

**QUANTUM-INFORMATIONAL MEDICINE QIM 2011
ROUND TABLE KNOWLEDGE FEDERATION DIALOG BELGRADE 2011:
PARTIAL VERSUS HOLISTIC ORIENTED APPROACHES**

QIM 2011 Round Table Knowledge Federation Proceedings

Editors

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**QIM 2011
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**SYMPOSIUM OF QUANTUM-INFORMATIONAL MEDICINE QIM 2011:
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PARTIAL VERSUS HOLISTIC ORIENTED APPROACHES**

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SESSION C4: M. Dugić (Serbia), M. Rakočević (Serbia), Dj. Koruga (Serbia), Lj. Ristovski (Serbia), D. Djordjević (Serbia), D. Mandić (Serbia), P. Dinić (Serbia), B. Milovanović (Serbia), G. Vitaliano (USA).

WORKSHOP KNOWLEDGE FEDERATION DIALOG BELGRADE:

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QIM 2011 KF CONTENTS

<i>Editors note</i>	9
ROUND TABLE KNOWLEDGE FEDERATION DIALOG BELGRADE 2011: PARTIAL VERSUS HOLISTIC ORIENTED APPROACHES	10
SESSION C1	11
ROUND TABLE KNOWLEDGE FEDERATION DIALOG BELGRADE 2011 <i>D. Karabeg, D. Raković</i>	12
KNOWLEDGE FEDERATION PROTOTYPE: TESLA AND THE NATURE OF CREATIVITY (TNC) <i>D. Karabeg, D. Raković</i>	14
QUANTUM-HOLOGRAPHIC FRAMEWORK FOR CONSCIOUSNESS & ACUPUNCTURE: PSYCHOSOMATIC-COGNITIVE IMPLICATIONS <i>D. Raković</i>	18
QUANTUM WILL BE MEDICINE OF TOMORROW AND WILL REVOLUTIONISE OUR LIVES! <i>A. Ya. Grabovschiner, J-L.Garillon</i>	33
MODERN SITUATION AND PERSPECTIVES OF ELECTROPUNCTURAL DIAGNOSTICS & BIORESONANCE THERAPY <i>M. Y. Gotovski</i>	40
APPLICATION OF ELECTROPHOTON CAPTURE (EPC) ANALYSIS BASED ON GAS DISCHARGE VISUALIZATION (GDV) TECHNIQUE IN MEDICINE: A SYSTEMATIC REVIEW <i>K. G. Korotkov, D. V. Orlov, B. O. Williams (in absence)</i>	41
QUANTUM-HOLOGRAPHIC ENERGY SYSTEM & RESONANCE BIOFEEDBACK <i>B. J. Øverbye (in absence)</i>	50
MAN AS A QUANTUM-WAVE PSYCHOSOMATIC SYSTEM <i>G. I. Brekhman</i>	66
PRENATAL BASES OF DEVELOPMENT OF SPEECH AND LANGUAGE AND PRENATAL STIMULATION <i>M. Sovilj</i>	73
HOMEOPATHY: ENERGY-INFORMATIONAL HOLISTIC VIEWPOINT <i>L. Trifunović</i>	86
CARDINAL CHARACTERISTICS OF TRADITIONAL CHINESE MEDICINE <i>A. Žikić</i>	90
A NEED FOR HOLISTIC APPROACH TO THE OCCUPATIONAL HEALTH DEVELOPING (IN SERBIA) <i>M. Arandjelović</i>	97
SESSION C2	107
SCIENCE AND SPIRITUALITY = OBJECTIVITY AND SUBJECTIVITY = RATIONAL AND REAL = KNOWLEDGE AND WISDOM <i>I. Kononenko</i>	108
ENTHEOGENIC SHAMANISM: ANTHROPOLOGY CATEGORY, TRANSPERSONAL DIMENSION OR PSYCHOTHERAPEUTIC MODEL <i>Č. Hadži Nikolić</i>	120
REFLECTION ON THERAPIES AND RESEARCH POINTING FOR A NEW PARADIGM <i>W. Carvalho Liimaa</i>	121

CONSCIOUSNESS-BASED HOLISTIC ORIENTED APPROACHES TO PSYCHOTHERAPY <i>S. Milenković</i>	123
SCIENCE AND BODY PSYNTESIS HOLISTIC APPROACHES <i>Lj. Klisić, A. Djordjević et al</i>	126
SELF-REINTEGRATION, AN QUANTUM-BASED ENERGY (PSYCHO)THERAPY, FOR THE TRANSCENDENCE OF DUALITY <i>P. M. F. Baccelli Reis (in absence)</i>	134
PEAT AND ENERGETIC AND SPIRITUAL (PSYCHO)THERAPIES <i>Ž. Mihajlović Slavinski</i>	141
QUANTUM TRANSFORMATION <i>S. Simonovska</i>	147
INTEGRATIVE MEDICINE, ENERGY MEDICINE IN DAILY LIFE AND WORK OF HEALTH PROFESSIONALS: SUPER HEALTH PROGRAM & ACUPUNCTURE WITHOUT NEEDLES <i>S. Saxer</i>	152
HOLISTIC APPROACH TO SUSTANABILITY <i>D. Pavlović</i>	161
SESSION C3	167
INTEGRATIVE MEDICINE <i>M. Dunjić</i>	168
DECOLONIZATION OF ALTERNATIVE MEDICINE <i>V. Stambolović</i>	169
CRITICAL REVIEW ON THE POSITION OF TRADITIONAL MEDICINE IN SERBIA <i>Z. Jovanovic Ignjatić</i>	173
TRADITIONAL MEDICINE IN SERBIA – EDUCATION <i>S. Arandjelović, Z. Jovanović Ignjatić</i>	178
SEMINARS IN PRIMARY HEALTHCARE CENTER "STARI GRAD" BELGRADE: CASE STUDY OF LARGE-SCALE INTEGRATIVE MEDICINE HEALTHCARE COMMUNICATION <i>M. Mićović</i>	182
HEALTH FESTIVAL BELGRADE: CASE STUDY OF LARGE-SCALE INTEGRATIVE MEDICINE HEALTHCARE COMMUNICATION <i>M. Mićović, D. Davidov-Kesar</i>	183
TV SERIAL AGAPE: CASE STUDY OF MEDIA COMMUNICATION ACROSS AND BEYOND DISCIPLINES <i>A. Gajšek, V. Jerotić</i>	184
THE INTERFAITH DIALOGUE SERBIA – INDONESIA 2011, POSITIVE EXPERIENCE IN SERBIA'S STATE POLICY <i>A. Raković</i>	185
SESSION C4	191
FREE WILL IN A QUANTUM CONTEXT <i>M. Dugić, J. Jeknić-Dugić</i>	192
QUANTUM INFORMATION SELF-ORGANIZATION AND CONSCIOUSNESS: A HOLOINFORMATIONAL MODEL OF CONSCIOUSNESS <i>F. Di Biase (in absence)</i>	196
THE UNIVERSAL CODE AS A REALITY OF HOLISM <i>M. M. Rakočević</i>	210

SIXTY: „NUMBERS ARE LETTERS BY WHICH THE UNIVERSE IS BUILT“ CLASSICAL-QUANTUM AND INFORMATION PHYSICS APPROACH TO LIFE AND MEDICINE <i>Dj. Koruga</i>	222
ONTOGENETIC AND PSYCHOGENETIC INSIGHT INTO THE TRADITIONAL CHAKRAS DOCTRINE <i>Lj. M. Ristovski, G. S. Davidović-Ristovski</i>	223
REFLEXOLOGY <i>D. Djordjević, D. Mandić</i>	230
MADU MAGNETOTHERAPY <i>D. Mandić, D. Djordjević</i>	231
CHIROPRACTIC AND HOLISTIC APPROACH TO HEALTH <i>P. Dinić</i>	237
THE ANALYSIS OF BIOLOGICAL SIGNALS AND GENETICALLY DETERMINED FUNCTION OF AUTONOMIC NERVOUS SYSTEM <i>B. Milovanović, V. Radivojević, S. Mutavdžin, B. Milovanović, T. Krajnović</i>	242
NEW NANOTECHNOLOGIES FOR BRAIN STIMULATION AND IMAGING <i>G. Vitaliano, F. Vitaliano</i>	246
WORKSHOP KNOWLEDGE FEDERATION DIALOG BELGRADE <i>D. Karabeg, D. Raković</i>	247



**QUANTUM-INFORMATIONAL MEDICINE 2011
ROUND TABLE KNOWLEDGE FEDERATION DIALOG BELGRADE 2011:
PARTIAL VERSUS HOLISTIC ORIENTED APPROACHES**

**Belgrade, 25 September 2011
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EDITORS NOTE

The paradigm of quantum physics enables us to broaden our foundation for truth and worldview – and explain and include phenomena and insights that have hitherto been ignored or denied, because they did not fit into the classical (in many aspects mechanistic...) scientific paradigm. When we do that, we come closer to a more inclusive or *holistic* view which can lead to profound or 'paradigmatic' change in any field, and in our society at large.

