quantum of human life at all? The answer seems to be straightforward: it is a family, a union of father, mother and at least two children, living healthy and long enough to give a birth and good education for the next generation, and the next, and so on, being able to take good decisions for their life and their future on their own. If we shall not manage to return to the old routine of such a "family quantum of life" (nevertheless without the errors of the past, like "despotic" or, on the other side, "much too friendly" parents), we can forget all another trials to build a healthy and wealthy foundation for the life of the next generations on our planet.

The first practicable step, I see, could be to start to count the nations of the present World not after the number of their citizens but after the number of the healthy families living in any nation or any country. Then we would immediately see, for example, that neither a one-child idea, nor as-many-children-as-possible idea leads us on the right way into the future.

We cannot push the responsibility for our activities on the Nature, but we can learn from her even more than up to now, much more.

Appendix

The Cosmic Timescale

The universal time scale of our Cosmic Hierarchy defines all rhythms of our evolution and our life on the Earth.

This universal cosmic timescale is an extremely precise scale of time of the Earth's history. All past time intervals of the Cosmic Hierarchy of the Solar System can be ordered along a single scale of time. The hierarchical cycles of this hierarchy (*compare the table on p. 61*) provide us with a precise scale of time for geological, paleontological, archaeological, and even historical events. The most interesting of them are our own evolutionary quantum jumps. These jumps mean the mass extinctions of the already long living organisms and simultaneously the origin of new groups of the more advanced organisms.

A typical chain of events combining the mass extinction with the origination of new groups of living organisms is always the same. It begins with cosmic impacts (of the intensity corresponding to the actually active level of the Cosmic Hierarchy), the resulting increased volcanism, earthquakes, earth slides and tsunamis, and finally – the climatic and environmental changes. These evolutionary steps have been clearly reconstructed along the whole history of the terrestrial life.

Our universal cosmic timescale in its practical use

The first step in the evolution of the primitive proto-terrestrial life towards the human life of today has begun at the level 9, 3506.673 My ago (*My stands here for millions of years*), with a complete restructuring of the Solar System. One of the events most important for the evolution of life was the resulting collision of the proto-Mars with the proto-Earth, ending with the formation of the Earth's Moon.

Note, that one period of the level 9 of the Cosmic Hierarchy lasts 3584.559 My; therefore the current period of that level ends "already" in 77.897 My, probably with some similarly dramatic happenings.

The decisive happening of the Moon's formation was followed by many consecutive happenings of the lower level 8 (with the interval of 295.201 My), which have started:

- 3506.673 My ago; *Archean eon*
- 3211.472 My ago
- 2916.271 My ago
- 2621.070 My ago; *Proterozoic eon*
- 2325.869 My ago
- 2030.668 My ago
- 1735.467 My ago
- 1440.266 My ago
- 1145.065 My ago
- 849.864 My ago
- 554.663 My ago; *Paleozoic Er*a
- 259.462 My ago; *Mesozoic Era*

Let us look one level deeper into the two recent steps of the level 8. The steps of the level 7 (of 24.3109 My) of the last but one step of the level 8 have started:

- 554.663 My ago; *Cambrian*
- 530.352 My ago
- 506.041 My ago; *Ordovician*
- 481.731 My ago
- 457.420 My ago
- 433.109 My ago; *Silurian*
- 408.798 My ago; *Devonian*
- 384.487 My ago
- 360.176 My ago; *Carboniferous*
- 335.865 My ago
- 311.554 My ago
- 287.241 My ago; *Permian*
- 262.932 My ago

The steps of the levels 7 of the last step of the level 8 have started:

- 259.462 My ago; *Triassic*
- 235.151 My ago
- 210.840 My ago; *Jurassic*
- 186.530 My ago
- 162.219 My ago
- 137.908 My ago; *Cretaceous*
- 113.597 My ago
- 89.286 My ago
- 64.975 My ago; *Cenozoic Era; Tertiary-Paleogen*
- 40.664 My ago
- 16.353 My ago; *Tertiary-Neogen; Ramapithecus*