The observation that the insights reached in quantum physics point us towards a more inclusive or holistic worldview has been voiced by many authors, notably by Heisenberg in *Physics and Philosophy*. The fact that those insights are so slow to propagate into other disciplines and to influence general culture may be attributed to the lack of communication across and beyond disciplines. Knowledge Federation is an international project whose goal is to develop remedial knowledge-work practices – by *federating* key insights across disciplines, and to media and popular culture. In the Knowledge Federation Dialog we share holistic insights from a variety of disciplines to a round table, let them synergize with one another and turn into general insights; And we allow those general insights, and our dialog, to spread through the media and include general public.

As a part of *Symposium of Quantum-Informational Medicine QIM 2011: Acupuncture-Based & Consciousness-Based Holistic Approaches & Techniques*, held in Belgrade, 23-25 September 2011 (providing fundamental quantum-informational framework for better understanding of the *nature of psychosomatic diseases* as well as *limitations of the healing methods*, with corresponding e-Proceedings of two-day *QIM 2011 Symposium* and one-day *QIM 2011 Workshops* published separately) – the one-day *QIM 2011 Round Table Knowledge Federation Dialog Belgrade 2011: Partial Versus Holistic Oriented Approaches* was organised in September 25, as an opportunity for critical consideration of partial and holistic oriented approaches to physics and engineering, medicine and biology, psychology and transpersonal phenomena, art and philosophy, society and religion.

Our e-Proceedings hereby presents written contributions of one-day *QIM 2011 Round Table Knowledge Federation Dialog Belgrade 2011* (mostly papers and rarely only abstracts, enumerated not according to their order of appearance at the round table but according to their topics, including several of them which has been invited but not presented at the round table).

The Editors are indebted to their institutions and numerous sponsors, as well as to members of *QIM 2011 Program Committee, Organizing Committee, and Secretariat*, for logistic support to *QIM 2011*. We also kindly acknowledge *QIM 2011 Round Table Knowledge Federation Dialog Belgrade 2011* invited participants for their related critical consideration of partial and holistic oriented approaches to physics and engineering, medicine and biology, psychology and transpersonal phenomena, art and philosophy, society and religion.

**QIM 2011 ROUND TABLE
KNOWLEDGE FEDERATION DIALOG BELGRADE 2011:
PARTIAL VERSUS HOLISTIC ORIENTED APPROACHES**

SESSION C1

ROUND TABLE KNOWLEDGE FEDERATION DIALOG BELGRADE 2011: PARTIAL & HOLISTIC ORIENTED APPROACHES

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Abstract. As part of *Symposium of Quantum-Informational Medicine QIM 2011* (www.qim2011.org), a one-day round table *Knowledge Federation Dialog Belgrade 2011: Partial & Holistic-Oriented Approaches* is planned for September 25. This round table will provide an opportunity for critical consideration of partial and holistic-oriented approaches to physics and engineering, medicine and biology, psychology and transpersonal phenomena, art and philosophy, society and religion. The paradigm of quantum physics enables us to broaden our foundation for truth and worldview – and explain and include phenomena and insights that have hitherto been ignored or denied, because they did not fit into the classical (in many aspects mechanistic) scientific paradigm. When we do that, we come closer to a more inclusive or *holistic* view which can lead to a profound or 'paradigmatic' change in any field, and in our society at large. The observation that the insights reached in quantum physics point us towards a more inclusive or holistic worldview has been voiced by many authors, notably by Heisenberg in *Physics and Philosophy*. The fact that those insights are so slow to propagate into other disciplines and to influence general culture may be attributed to the lack of communication across and beyond disciplines. Knowledge Federation is an international project whose goal is to develop remedial knowledge-work practices – by *federating* key insights across disciplines, and to media and popular culture. In the Knowledge Federation Dialog we share holistic insights from a variety of disciplines to a round table, let them synergize with one another and become general insights; and we allow those general insights, and our dialog, to spread through the media and include general public.

Keywords: *Knowledge Federation Dialog Belgrade 2011, partial vs holistic-oriented approaches to physics, medicine, biology, psychology, transpersonal phenomena, engineering, society, art, philosophy, religion...*

1. Introduction

Tuesday evening in Dubrovnik (during Knowledge Federation 2010 [1]), while everyone else was asleep, we sat on the terrace of Villa Doda and talked until very late. What we found out was that we worked on the same fundamental question in two different ways.

The question was "How to develop a broader and more solid foundation for knowledge work?"

DR, a theoretical physicist, created a solution based on the paradigm of contemporary physics. Historically, the sciences developed their paradigms based on the worldview of 19th century physics, in which indestructible particles of matter interact with one another as pieces in a mechanism would. Although quantum physics later disproved and disowned it, this mechanistic paradigm still persists in life sciences and humanities. A consequence is that the phenomena that cannot be understood in terms of this paradigm tend to be eliminated from our culture as non-scientific.

DK, a theoretical computer scientist, proposed a foundation based on *methodology* formulation (a *methodology* is a written convention). Herbert Simon was one of the first to recognize a new breed of science, exemplified by computer science, which he called "sciences of the artificial." The starting point of DK's *methodology* development was to acknowledge that all knowledge work can be, and that *informing* also needs to be considered as 'sciences of the artificial' (something we humans have developed and can develop further, by adjusting it to the key purposes it needs to fulfill in our lives, society and culture).

2. Knowledge Federation Dialog Idea

We agreed to organize a dialog in Oslo next May, where we would hold a spotlessly sound and sufficiently broad scientific foundation on which the participants would be able to work successfully on the following four *federations*:

- Federation of fundamental insights across scientific disciplines. As DK mentioned, the epistemological insights that resulted in modern physics have not yet been accommodated by life sciences and humanities, and by the popular conception of 'scientific worldview'.
- Federation of two modes of cognition – analytical-rational, and by direct insight. A focus of DR's research has been on the phenomenology and theory of the latter, by combining insights from quantum physics with first-hand descriptions of the mental processes behind Nikola Tesla's discoveries [3]).
- Federation of insights between the sciences and the world traditions.
- Federation of insights across the world traditions.

While similar dialogs have been organized before, we undertake to make a difference by placing this dialog within the context of Knowledge Federation [4]. In Knowledge Federation our aim is first of all to bring together all relevant sources to an unbiased dialog to attain a reliable general insight; and then to ensure that transformative insights do not remain in the heads of the people who created them, but are communicated to people who needs to know about them and allowed to influence conventional practice.

3. Conclusion

In the meantime we agreed to postpone Knowledge Federation Dialog Oslo 2011, and to use opportunity of Belgrade's *Symposium of Quantum-Informational Medicine QIM 2011* to organize Round Table *Knowledge Federation Dialog Belgrade 2011: Partial & Holistic Oriented Approaches*, as an intermediate point for critical consideration of partial and holistic oriented approaches to physics and engineering, medicine and biology, psychology and transpersonal phenomena, art and philosophy, society and religion.

In Knowledge Federation Dialog Belgrade 2011 we plan to share holistic insights from a variety of disciplines to a Round table, let them synergize with one another and turn into general insights; and to allow those general insights, and our dialog, to spread through the media and include general public.