Now, let us look yet one level deeper, into the present step of the level 7. Its steps of the level 6 (of 2.00209 My) have started:

- 16.3533 My ago;
- 14.3512 My ago;
- 12.3491 My ago;
- 10.3470 My ago;
- 8.3449 My ago;
- 6.3428 My ago;
- 4.3407 My ago; *Australopithecus*
- 2.3386 My ago; *Quaternary; Lower Pleistocene; Homo Erectus*
- 0.3366 My ago; *Middle Pleistocene; Homo Sapiens*

Now, let us look one level deeper into the present, not yet finished step of the level 6. The steps of the level 5 (with a duration of 164878 years) have started:

- 336574 years ago; *Genus Homo Sapiens Heidelbergensis*
- 171696 years ago; *Upper Pleistocene; Genus Homo Sapiens Neanderthalensis*
- 6818 years ago; *Holocene; World-wide floods origin; Genus Homo Sapiens Sapiens*

Finally, let us look yet one level deeper, into the last but one step of the level 5. Its steps of the level 4 (with a duration of 13578.3 years) have started:

- 171696 years ago; *the first Species of the Genus Homo Sapiens Neanderthalensis*
- 158118 years ago;
- 144540 years ago;
- 130961 years ago;
- 117383 years ago;
- 103805 years ago;
- 90227 years ago;
- 76648 years ago;
- 63070 years ago;
- 49492 years ago;
- 35913 years ago;
- 22335 years ago;
- *the last but one Species of the Genus Homo Sapiens Neanderthalensis*
- 8757 years ago; *the last ("unfinished") Species of the Genus Homo Sapiens Neanderthalensis*

From the present step of the level 5, no a single step of the level 4 has finished till today. The first species of the Genus *Homo Sapiens Sapiens*, our own species, appeared

- 6818 years ago.

The civilizations of our own species, the steps of the level 3 (with their duration of 1118.22 years) have started:

- 6818 years ago;
- 5700 years ago;
- 4582 years ago;
- 3464 years ago;
- 2345 years ago; (331 BCE);
- 1227 years ago; (or in year 787);
- 109 years ago; (or in year 1905).
-

The next step of the level 3 comes in 1009 years; (or in year 3023).

The next step of the level 4 comes in 6760 years.

The next step of the level 5 comes in 158060 years.

The next step of the level 6 comes in 1.6655 My.

The next step of the level 7 comes in 7.958 My.

The next step of the level 8 comes in 35.739 My.

The next step of the level 9 comes in 77.897 My.

Note: Our above “steps of life” begin and end always with an extremely warm period connected with the quantum jump of the lower member of the Cosmic Hierarchy through the energy bridge of a higher member, a region of increased energy density, connecting two higher hierarchy members. The cooling of the Earth’s surface follows always about the middle of each period. This is a reason for some small differences between our theoretical points of time on the scale and those traditionally used ones, which are defined from one cold period to another.

Time-scale of the Family *Homo Sapiens*

(*with the present time at the top*)

	Reference year = 2014	
Civilizations of our present species	Step of 1118,22 years (lev.3)	
	our calendar	years ago
Our Global	**1905**	**109**
Medieval	787	1227
Roman	-331	2345
Greek	-1450	3464
New Egypt	-2568	4582
Old Egypt	-3686	5700
Post Atlantis	**-4804**	**6818**

Species of the Genus Neanderthalensis	Step of 13578,3 years (lev.4)
	years ago
	6818
„Atlantis“ (evolutionary)	8757
„Atlantis“ (regular)	22335
Cro Magnon	35913
-	49492
-	63070
-	76648
-	90227
-	103805
-	117383
-	130961
-	144540
-	158118
The oldest one	**171696**

Genera of the Family Homo Sapiens	Step of 164878 years (lev.5)
	years ago
Sapiens	**6818**
Neanderthalensis	**171696**
Heidelbergensis	336574

The present climate change involves us all

The careless world-wide climate politics of the last years has led to the present situation where most people still believe in the possibility of the man-made global warming of the Earth. Hardly anyone makes thoughts for oneself over the other option how to prepare our world for the global cooling that is coming very soon.

I do not insinuate any responsible person an aimed falsification of the scientific data. An aimed neglect of the data that predict a quick global cooling of the Earth, however, can have just as serious consequences, particularly for these nations that possess no big sources of energy. Therefore all nations have to consider very seriously the possibility of a radical and long-lasting global cooling, standing directly before us. As the scientific reason for my opinion, I am presenting here the results of my work on the application of the Unified Physics to the climate-change research.

1. Do we still have any choice of our climate models?

We all have to care about our global climate. Our world is standing shortly before a significant change of this climate. However, the world is still standing completely unprepared for the coming change. The reason is quite simple. The politicians have not been advised right yet. The global-climate policy relies on the climate models exclusively. It belongs to the fundamental responsibility of the climate-policy makers, to seek after the best possible climate models.

However, the debate-time should be finished now. We have no much time today (2014) to seek after the best possible climate model. We have to use the best one that already exists. One criterion seems to be obvious for all models and times: the better the used physics, the better the resulting climate model. From that reason, it belongs to the fundamental responsibility of all scientists, to build their climate models based on the best physics available.

How much radical any change in our models of some natural behavior could be, can be seen for example, if we consider our knowledge about the structure of our Solar System before and after the famous mission of the two *"Voyager"* spacecraft (between 1977 and 1989). A similarly radical was the change of our point of view about Venus, before and after the *"Magellan"*-mission, or also our whole cosmology, before and after the positioning (and repair) of the *"Hubble"* telescope on its orbit around the Earth. It is thus also quite possible, that by using the new physics, our point of view on the global-climate physics will change in a similarly radical way. I cannot imagine that any scientist could catch the idea to neglect the new knowledge, as gained with the *"Hubble"* telescope, and to persist in his old cosmological models from the era prior to the new astrophysical tool. Similarly, I cannot understand, why thousands of scientists are still using the traditionally unsuccessful physics of the passed centuries for their climate models. By using the false tools they are producing the false images for the policy makers. The only true in such a case is the sinful waste of our all money.

Although it could seem at first sight unbelievable for a traditional climatologist, our quantum treatment of the

relative changes of the global average temperature of the Earth's surface (including the land, the ocean, and the atmosphere; *please, do not misunderstand with the local meteorological temperature*) is successfully solvable by using our own PCs. It is possible, because the Earth is just a quantum member of the energetically quantized system, the Cosmic Hierarchy of our Solar System. Our Earth is a member of the quantized and relativistic Universe, and its climate is primarily influenced by the cosmic-energy transfer inside this hierarchy. To consider the Earth as an isolated island in the cold cosmic space (*even if disturbed from time to time by so-called "solar wind"*) is the main misunderstanding in any traditional climate model.

On the other side, our model clearly demonstrates that there is no direct connection of the Earth's global temperature to the sunspot numbers. The sunspot number alone seems to be not a direct indicator of the Sun's energetic activity. The sunspot number varies much more as a response to the extrasolar energy transfer incoming to the Sun, rather than due to some internal solar activities. This new observation could perhaps explain the failure of some other climate models to give a reliable long-term solutions.

I am going to present here the most important informations to the reliability of the reconstruction of the past global climate periods in the previous thousands of years, and, what - is most important for the next generations - to the reliability of our prediction of the future development of the global climate during the coming centuries.

2. A reconstruction of the past periods of the global climate

We are using our new paradigm as described in the present book. It means in details that the extrasolar cosmic "wind" of the Sun's Cosmic Hierarchy warms and cools the Sun's and the Earth's surfaces almost simultaneously. Solar energetic activity responds to the periodic motion of all its partners in our Cosmic Hierarchy. The resulting variability of the solar activity is a superposition of these periodic changes. The Earth obtains a corresponding part of the solar energy emitted to the environment, strongly modified, however, through the direct energy transfer from the Cosmic Hierarchy.