References

1. http://knowledgefederation.org/Knowledge_Federation_2010 (*Second International Workshop on Knowledge Federation: "Self-Organizing Collective Mind"*, Inter University Centre Dubrovnik, October 3-6, 2010)
2. <http://knowledgefederation.ning.com/group/DialogOslo2011>
3. <http://knowledgefederation.project.ifi.uio.no/Articles/DR.pdf> (D. Raković, On nature and control of creativity – Tesla as a case study, *Second International Workshop on Knowledge Federation*, Dubrovnik, October 2010).
4. <http://knowledgefederation.org>

KNOWLEDGE FEDERATION PROTOTYPE: TESLA AND THE NATURE OF CREATIVITY (TNC)

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Abstract. Prototype *Tesla and the Nature of Creativity* (TNC) is being developed as a showcase example of Knowledge Federation. *Motivation:* One of the points of this work is to show that IT innovation can – or better said *already has* expanded to systemic innovation; and how exactly this type of work might be done with available technical tools. *Use case:* DR, as an author of the article *On nature and control of creativity – Tesla as a case study*, has been focusing on quantum nature of creativity of arguably the greatest creative genius in electrical engineering of all times, Nikola Tesla, as case study; if his result should have the sort of impact it can and needs to have, it will have to be federated. DK, as a federator in Knowledge Federation, received the article and recognized its potential for making an impact: (i) collective creativity may indeed be the key function of the agile and transformative collective mind we have undertaken to co-create, (ii) it bears upon the theme of (foundations for) truth and worldview creation, by challenging the paradigm of classical cognitive science and by offering a way to extend it into a paradigm based on quantum epistemological insights. *Transforming a research article into an accessible multimedia object:* The substance of DR's article – model of direct creativity – is written in the language of quantum physics, and is therefore not accessible to non-specialist readers. The first step in federation was to extract from DR's article, and his other articles and experience, a simple visual model of how direct creativity works and how it might be controlled and used – expressed in conventional, rather than quantum-physics metaphors. The second step was to extract from this model certain general key ideas – a general idea contribution of this work. A result of this initial phase of federation was to show how a conventional research article may be turned into a multimedia object, with idea maps, recorded interviews with the author providing additional explanation, navigation structure, text annotations... Once the socio-technical system for presenting academic information has been designed and tested in this way, *suitable* information technology may be developed by IT industry. *Presenting, connecting and crowdsourcing ideas online:* In the second phase of federation certain ideas are selected from the article, along with their relationships, and made available online to community of interest or the global community, by using the Cohere platform. *Changing the public mind through a dialog:* A goal of this final stage of federation is to bring the key, transformative ideas to public awareness. To that end, we create a dialog including community's opinion leaders and media people. The dialog begins in physical space and continues on Internet and in the media. Our physical dialog aims to further develop David Bohm's dialogue technique by combining it with a therapeutic strategy called 'intervention.' *Conclusions:* Coming back to the insight "knowledge work has a flat tire" which we named as motivation, we can now see contours of a remedial procedure – one capable of combining together researchers, and general public, to organize relevant resources together and produce a reliable worldview-changing or direction-changing insight or *gestalt*. Our vision is a global knowledge-work game-like environment, a true global mind. A goal of Knowledge Federation is to evolve a general-purpose systemic 'game-changing game,' an environment where habitual ways of doing knowledge work, and perhaps any other kind of work, can be changed in a meaningful way.

Keywords: *knowledge federation, systemic innovation, holistic informing, knowledge work that works*

1. Introduction

In [Introducing Knowledge Federation](#) [1] we explained what knowledge federation is and what it can do. But for many of us the best introduction is by example – by seeing knowledge federation in action. TNC Prototype [Tesla and the Nature of Creativity](#) [2] is being developed as a showcase example of knowledge federation.

This is work in progress; examples have only as much substance as is necessary to illustrate the federation procedure – which is our main interest here.

Contents [[hide](#)]

2. [Motivation](#)
3. [Use case](#)
4. [Transforming a research article into an accessible multimedia object](#)
5. [Presenting, connecting and crowdsourcing ideas online](#)
6. [Changing the public mind through a dialog](#)
7. [Conclusions](#)

2. Motivation

One of the points of this work is to show that IT innovation can – or better said *already has* expanded to systemic innovation; and how exactly this type of work might be done with available technical tools.

But an even more relevant motivation is that "knowledge work has a flat tire" – i.e. that our situation calls for stopping the business as usual and taking care of systemic issues in knowledge work that may render our best knowledge work efforts futile.

[more...](#)

3. Use Case

[Dejan Rakovic](#) (DR) in the Role of an Author, has been focusing on creativity of arguably the greatest creative genius in electrical engineering of all times, Nikola Tesla, as case study. What attracted DR to this theme was that its perplexing phenomenology could be understood with the help of to him familiar paradigm of quantum physics. A number of years of research resulted in a model explaining how the formation of Tesla-style deep creative insights might work and how it might be developed and controlled. Although DR's results were published in a number of research articles and books, and contrary to their large potential impact on research in other fields and on our society at large (explained below), they remained accessible only to a relatively small circle of experts – cognitive scientists who understand quantum physics. Having heard about Knowledge Federation, DR decides to join it and to have his work federated. He joins the Knowledge Federation 2010 workshop in Dubrovnik, and presents his work in a concise article consisting of a description of genealogy and phenomenology of Tesla's creative insights, rendered mainly in Tesla's own words, excerpts from his journal, and an outline of an explanatory model, written largely in the vernacular of quantum physics: [On Nature and Control of Creativity - Tesla as a Case Study](#) [3].

[Dino Karabeg](#) (DK) in the Role of a Federator, receives the article and recognizes its potential for making an impact. Earlier in Knowledge Federation we have been focusing on collective intelligence. But collective *creativity* may indeed be an even more important function of the agile and transformative collective mind we have undertaken to co-create. Is DR's work showing us a way to enable collective creativity through systemic solutions in game-changing ways? Could we (as society) be creating far more creative geniuses of Tesla's caliber than we presently do? (Think what this might do for the world problematique...!) Are we inhibiting this creation routinely, because we have misunderstood the nature and the dynamics of creativity? A brief [dialogue within the Knowledge Federation community about this theme](#) [4] revealed that this indeed might be the case. Besides, DR's work bears upon the theme of (foundations for) truth and worldview creation – which is central in

Knowledge Federation – by challenging the paradigm of classical cognitive science and by offering a way to extend it into a paradigm based on quantum epistemological insights.

For us in Knowledge Federation DR`s idea plays the role of *potentially* "an idea worth spreading," i.e. as a place holder for any such idea; the idea could have been just as well about the climate change, or about the global economy. We want to use this idea to build around it a system for verifying and spreading *any* such idea, but bear with us: This is only our first step. In it, to use our legal metaphor, we will have to be both the judges and the lawyers; we will both present DR`s work and build a system by which it may be tested. In a final solution, of course, those roles will be more carefully designed and divided. Help us do that, by providing comments.
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4. Transforming a Research Article into an Accessible Multimedia Object

The substance of DR`s article – model of direct creativity – is written in the language of quantum physics, and is therefore not accessible to non-specialist readers. The first step in federation was to extract from DR`s article, and his other articles and experience, a simple visual model of how direct creativity works and how it might be controlled and used – expressed in conventional, rather than quantum-physics metaphors. The second step was to extract from this model certain general key ideas – a general idea contribution of this work (those will be worked on further in the further steps, as explained below).

A result of this initial phase of federation was to show how a conventional research article may be turned into a multimedia object, with idea maps, recorded interviews with the author providing additional explanation, navigation structure, text annotations... by using available technology (we are making steps towards 'World of Warcraft-style' academic communication, i.e. towards the use of contemporary media!). Once the socio-technical system for presenting academic information has been designed and tested in this way, *suitable* information technology may be developed by IT industry.
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5. Presenting, Connecting and Crowdsourcing Ideas Online

In the second phase of federation certain ideas are selected from the article, along with their relationships, and made available online, by using the Cohere platform [5].

Here we show a procedure (to be performed by a community of interest or the global community) by which:

- ideas are freed from the codex of a discipline and made available online,
- ideas are interlinked with other related ideas, and with supporting or contradicting resources,
- questions and critical concerns are linked with ideas to solicit further details from the author or the community,
- key general insights or *gestalts* are distilled from interlinked ideas,
- ideas and "gestalts" are submitted to a democratic deliberation process online, and allowed to either acquire or lose credibility, and to eventually become community views,
- *gestalts* and related insights and documents are brought to the attention of specific communities of interest to which they might be relevant,
- *gestalts* and related insights and documents are made available to journalists, and to general public.

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6. Changing the Public Mind through a Dialog

A goal of this final stage of federation is to bring the key, transformative ideas to public awareness. To that end, we create a dialog including community's opinion leaders and media people. The dialog begins in physical space and continues on Internet and in the media. Our physical dialog aims to further develop David Bohm's dialogue technique [6] by combining it with a therapeutic strategy called 'intervention' [7].