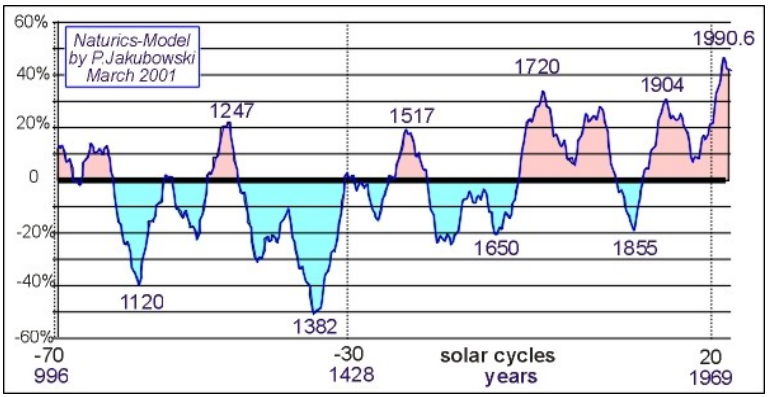
The quantization and periodicity of all natural phenomena are very tightly bound to each other. If some process is quantized, it surely shows its characteristic periodicity. And also reversely, if a natural process is periodic, cyclic, it has to be understood as a process of some quantized object.

This new paradigm is an opposite of the currently popular one, trying to find the causes for the terrestrial climate fluctuation in the "internal", terrestrial reservoirs of energy, and adding the cosmic irradiation as a possible, but almost negligible, contribution. For example, in the traditional models, certain phenomena, such as cloud formation, oceanic heat transport and the mixing of the air, are still so poorly understood that certain assumptions have to be made about the way the atmosphere behaves. From our point of view, however, all those phenomena are an effect of the climate fluctuations, and not their cause.

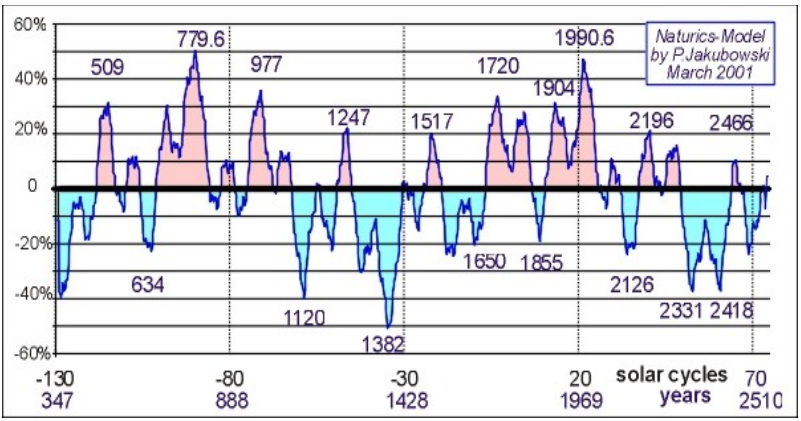
The new paradigm provides us with a very exact reconstruction of the past global climatic fluctuations (*please note, fluctuations, but not the absolute values of the global temperature*) on the Earth and allows us to predict the future climate development with a very high precision, over many centuries ahead. Our new paradigm concerns the main sources of the extrasolar cosmic energy coming in and out of the whole Solar System. It is the cosmic energy of the Sun's Cosmic Hierarchy that warms or cools the Earth surface, mainly influencing our global climate. The anthropogenic contribution can be then obtained (*if desired*) as a difference between our theoretical, exclusively natural contribution, and the actually observed climate fluctuations.

There is an observationally confirmed consensus that the eighties and nineties of the 20th century were the warmest decades of the whole past millennium. Qualitatively, our theoretical results very evidently confirm this observation (*as can be seen on the right part of the next diagram*). Qualitatively, this warm period also agree with the report of the Intergovernmental Panel on Climate Change, "Summary for Policymakers"; A Report of Working Group I (*compare Fig. 1b of this report*).

In respect of the quantity, however, our precise theoretical results put the observation in its right light. The diagram below shows a part of our theoretical data of the relative deviation of the averaged solar activity between 1000 and 2000 in relation to our long-term mean value (averaged over 2200 years, or 200 theoretical solar cycles).



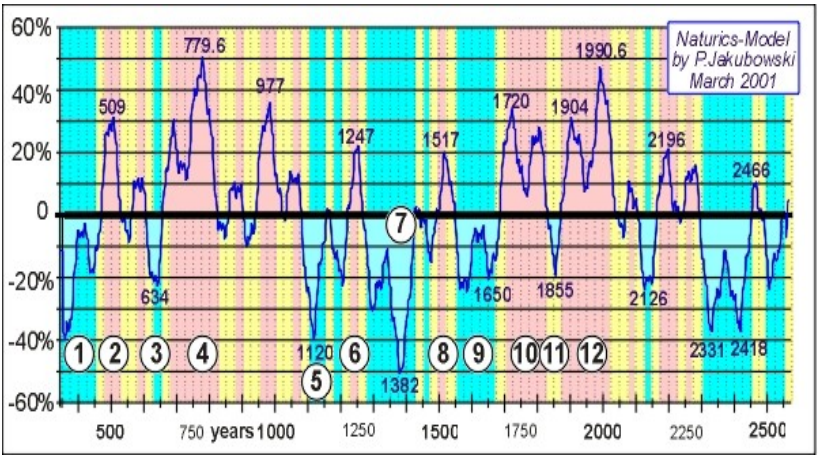
However, if we consider the full period of 2200 years, the view changes its first impression. We see that the highly "alarming" forecast basing solely on the narrow “window” between 1860 and 1990, still commonly discussed in almost all medial public groups, provide a quite different conclusion now. We reconstruct and predict the relative change of the global Earth's temperature between the year 347 (solar cycle -130) and the year 2550 (solar cycle 74).



This complete diagram presents three new aspects of the recent global warming. Firstly, it shows that the two last

decades of the recent millennium were accidentally the warmest two of the whole millennium. Secondly, these warm decades were just one example of many such naturally warm periods, occurring every eleven centuries, the last but one time in 8th century. Thirdly, the coming centuries will be as cold as during the previous "*Little Ice Age*". And this new cold phase has already begun in summer 1990.

One of the best verifications of our reconstruction of the past climatic fluctuations is a comparison of the past cold and warm periods with the known historical activities, which intensity evidently depends on the global climatic fluctuations. This colored version of our full diagram is divided into six cold (*cyan*) and six warm (*rose*) periods of the past. Some examples of the corresponding historical happenings, very probably influenced by the climatic conditions of those periods, are listed in the table below.



Historical happenings (*very probably*) influenced by the climatic conditions of the cold and warm periods (*numbers as listed in the diagram above*)

Nr	*General tendency during the historical climate period*	*Examplary happenings*
1	The extremely cold period of the fourth century forces the North to South and East to West displacements of many tribes out of the coldest regions of the Earth.	360 - Huns invade Europe
		395-476 - Western (colder) Roman Empire declines, whilst the eastern (warmer) Roman Empire rises
2	The quick warming between 450 and 500 causes the opposite movements and more peaceful development	ca. 470 - Huns leave Europe
		ca. 500 - Native Americans begin cultivation of the Mississippi Basin
		529 - Byzantine art and architecture enters a golden age (Justinian rule)
3	The rapid decrement of the average global Earth's temperature after the year 509	542 - Great Plague begins in Constantinople, spreads across Europe over next fifty years, killing about half of Europe's population
		622 - The year one in Muslim