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7. Conclusions

Coming back to the insight "knowledge work has a flat tire" which we named as motivation, we can now see the contours of a remedial procedure – one capable of combining together researchers, and general public, to organize relevant resources together and produce a reliable worldview-changing or direction-changing insight or *gestalt*.

The point here is, however, not that we have a solution, but to foster a social process capable of producing solutions of this kind – and improving them indefinitely – which is what Knowledge Federation really is.

What has been shown above is a procedure (a variant of 'knowledge federation') that complements conventional article publishing and the conventional focus on knowledge *production* in general, by

- translating the models, ideas and insights from an academic specialization into general, accessible language,
- making ideas accessible online, linking them with related ideas and resources, and further annotating, evaluating,
- evolving general insights or 'gestalts',
- making those insights known to the communities that may need them,
- making key insights and accompanying media material available to journalists and to general public,
- bringing transformative ideas into media and public awareness through a dialog.

A question that remains is – how will such procedures be brought into actual practice? And by whom?

An intention behind developing this prototype is to show that this is already being done. While our children use sophisticated animated tools to collaborate online and in real time with friends worldwide - while playing World of Warcraft - we serious knowledge workers still work alone or in small teams, write old-fashioned articles and publish them in old-fashioned books and magazines, which will be placed on a book shelf. This situation obviously won't last. Our vision is a global knowledge-work game-like environment, a true global mind. But how will this new collective mind be developed? And by whom? Obviously, no game design company can design 'academic game' or 'public informing game'.

A goal of Knowledge Federation is to evolve a general-purpose systemic 'game-changing game,' that is, an environment where habitual ways of doing knowledge work, and perhaps habitual ways of doing any other kind of work, can be changed in a meaningful way. The final goal of this collaborative game is to change the knowledge work culture and practice.

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QUANTUM-HOLOGRAPHIC FRAMEWORK FOR CONSCIOUSNESS & ACUPUNCTURE: PSYCHOSOMATIC-COGNITIVE IMPLICATIONS

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Abstract. The paradigm of quantum physics enables us to broaden our holistic worldview, and explain and include phenomena that have hitherto been ignored or denied, which can lead to profound change in any field and in our society at large. The aim of this paper is to present quantum-holographic framework for understanding consciousness and acupuncture system, with significant psychosomatic-cognitive implications. This is of special importance because of wider application of holistic medicine in developed countries, oriented to the treatment of man as a whole and not diseases as symptoms of disorders of this wholeness, implying their macroscopic quantum origin. The focus of these quantum-holistic methods are body's acupuncture system and consciousness, which exhibit a structure of quantum-holographic Hopfield-like associative neural network, with memory attractors as a possible quantum-holographic informational basis of psychosomatic diseases, of special importance for quantum-holistic psycho-somatics and quantum-informational medicine. Wider quantum-informational implications of holistic medicine suggest quantum-holographic fractal coupling of the cellular level/acupuncture system/consciousness/ collective consciousness, which thus implies "downward causation" biophysical mechanism for modified gene expression. Our quantum-holographic investigations also predict two cognitive modes of consciousness (direct religious/creative, in quantum-coherent transitional and altered states of individual consciousness, and indirect perceptually/rationally mediated, in classically-reduced normal states of individual consciousness). This approach can account for space-time-transcending collapse-like quantum-gravitationally-induced and consciousness-channeled transpersonal interactions, with significant spiritual implications and conditions for observation of quantum-coherent quantum-holographic implicate order and classically-reduced explicate order. Our investigations forecast great synthesis of two cognitive modes in the framework of new quantum-holographic paradigm – where personal role becomes indispensable due to the influence and care for collective mental environment, which is fundamental question of both mental health and civil discency, i.e. of both spiritual and civil morality.

Keywords: *quantum-holographic informatics, macroquantum aspects of field-related consciousness & acupuncture system, nonlocality of quantum entanglement & quantum-gravitational collapse, quantum-holographic psychosomatic-cognitive & transpersonal-spiritual implications, quantum-holographic paradigm, quantum-holographic implicate order & classically-reduced explicate order*

1. Introduction

The paradigm of quantum physics enables us to broaden our holistic worldview, and explain and include phenomena that have hitherto been ignored or denied. The aim of this paper is to present quantum-holographic integrative framework for understanding consciousness and acupuncture system, and numerous related holistic phenomena.

The prevailing scientific paradigm considers information processing within the central nervous system as occurring through *hierarchically organized and interconnected neural networks*. Hierarchical models of brain's neural networks can be divided into [1,2]: *Kohonen's self-organizing feature mapping* unidirectionally oriented multilayer neural networks [3], *Hopfield's associative or attractor* massively and bidirectionally connected neural networks [4], and *Haken's synergetic classical* [5] and *Peru's neuro-quantum* [6] multilayer neural networks.

But, it seems that this hierarchy of biological neural networks is going down sub-cellular *cytoskeleton* level, being according to some scientists a kind of *interface* between *neural* and *quantum* levels [7-10], where *quantum level* is described by *analogous* mathematical formalism as *Hopfield-like quantum-holographic associative neural network* [1,2,7].

The mentioned analogy opens additional fundamental question as to how the *quantum* parallel processing level gives rise to *classical* parallel processing level, which is a general problem of the relationship between quantum and classical levels within the *quantum decoherence theory* as well [11]. Naturally, the same question is closely related to the fundamental nature of *consciousness*, whose in-deterministic manifestations of *free will* [1,2,12-16] and other holistic manifestations of consciousness like *psychosomatic disorders* [1,2,17-19], *transitional states of consciousness* [1,2,12-14], *altered states of consciousness* [20], and *consciousness pervading body* [21] – necessarily imply that some manifestations of consciousness must have deeper *quantum origin* (in spite of recent theoretical investigations [22] which demonstrate that interactions with environment destroy in less than 10^{-13} s macroscopic quantum coherence within the brain, whose electrochemical neural networks might correspondingly be sufficient for modeling normal states of consciousness [23-25] – but not altered and transitional states of consciousness as well [1,2,20]).

Bearing in mind the *quantum-coherent characteristics* of the Russian-Ukrainian school of *microwave resonance therapy* (MRT) [26-28] (highly resonant microwave (MW) sensory response of the disordered organism, biologically efficient nonthermal MW radiation of the extremely low intensity, and neglecting MW energy losses alongside acupuncture meridians) – the *acupuncture system* is presumably only *macroscopic quantum system* in our body (while brain still seems not to be [22]). This is the reason that *consciousness* is related to its MW ultralow-frequency (ULF) modulated *electromagnetic (EM) field of the acupuncture system*, in the framework of the author's *biophysical quantum-holographic/quantum-relativistic model of consciousness* [1,2,29-35] – with significant *psychosomatic-cognitive implications*, which will be elaborated further on on (with some physical details presented in the Appendix).

2. Consciousness and Acupuncture System: Quantum-Holographic Psychosomatic Implications

Most of contemporary textbooks in biophysics are of the reductionist type, mainly dedicated to the molecular biophysics and methods of biomolecular characterization, to a lesser number consider processes in the cellular level, and rarely are committed to a holistic integrative level of the organism and biosphere (which includes social and environmental aspects, biometeorology, geomedicine, chronobiology, psychosomatics, consciousness, homeopathy, acupuncture, yoga, meditation, transpersonal psychology) [1,36] – although this trend is beginning to change with wider application of *integrative medicine* in the developed countries [37].

Namely, contemporary investigations of psychosomatic diseases imply the necessity of application of *holistic methods*, oriented to *healing the person as a whole* and not disease as a symptom of disorder of the whole, suggesting their *macroscopic quantum origin* [1,2,17-19]. In the focus of these quantum-holistic methods are body's *acupuncture system* and *consciousness* – which have *quantum-informational structure of quantum-holographic Hopfield associative neural network*, within the Feynman propagator version of Schrödinger equation [7] – with surprisingly significant *quantum-holographic psychosomatic implications*.