	promotes the development of plagues and intensifies the religious activities	calendar
		630 - Muhammad and followers conquer Mecca in holy war
4	The permanently warm period between 650 and 1080 forces many peaceful and also adventurous developments	> 600 - Barbarian invasions, which plagued Europe since fall of Roman Empire, come to an end during the 7th century
		618-907 - Chinese culture and literature enjoy a Golden Age under T'ang Dynasty
		8th-11th century - Period of Norse invasion in France, Germany, Russia and England
		982-1000 - Vikings establish colonies in Greenland and (probably) in Nova Scotia
5	The end of the medieval climatic optimum causes the unstable climatic conditions again. The peaceful but also the martial trials to stabilize the situation follow in next centuries	1054 - Schism between Eastern Orthodox and Western Churches becomes permanent
		1068 - Chinese Emperor Shen Tsung introduces radical reforms in agriculture and state finances
		1071 - Beginning of Ottoman Empire and end of Byzantine rule in Asia Minor
		1099 - Only every fifth crusader survives the First Crusade in Near East

6	The short warm period in the middle of the 13th century forces some new development	1167 - Oxford University in England founded
		1233 - Coal mined for the first time in Newcastle, England
		1253 - Sorbonne founded in Paris
		1291 - The Mamelukes conquer Acre, ending Christian rule in the East and bringing an end to the crusades
		1298 - Invention of the spinning wheel in Germany
7	The first half of the coldest period of the previous millennium, the "Little Ice Age" between 1275 and 1675, was a period of wars, plagues, colonization, and slavery	1300 - Gunpowder introduced into Europe during the early 14th century
		1333-1568 - Conflicts among independent warlords; the Muromachi era in Japan
		1337-1453 - Hundred Years' War between England and France
		1348-1351 - The Black Death kills half of Europe's population, crippling industry and agriculture for the next century
		1434 - African slaves introduced into Portugal
		1476 - Incas complete conquest of South America

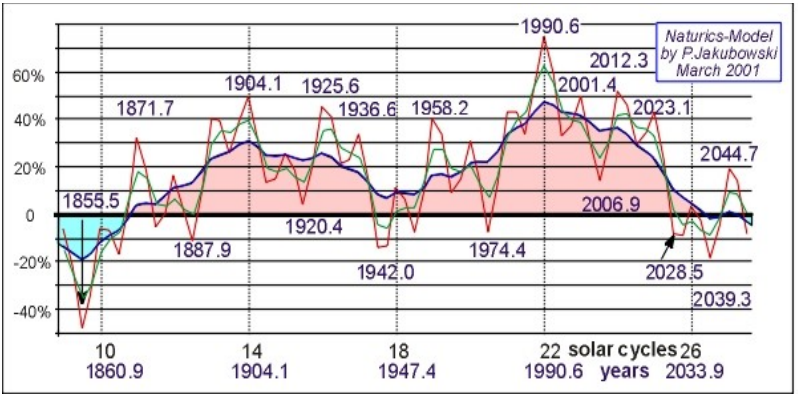
8	During the short warm period in the middle of the "Little Ice Age" the Renaissance culminates, but the period brings also wars	1481-1512 - The Turks fight against Hungary, Poland, and Venice
		1482 - Spanish Inquisition begins the persecution of the so-called "heretics"
		1487-1533 - Portuguese and Spanish explorers "discover" the seaway to the New World, India, and China, and bring African slaves to the new colonies
		1517 - Martin Luther sparks the Protestant Reformation
		1543 - Copernicus publishes his Solar-System hypothesis
9	The second part of the "Little Ice Age" is again a period of wars and plagues	1550-1600 - The population of Native Americans declines from 7 millions to 1 million
		1588 - The English defeat the Spanish Armada
		17th century - English, Dutch and French colonization culminates
		1655 - Sweden invades Poland and begins the Northern Wars
		1669 - Famine in Bengal kills 3 millions people

10	The first half of the present climatic optimum forces the worldwide "revolution" of industry, culture, but also of war and sweating-system	1721 - Russia becomes a dominant power in northern Europe
		> 1721 - Baroque and Rococo styles spread throughout Europe
		1733 - Invention of the flying shuttle revolutionizes the cottage industry
		1769 - Famine in Bengal kills 10 millions Indians
		1776 - American Declaration of Independence
		1789 - The French Revolution begins
		1796-1815 - Napoleon's Period in France and Napoleon's Wars across the whole Europe
11	The short climate cooling in the middle of the present optimum brings dynamics again	> 1832 - Unification movements in Europe and independence movements worldwide
		1833 - Slavery abolished in the British Empire
		1837 - Panic depression in the United States
		1842 - Positivism and sociology expands from France
		1859 - Darwin publishes his Origin of Species