Acupuncture system is an ancient Chinese concept of the energy-informational channels/meridians and points, responsible for psychosomatic health and illness [38-41]. The quantum EM/ionic basis of the acupuncture system (of *non-threshold electrical gap junction* (GJ) synapses [42,43]) is implied by *resonant windows* in frequency and intensity in tissue interactions with extremely weak *non-threshold* EM fields [44] (undetectable by nervous system of *threshold* electrochemical synapses [1,2,17,18]), and successes of the Russian-Ukrainian school of MW resonance therapy [26-28] and its *quantum-coherent characteristics* (highly resonant microwave sensory response of the disordered organism, biologically efficient nonthermal MW radiation of extremely low intensity and energy, and neglecting MW energy losses across acupuncture meridians), as well as successes of German school of ULF electropuncture [45] and the *resonant stimulation* of the acupuncture analgesia endorphin (~ 4 Hz) and serotonin and/or norepinephrine (~ 200 Hz) mechanisms [46] – which is now associated with the appearance

of *Quantum-informational medicine* [1,17] (that might also include acupuncture-sensitive *homeopathy* [47] and other *energetic/bioresonance/bioinformational methods* [48]).

And as recent Peru's theoretical investigations show that any *quantum system* has formal mathematical structure of *quantum-holographic Hopfield-like neural network* [6,7] – then *memory attractors of the acupuncture network* can be treated as *psychosomatic disorders* representing EM MW/ULF-modulated (*quantum*)*holistic records* (which might be therefore removed only holistically, supported by an extreme efficiency of the *quantum-informational therapies*, that consequently erase the very information of the psychosomatic disorders) – which might represent biophysical basis of (acupuncture *temporarily reprogrammable!*) (*quantum*)*holistic local psychosomatics* [1,2,12-14,17,18,29-35].

Namely, according to the *Tibetan traditional medicine*, an acupuncture procedure must be repeated every several months [49] – presumably as a consequence of *restituted* patient's mental loads from his *mental-transpersonal-environment* of closely related relatives/enemies/deceased, that remained *non-reprogrammed* on the level of quantum-holographic collective consciousness (which might be supported by the Tibetan *pulse diagnostics* based on 20 pulses, enabling precise diagnosis of psychosomatic disorders not only of the patient himself *but also* of his/her/its family members and enemies).

An additional support that the acupuncture system is really related to consciousness is provided by *meridian (psycho)therapies* (with very fast removing of traumas, phobias, allergies, post-traumatic stress, and other psychosomatic disorders [50,51]) – whose simultaneous effects of *visualization* and *tapping/touching of acupuncture points* might be theoretically interpreted as a *smearing and associative integration of memory attractors* of the psychosomatic disorders, through successive imposing new boundary conditions in the acupuncture energy-state space during visualizations of the psychosomatic problems [1,2,17,18] – so that *meridian (psycho)therapies* (alongside with techniques of *energy healing* of the acupuncture system/ consciousness [52-55], psychosomatically healing positively-visualizing *meditation* [56] and various *psychotherapeutic techniques* for recognition/integration of psychological conflicts and personality growth [57-60]) might also be categorized into the field of *Quantum-informational medicine* [17].

The above quantum-holographic approach might be also generalized to highest hierarchical nonlocal level of out-of-body consciousness/collective consciousness [1,2,17,18,29-35], with religious/social implications on necessity of *transpersonal spiritual quantum-holographic removing* of all unwilling side memory attractors – which unless will cause psychosomatic diseases and interpersonal fights in this and/or further generations they are transpersonally and unconsciously transferred to, on the level of *field-related collective consciousness* [1,2,17].

This quantum-holographic approach could also apply to lower hierarchical local quantum-holographic macroscopic open cellular enzyme-gene level, with permanent quantum-conformational molecular recognition [1,2,17,32], and presumably represents a *natural framework for explanation of psychosomatic diseases* related to somatization of environmentally-generated memory attractor's states of the open macroscopic quantum acupuncture system/consciousness – *quantum-holographically projected* upon lower hierarchical cellular level, thus *changing the expression of genes* [1,2,17,61] (so called macroscopic *downward causation*, as biofeedback control of microscopic *upward causation* in *ontogenesis and morphogenesis*, starting from the first fertilised cell division which initialises differentiation of the acupuncture system of (electrical synaptic) *gap-junctions* [1,2,17,42,43]).

All this implies that the *whole psychosomatics is a quantum hologram* [1,2,33,34], both on the level of *individual and collective consciousness*, which resembles Hinduistic relationship *Brahman/Atman Atman is Brahman* [62]), as the whole and its part which bears information about the whole – strongly supporting the appearing *quantum-holographic paradigm* [1,2,63-65].

3. Consciousness and Acupuncture System: Quantum-Holographic Cognitive Implications

In the above quantum-holographic context, the association of individual consciousness to manifestly-macroscopic-quantum acupuncture system, and application of theoretical methods of associative neural networks and quantum neural holography and quantum decoherence theory, imply *two cognitive modes of consciousness*, according to the coupling strength consciousness-body-environment [1,2,17,30,31]: (i) *weakly-coupled quantum-coherent direct one* (in out-of-body religious/creative transitional and altered states of consciousness, like prayer, meditation, creative dozes, lucid dreams...), and (ii) *strongly-coupled classically-reduced indirect one* (in bodily perceptively/rationally mediated

normal states of consciousness, like sensory perception, logical and scientific thinking...) – *with conditions for mutual transformations* – and significant *spiritual and epistemologic implications* related to re-gained strong coupling of quantum-holographic contents of consciousness with bodily-environment, classically-reducing directly obtained quantum-coherent informational content.

It should be pointed out that fundamentally-theoretical reasons for out-of-body displacement of consciousness lay in necessity that consciousness must have, at least in (quantum-coherent) altered/transitional states, sufficiently isolated relevant macroscopic quantum degrees of freedom [1,2,12-14,29-34] – in order to have indeterministic characteristics of free will – which is otherwise not possible in strong body's environment which causes quick quantum decoherence of consciousness into (classically-reduced) normal state [22].

In this context, necessity of direct quantum-holographic coupling of individual and cosmic collective consciousness really requires weak out-of-body quantum-communication coupling consciousness-environment, i.e. previous *reprogramming of all psychosomatic loads* (cleansing of possessive or hedonistic *emotional-mental sin/karmic connections* with the world – which as loading *mental addresses* would give rise to *quantum projections* of mentally-channeled tunneled consciousness on corresponding *out-of-body environment*, and thus to classically-reduced out-of-body *extrasensory observing* of mentally-addressed environment!) – and so the efforts of *mystics of all traditions* to *clean consciousness/soul* through spiritual practice (*prayer, meditation*) and thus to reach their final eschatological goal (*Kingdom of God, nirvana*), i.e. *post-mortem salvation* (of the sin-free/karmic-free non-bounded soul) [66,67] appear reasonable.

So, it seems that science is closing the circle, by re-discovering two cognitive modes of consciousness and at the same time by imposing its own *epistemologic limitations* – as it was preserved for millennia in *shamanistic tribal traditions* [68-70], or as it was concisely described by Patanjali in *Yoga Sutras*, pointing out that mystical experience (samadhi) is *filled with truth* and that *it goes beyond inference and scriptures* [71], or as this difference between faith and knowledge was formulated at the beginning of the last century by Berdyaev in his *Philosophy of Freedom* as the difference of two modes of cognition, prayer-mediated *comprehension of the affairs invisible* and rationally-mediated *comprehension of the affairs visible* [72].

This also explains in principle non-adequate informational rationalization of any direct quantum-holographic spiritual/religious mystical experience (as a general problem of the quantum theory of measurement, of reduction of the implicate order of quantum-coherent (quantum-holographic) superpositions into the explicate order of measured classically-reduced states [1,2,33,34]). After returning of the displaced consciousness upon the body, in order that transpersonally acquired information ascends to the level of normally conscious state, it is necessary to overcome two filters [1,2,33,34]: *acupuncture system/nervous system threshold filter* (which requires *emotional colouring* of the solving problem) and *frontolimbic-amplification priority filter* (which *requires emotional-thinking priority* of the solving problem). It should be pointed out that (practically) non-threshold potential of the acupuncture electrical GJ-synapses [42,43] makes body's acupuncture system extremely sensitive quantum sensor [1,2], which can resonantly *detect* even ultraweak EM fields [44] – with radiesthetic-diagnostic, noncontrolable-patogenic, or quantum-therapeutic psychosomatic effects [73].