12	The present part of our climatic optimum is very well known to continue the previous tendency of the "revolution" of industry, culture, science, war technique and sweating-system	- Communism Revolution in Russia and China
		- First and Second World War
		- Independence Wars throughout the world
		- "Cold" War between East and West
		- Cosmic space exploration
		- Environmental "Revolution"
		- Global communication system

3. Conclusions

As we can see, our theoretical reconstruction of the past changes in the terrestrial global climate is overwhelming, indeed. It coincides with all historical warm and cold periods of the past climate over two millennia. Let us consider the past 160 and future 40 years in a more detailed version in the diagram below.



Our previously shown theoretical (blue-colored) curve represents the mean relative energetic solar activity averaged over two solar cycles, i. e., over 22 years. It corresponds to the long-term global changes of all energy reservoirs on the Earth's surface (first of all, the land ice shields and the deep oceanic water). The same solar activity averaged over one half of a cycle, i. e., over 5.5 years, is shown on the diagram above as the green curve. It corresponds to the middle-term climatic fluctuations (surface layers of the land and water masses). The red curve of the diagram shows the primarily calculated relative energetic Solar-System activity. It was calculated in four points for every solar cycle (*the points density is restricted only by the used computer capacity; I have used my standard PC for these calculations fifteen years ago*). The red curve corresponds to the short-termed, atmospheric fluctuations of the global climatic changes.

The rise of the global temperature in 20th century was imposing, indeed. However, it is already and definitively over now. In the present situation we have the opportunity to predict the future climatic development quite precisely by studying our chronicles from the beginning of the 19th century, when a similar cooling has occurred. The coming global cooling starts from some higher level, so it will be yet more rapid.

I have never seen any other theoretical reconstruction of the warm and cold periods of the global Earth's climate with such an extraordinary precision. This result gives me the conviction that my Unified Physics generally, and the Cosmic Hierarchy of the Solar System particularly, are the proper tools for the necessary global climate forecast for the coming decades and centuries. I think, the whole

scientific community has a duty to support the political decisions preparing our world, and especially the world of our children, for the coming soon cold era in the next Earth's history.

Reference:

For more detailed information to the practical calculations please consult my book "*Climatic Ultimatum. The final-model description with global climate reconstruction and prognosis*", Books on Demand, Norderstedt, 2011; ISBN: 978-3-8423-4634-5.

So what is energy, and “antigravity”?

We have changed our scientific paradigm in the present book. In Chapter 1 we have written that neither energy, nor mass, nor electromagnetic field (including any form of light), nor gravity, does exist for itself, or even is necessary for our Universe.

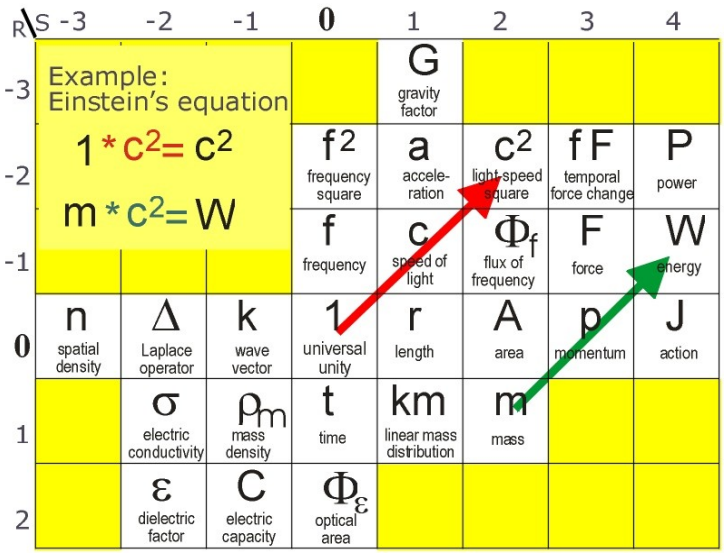
Further, in Chapter 7, we have presented the Quantum Spectrum of Matter, the first class of which contains only the mathematical extensions of the Universal Unity, which means, the physical quantities independent of the state of matter. These are the purely mathematical extensions of the Universal Creative Potential: the quantum circulation Φ_f, the quantum power P, the magnetic induction B, the electric field E, and the electric conductivity σ. We have also concluded that our whole unified description of Nature relies exclusively on this extended Universal Creative Potential.