The mentioned quantum-holographic context implies *quantum-holographic fractal coupling* of various hierarchical levels in Nature: (i) *local quantum-holographic coupling* of bodily acupuncture system and its numerous projection zones (according to contemporary *Su Jok therapy* [74]); (ii) *local quantum-holographic coupling* of thought-emotional contents of individual consciousness and cellular level (according to experiments of language-influence on the genes expression [75]); (iii) *transpersonally-addressed classically-reduced quantum-holographic coupling* of emotionally related consciousness' of relatives/enemies/deceased within the network of collective consciousness (according to pulse diagnostics of *Tibetan traditional medicine* [45]); (iv) *transpersonally-addressed classically-reduced quantum-holographic coupling* of individual and collective consciousness in *miraculous deep creativities* (Tesla and Mozart as examples [31,76]); (v) *transpersonally-addressed classically-reduced quantum-holographic coupling* of individual and collective consciousness in *spiritual revelations* (Moses as example, with preferences of collective and individual history coded within The Old Testament, according to discovery of *Bible Code* [77,78]); (vi) *fractal-informational coupling* of Golden Mean based codes of periodic system of elements, genetic code, microtubules, biological water, yin-yang I Ching, and individual consciousness (according to several contemporary investigations [10,79]).

4. Discussion

Our biophysical quantum-holographic/quantum-relativistic framework described above, might have significant influence on deeper understanding of many consciousness-related phenomena in physics and engineering, medicine and biology, psychology and transpersonal phenomena, art and philosophy, society and religion [1,2]:

Psychosomatic diseases indicate the necessity of application of holistic methods, implying their macroscopic quantum origin, with memory attractors as their possible quantum-holographic informational basis for *downward causation* mechanism of modified gene expression. Wider quantum-informational implications of holistic medicine suggest quantum-holographic fractal coupling of the cellular level/acupuncture system-individual consciousness/collective consciousness, strongly supporting the quantum-holographic paradigm.

Individual consciousness is related to **acupuncture macroscopic quantum-holographic neural network** in the form of an *EM component* of MW/ULF-modulated ionic currents (embedded within *non-homogeneous ionic structure*), in which over-threshold ULF information is continuously coded from brain's neural networks, while non-threshold extrasensory broad-band information is coded from quantum environment. **Collective consciousness** is a subtle *field-related cosmic macroscopic quantum-holographic neural network*, with different micro-quantum and macro-quantum (non-biological and biological, real and virtual) excitations.

Creativity is a consequence of intense concentration on some problem before *transitional states of consciousness*, when *individual consciousness projections* on (associatively related) *answer to the problem within quantum-holographic memory/propagator of collective consciousness* is going on, with amplification of the answer after return into normal awake state. One way of control of creative processes is *mental visualization of the problem* in the *meditative awake altered state of consciousness*, while simpler way is in using *transitional period waking-sleep*, with subsequent decoding of the symbolic dream.

Free will is perceptually/rationally mediated strong intentional classical/quantum/classical backward hierarchical interaction nervous/acupuncture/nervous systems, which adequately modifies the *shape of energy-state hyper-surface of the open acupuncture system/individual consciousness* – with *most space* for adaptation/free will through **prayer for others** with permanent transpersonal cleansing of conflict memory attractors' states of individual and collective consciousness.

Altered states of consciousness (REM sleep phase, hypnosis, meditation, hallucinogenic states, some psychopathological states, clinical death...) are consequence of an *out-of-body displacement of the part of EM/ionic acupuncture system* – when *quantum-parallel information processing is biophysically extremely accelerated*. **Normal states of consciousness** (normal waking state, non-REM sleep phase...) are realised *without this out-of-body displacement* (when acupuncture ionic currents propagate exclusively through body tissues, enabling only *classically-reduced information processing*).

Transitional states of consciousness are accompanied by *consciousness projections* i.e. by (highly-noninertial physically-equivalent-to strongly-gravitational) *collapse-like consciousness-channeled quantum-gravitational tunneling of out-of-body displaced part of the acupunctural EM/ionic macroscopic quantum neural network*, which might interconnect extremely distant space-time events. This framework also suggests physical basis of von Neumann's projection postulate on micro-quantum scale, to account for quantum mechanical **wave packet collapse** (via locally quantum-gravitationally-induced *wormholes* in highly-noninertial strong-gravitation-equivalent quantum measurement-like situations, cf. Appendix).

Transpersonal interactions of the organism and its environment (long-range and short-range) are *significant implications*. One of the most unusual is the *mystical state of empty individual consciousness*, when direct *quantum-holographic coupling* with *cosmic collective consciousness* is achieved. On the other hand, *consciousness projections* in transitional states of consciousness are presumably basis of various mentally-channelled *inherently epistemologic-non-limited partial religious/creative experiences*.

Two modes of consciousness (direct religious/creative, in quantum-coherent transitional and altered states of individual consciousness, and indirect perceptually/rationally mediated, in classically-reduced normal states of individual consciousness) are predicted – *with conditions for mutual transformations* – implying *inherently epistemologic-limited holistic mystical experiences*, related to re-gained strong coupling of quantum-holographic contents of consciousness with bodily-environment, classically-reducing directly obtained quantum-coherent

informational content. Multimillennia controversy of *post mortem* evolution of soul is presumably related to inherently limited interpretative epistemologic level of the rationalization of transpersonal transfer of mentally-addressed loads within this and further generations via network of collective consciousness.

5. Conclusion

Our biophysical quantum-holographic/quantum-relativistic integrative framework for understanding consciousness and acupuncture system might have significant influence on deeper understanding of many related phenomena in physics and engineering, medicine and biology, psychology and transpersonal phenomena, art and philosophy, society and religion, as outlined above. Thus paradigm of quantum physics enables us to broaden our holistic worldview, and explain and include phenomena that have hitherto been ignored or denied, which can lead to profound change in many fields and in our society at large.

In particular, according to presented integrative framework it might be said that *three front lines* of psychosomatic medicine do exist: (i) *Spirituality and circular (psycho)therapies from all relevant meta-positions*, with possibility of permanent erasing of mutual memory attractors on the level of *collective consciousness*; (ii) *Eastern (quantum)holistic medicine and non-circular (psycho)therapies*, whose efforts temporary erase memory attractors on the level of *acupuncture system/individual consciousness*, and prevent or alleviate their somatization, as a consequence of the indolence on the first level; (iii) *Western symptomatic medicine*, whose activities on the *somatic level* via immunology, pharmacology, biomedical diagnostics and surgery hinder or soothe somatized consequences of the carelessness on the first two levels. It should be stressed, that *necessary* activities on the second and third levels, with *neglect* of the first level, have a consequence of *further transfer* of memory attractors on the level of *individual and collective consciousness* in this and further generations, thus *accumulating* quantum-holographic loads which *afterwards cause* not only illnesses, but also interpersonal fights, wars, and other troubles.

Also, the above integrative framework provides fundamental quantum-informational basis for deeper understanding of the very *nature of consciousness* and related *transpersonal phenomena* (described in religious and esoteric traditions of East and West), including some fundamental *philosophical-religious questions* (like three crucial Kant's questions – does God exist, is there life after death, and does free will exist – answers to which will be presumably positive). So, it seems that our civilization, through *synthesis* of contemporary scientific discoveries in the field of consciousness and millennia' religious experiences of various traditions of East and West, might face in a near future a renaissance of *hesychastic behaviour models*. This would open perspectives for *millennium of wisdom*, where history (of basically non-tolerant behaviour, in different historical contexts) might become the sincere teacher of life, without necessity that every generation learns from its own painful experiences.

The primary role in this process might belong to *all religious confessions*, by cultivating sincere *spiritual morality* and absolute (not declarative, as throughout previous history) interpersonal, interethnic and interreligious *tolerance*, as a measure of individual behaviour from the *perspective of death*, i.e. quantity of generated and nonreprogrammed psychosomatic conflicts until the moment of death (determining *spiritual preferences* for individual and/or collective future) – which might be significantly changed only through *practicing of prayer* for our relatives and enemies, and consequently *global reprogramming* of the spatio-temporal network of *collective consciousness*. Everything else, including extremely well-meaning *rational persuading* and referring on high principles and *sinful pride* (which firstly disconnect us harmlessly, and afterwards create big conflicts spontaneously: *The road to hell is paved with good intentions*), will enhance the existing mental/emotional (inter)personal loads – dismissing individuals, nations, and humankind from the final spiritual ideal of sinless (healed/healthy) state of individual and collective consciousness.