Nevertheless, we have also repeatedly used the energy transfer as a part of our explanation of various natural processes. When Nature does not need the physical quantity of energy, why do we need it in our description of Nature? We need it because we have founded our whole world economy on this quantity. We cannot simply refuse it or practically exchange with any other, theoretically exactly equivalent quantity. Nevertheless, it is important to use further on the right, natural definition of the quantum energy.

In Chapter 5, we have “re-discovered” the Einstein's most famous equation, connecting the quantum energy W with the quantum mass m through the quantum speed squared,

c^2, as shown once more here below in the following diagram. However, this equation is not the best one, if we want to create energy directly from our extended Universal Creative Potential. Our new, direct definition of the quantum energy has to be read es follows:

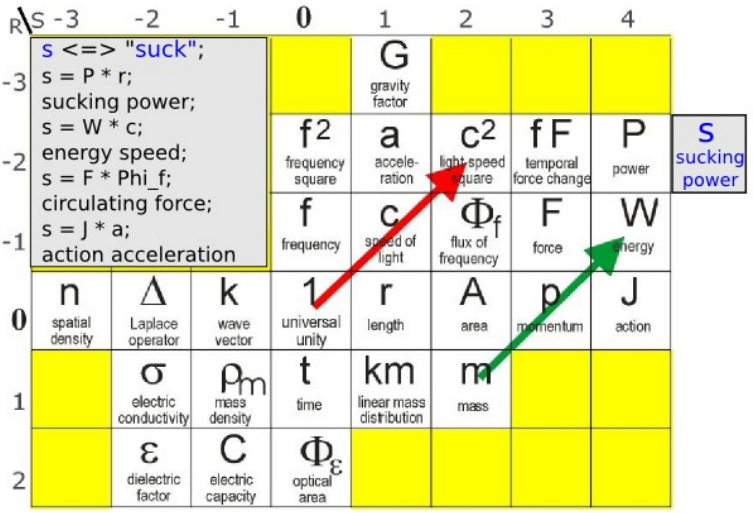
> Quantum energy W is the spiritual (temporal) extension of the quantum power P; W = P * t.



The new definition makes clear that we cannot create ("produce") any amount of energy without setting the material component of a quantum into a temporal change. Because all natural processes are quantum processes, such a temporal change means in practice always a circulation of the material component.

By the way, what about the material component created from the quantum power, P * r? Which physical quantity

describes this product? Do you know none like that? I do not, too. Then, let us create one corresponding quantity. What could it be? Its place in the Unified Family of all physical quantities would be that gray square right to the quantum power, of course, as shown in the following modification of the above diagram.



Let us call it (preliminary, of course) the *sucking power*. Why? The info-box in the diagram contains the most interesting relations of this new quantity “s” to energy W, to force F, and to action J. These relations suggest that the new quantity should be extremely helpful to understand the sucking, circulating force $s = F * \Phi_f$, for example, in a tornado tube.

This circulating force, also an equivalent of the acceleration of the quantum action (s = J * a), and also an equivalent of the speed of the energy transfer (s = W * c), are all “highly” dynamic relations. I think, they could be

the best starting point to study some possible constructions allowing us to do the same as a tornado does - to allow heavy things to fly across the air, or physically seen, to act against the gravity, what means to realize one another old dream of humanity, to practically create “antigravity”.