Our investigations are on the line of the again arisen scientific interest for exploration of the phenomenon of consciousness in the past decades – with forecasting *great synthesis* of two cognitive modes, *rationally-scientific* (classically-reduced, in normal states of consciousness) and *creative-religious* (quantum-coherent, in altered and transitional states of consciousness) in the framework of new *quantum-holographic paradigm* – where *personal role* becomes indispensable due to the influence and care for collective mental environment, which is

fundamental question of both mental health and civil discency, i.e. of both spiritual and civil morality. This suggests necessity of *re-consideration* of global educational/informational/political goals, with re-orientation toward spiritual-holistic *gentle actions for global solutions of the global risk society*.

6. Appendix

6.1 Quantum-Holographic Macroscopic Aspects of Consciousness & Psychosomatic Implications

Initially, *quantum mechanics* appeared as a theory of *microscopic physical systems* (elementary particles, atoms, molecules) and phenomena at small space-time scales; typically, quantum phenomena are manifested at dimensions smaller than 1 nm and time intervals shorter than 1 μ s. However, from the very beginning of the quantum-mechanical founding one century ago, the question of its *universality* was raised, i.e. the question of general validity of the quantum-physical laws for *macroscopic phenomena* as well (like in superconductivity and superfluidity), mostly treated by the methods of classical physics. In the history of quantum physics, and especially quantum mechanics, this question has been temporarily put aside for very different reasons, being considered as a difficult scientific problem. The situation is additionally complicated by the existence of different schools of quantum mechanics, arguing about physical-epistemologic status of the so called *collapse (reduction) of the wave function*. In this respect the situation is not much better today, and it can be said freely that the problem of universal validity of quantum mechanics is still open [80-85].

On these lines, *holistic manifestations of consciousness*, like psychosomatic disorders [1,2], altered and transitional states of consciousness [1,2], conscious/unconscious transitions, consciousness pervading body, and free will [21], as well as *non-locality of quantum mechanics* demonstrated by Einstein-Podolsky-Rosen effect [86] and Bell inequalities multiply confirmed experimentally last decades [87-89], imply that *some manifestations of consciousness* must have *deeper macroscopic quantum origin*.

In particular, *quantum neural holography* and *quantum decoherence* might be very significant element of the feedback psychosomatics of *biological quantum-holographic neural networks*, through adaptation of memory attractors in the energy-state ($E_{S_k}(\phi^k)$) hypersurface of the quantum-holographic memory of various hierarchically coupled levels of energy-state hypersurfaces *of the biological open macroscopic quantum systems* S_k [1,2,17] (collective consciousness, individual consciousness/acupuncture system, and cellular enzyme-gene level) – in contrast to *low-temperature artificial qubit quantum processors* where *quantum decoherence must be avoided* until the very read-out act of quantum computation. This implies that Nature presumably has chosen elegant *room-temperature solution for biological quantum-holographic information processing*, permanently fluctuating between

quantum-coherent states $|\phi^k(t)\rangle_{S_k} = \sum_i c_{k_i}(t) |\phi^{k_i}\rangle_{S_k}$ and classically-reduced states

$\hat{\rho}_{S_k}^k(t) = \sum_i |c_{k_i}(t)|^2 |\phi^{k_i}\rangle_{S_k} \langle \phi^{k_i}|$ of *biological open macroscopic quantum systems* S_k (through non-stationary

interactions with out-of-body farther environment and through decoherence by bodily closer environment). The proposed *quantum-holographic* approach then represents a natural framework for explanation of *psychosomatic diseases* related to somatization of generated memory attractor's states of the open macroscopic quantum acupuncture system/consciousness (created as a result of interaction with the environment) and quantum-holographically projected upon lower hierarchical cellular level, thus changing the expression of genes.

6.2 Quantum-Holographic Macroscopic Aspects of Consciousness & Nonlocality of Quantum Collapse

There are numerous macroquantum models of consciousness (some of them cited in ref. [22], whose aim is to investigate existence of the relevant brain/body degrees of freedom isolated enough to preserve their quantum coherence), and it is difficult to pretend on complete survey of these attempts. Therefore, in this paper we shall restrict ourselves on the approach and critique of the Copenhagen and von Neumann interpretations of quantum mechanics, and those attempts including ours to resolve *manifestly open quantum-mechanical problems in the context of consciousness* [14]: (i) physical nature of the wave function *nonlinear collapse*; (ii) physical nature of

the instantaneous action of the wave function *nonlocal collapse*; and (iii) existence of the relevant *macroscopic quantum degrees of freedom* related to altered and transitional states of consciousness, isolated enough to preserve their quantum coherence.

The first attempts to *treat consciousness strictly quantum-mechanically* originate from von Neumann [15], and lately by Stapp [16]: in contrast to *Copenhagen interpretation* of Bohr, Dirac, and Heisenberg [90-92], which insists on *positivistic* limitations of quantum theory only on the observer knowledge about quantum system (thus becoming essentially subjective and epistemologic theory, as the only reality of this theory is *our knowledge*) – *von Neumann's* theory offers *ontologically* objective description of the reality and thus quantum framework for cosmological and biological evolution, including consciousness itself.

Besides, in the *problem of quantum measurement* i.e. collapse of the initial state of the quantum system in one of the possible probabilistic states of the system (when (linear) Schrodinger equation is *a priori* suspended and its boundary conditions are replaced by those corresponding to the collapsed state of the quantum system), in contrast to Copenhagen interpretation which treats it (*quantum inconsistently*) as an *ad hoc* process in the interaction of quantum system with classical measuring device – *von Neumann's* theory treats the measuring device quantum consistently by postponing the collapse of the initial quantum state until the final interaction with observer's consciousness in the chain quantum system/measuring device/observer, but also *not explaining* (nonlinear) *nature of the collapse*, with additional problem that ontological non-locality of the collapse requests (relativistic inconsistent) *instantaneous action on distance* along space-like surfaces (which is the problem also implicitly transferred in the relativistic quantum field theory in spite of the relativistic invariance of the Tomonaga-Schwinger space-like surfaces [16]).

On the other hand, in the context of *quantum transpersonal implications* – if *consciousness* has indeterministic characteristics (*free will*), it still must play essential role in the *wave function quantum collapse* [1,2,15,16], the only indeterministic property of the quantum mechanics, which has itself *manifestly open problems* of the physical nature of *nonlinear collapse* and relativistic inconsistent instantaneous action on distance of the *nonlocal collapse* of the wave function [1,2,16].

One possible solution of the problem of (nonlinear) collapse is proposed by Penrose [8] in *gravitationally induced reduction* of the wave function, in which the gravitational field of measuring device included in the superposition of corresponding possible probabilistic states of the device implies the superposition of different space-time geometries, and when the geometries become sufficiently different (on the Planck-Wheeler scale $\sim 10^{35}$ m) this implies the break of standard quantum superposition of the state quantum system (*S*) / measuring device or environment (*E*) (ill-defined in strictly separate space-time geometries) and Nature *must choose* between one of them and actually affects *objective reduction* of the wave function:

$$|\Phi\rangle_S |\Psi\rangle_E = \sum_i c_i |\Phi_i\rangle_S |\Psi_i\rangle_E \rightarrow |\Phi_j\rangle_S |\Psi_j\rangle_E$$

(while regarding non-algorithmic quantum-gravitational aspects of

consciousness [8], Penrose tried to search for sufficiently isolated relevant macroscopic quantum degrees of freedom in microtubular cytoskeletal structures of neurons (but not in out-of-body displaceable acupuncture system in altered and transitional states of consciousness, isolated enough to preserve their quantum coherence [1,2,14]), which was undergone to severe critiques in Tegmark's paper [22]).

According to author's biophysical quantum-holographic/quantum-relativistic model of consciousness [1,2], the similar objective reduction of the wave function might have quantum-gravitational origin in space-time microscopic wormhole tunnels of highly non-inertial microparticle interactions in quantum measurement-like situations (fully equivalent, according to Einstein's principle of equivalence, to strong gravitational fields – in which opening of wormholes is predicted [93,94]). The question how it is possible that these highly non-inertial microparticle processes with inevitable relativistic generation of microparticles' wormholes were not taken into account within quantum mechanics which is yet extremely accurate theory(?) – might be answered as they were(!), but implicitly within the *ad hoc* von Neumann's projection postulate [15] to account for quantum mechanical *wave packet collapse* in quantum measurement situations (implying also that von Neumann's *ad hoc* projection postulate is based on quantum gravitational phenomena, being on deeper physical level than nonrelativistic quantum mechanical ones!). On the other hand, non-locality of field-related collective consciousness [1,2], as a giant space-time associative neural network with distributed individual consciousnesses (mutually

interacting quantum-gravitationally in transitional states of individual consciousnesses [1,2]), might explain (apparently) instantaneous action in (nonlinear) quantum-gravitationally induced [8] and (non-locally) channeled collapse by field-related collective consciousness (and *seemingly paradoxical* non-locality of quantum entanglement in both space and time [95-101]), which can account for numerous nonlocal space-time transcending *transpersonal interactions* [102-119] (including most intriguing space-time quantum-entanglement-resembling retroactive intentional influences, reviewed in Ch. 11 of Ref. [111]).

6.3 Quantum-Holographic Macroscopic Aspects of Consciousness & Transpersonal Implications

Then, *transpersonal interactions* [63,102-119] might be interpreted [1,2,12-14] by *collapse-like consciousness-channeled quantum-gravitational tunneling* of operator's individual consciousness – mentally addressed on the target's content of collective consciousness in operator's (short-lasting highly-noninertial strongly-gravitation-equivalent) *transitional states of consciousness* – thus intentionally channeling composite state of the *field* of target-under-influence-of-operator part of collective consciousness, $|\Phi\rangle_S \rightarrow |\Phi_j\rangle_S$, and automatically influencing complementary *particle* output $|\Psi\rangle_E \rightarrow |\Psi_j\rangle_E$ in quantum-gravitationally-induced and consciousness-channeled collapse ($|\Phi\rangle_S |\Psi\rangle_E = \sum_i c_i |\Phi_i\rangle_S |\Psi_i\rangle_E \rightarrow |\Phi_j\rangle_S |\Psi_j\rangle_E$).

Having in mind very high efficiency of meridian (psycho)therapeutic *circular processes* [51], i.e. from all relevant mentally-addressed *meta-positions* of other persons involved in the treated trauma, this implies that these interactions of the trauma-related persons have quantum-gravitational-collapse-related *transpersonal origin* via miniature *wormhole* space-time tunnels in (highly-noninertial physically-equivalent-to strongly-gravitational) *transitional states of consciousness* of the related persons [1,2,12,13,17,18] (or so called *silver cord* of vital energy of the astral/mental body, *extrasensory observable* in altered states between heart, stomach or throat chakras of the interconnected persons; in African-Haitian *voodoo magic* the silver cord between the operator and the victim is intentionally created by visualization, while in Hawaiian *hooponopono tradition* the silver cord is cut by visualization thus removing traumatic emotional relationship – which otherwise naturally exists between mother and child, and spontaneously arises by intense exchange of the vital energy between relatives, close collaborators, actual or ex-lovers, friends and enemies, and can even persist *post mortem* between the alive and dead persons [1,2,17,18,35]).

Our theoretical investigations thus imply *real origin of esoteric notions* of various traditions of East and West [66,67] – and according to our elaborated theoretical relationship *consciousness/acupuncture* EM-ionic quantum-holographic Hopfield-like associative neural network [1,2,12-14], *esoteric notions* like *astral body* (*manomaya, lingasarira, manovijnana, ka, psyche, subtle body, psychic body, soul...*) and *mental body* (*vijnanamaya, suksmasarira, manas, ba, thymos, noetic body, spiritual body, spirit...*) [66,67] might be biophysically related to *out-of-body displaced part* (connected with the body by miniature *wormhole* tunnel of vital energy of the astral/mental body) *of the ionic acupuncture system*, and with embedded *EM component* of ionic MW ULF-modulated currents, respectively.

It should be pointed out that apart from the EM field (embedded into displacing part of ionic acupuncture system), subjected to strong inertial accelerations in transitional states of consciousness, via locally created wormhole must also tunnel displaced ionic structure [1,2] (in the form of EM/ionic quantum-holographic neural network, having the quantum sensory function in long-range interactions of this type, transcending space-time barriers). In esoteric literature these interactions are known as *astral projections* of consciousness, related to some paranormal *transpersonal phenomena* [63,102-119] (*mystical religious/out-of-body/near-death experiences, spiritual diagnosis/healing, extrasensory perception, telepathy, clairvoyance, psychometry, eidetic pictures, lucid dreams, synchronicity, precognition, retrognition...*), related presumably to relatively lower vital energies/weaker fields. This also provides explanation for transitional nature and difficult reproducibility of most of these phenomena in laboratory with non-trained persons [102,103] (as the conditions for them are spontaneously realized shortly every 1,5-2 hours, with periodicity of ultradian rhythms which govern interchange of normal and altered states of consciousness [1,2]).

It should be also noted that locally created *wormholes* might reveal the basis for explanation [1,2] of some paranormal *psychokinetic phenomena* [63,102,103,112] related to relatively higher vital energies/stronger fields. Namely, as wormholes are stabilized by so called *exotic matter* (vacuum fluctuations in strongly curved space-time of the wormhole tunnels) which pushes the wormhole's walls apart anti-gravitationally [93,94], this might account for some anti-gravitationally manifested psychokinetic phenomena [63,102,103,112] (*psychokinesis, levitation, poltergeist, mystery spots...*). On the other hand, the same mechanism which can achieve space-time tunnelling of displaced acupuncture ionic neural structure in paranormal transpersonal phenomena by virtue of relatively lower vital energies/weaker fields, provides also possibility for tunnelling more massive objects by using higher vital energies/stronger fields in transpersonally manifested psychokinetic phenomena [63,102,103,112] (*teleportation, materialization...*).

Note added in proof. Extraordinary psychokinetic (and healing) inborn abilities, vividly demonstrated recently by young Serbian boy whose breast is sticking metallic, plastic or glass objects weighted up to several kilograms (http://www.youtube.com/watch?v=faUJAgvvV_c), are supporting hereby revealed holistic quantum-holographic/quantum-gravitational theoretical framework for transpersonal, and particularly psychokinetic phenomena (in space-time transcending highly-noninertial strong-gravitation-equivalent transitional states of consciousness, based on locally created wormholes stabilized by so called exotic matter (vacuum fluctuations in strongly curved space-time of the wormhole tunnels) with anti-gravitational manifestations). This framework also suggests physical basis of von Neumann's *projection postulate* on micro-quantum scale, to account for quantum mechanical *wave packet collapse* (via locally quantum-gravitationally-induced wormholes in highly-noninertial strong-gravitation-equivalent quantum measurement-like situations).

6.4 Quantum-Holographic Macroscopic Aspects of Consciousness & Religious Implications

It should be pointed out, that in the context of *necessary conditions for decoherence* [120,121], defining of open quantum system and environment is – *simultaneous process* – so that in the context of universal validity of quantum mechanics consciousness is *relative concept*, non-locally also influenced by farther parts of existing observing universe (and *vice versa*) [122], simultaneously creating conditions for the process of decoherence in the context of *existing relative borderline*:

$$|\Phi\rangle_S |\Psi\rangle_E \equiv |(partial)individual/collective\ consciousness\rangle_S |(complementary)environment\rangle_E.$$

This is fully in accordance with the idea of *collective consciousness* as a possible *ontological property of the physical field itself* [1,2,12-14,17,29-35], with different micro-quantum and macro-quantum (both non-biological and biological, real and virtual) excitations. Then, as *cosmic collective consciousness*, coincident with the *field of Universe*, has its *complementary particle cosmic environment*, their strong-interaction-coupling affects *decoherence of the field of cosmic collective consciousness* into stationary *classically-reduced (observing) stochastic state*, with probabilities of realizations of corresponding classically-decoherent states of cosmic collective consciousness; on the other hand, *cosmic composite quantum state* $|\Phi\rangle_S |\Psi\rangle_E$ *evolves without collapse (due to absence of the complementary outside-cosmic environment!)*, which implies that *Universe as a whole is quantum hologram* subject to deterministic Schrödinger evolution [1,2,17,33,34]!

However, prayer-induced hypothetical macroscopic vacuum non-loaded spiritual excitations (whose exciting by prayers arises associations on *Holy Grace* as in-deterministic intervention in otherwise deterministic evolution of the quantum-holographic cosmic (and embedded human) History, which thus provides *essentially new boundary conditions*) might modify cosmic collective and thus cosmic composite quantum state $|\Phi'\rangle_S |\Psi'\rangle_E$, i.e. classically-reduced stochastic state of cosmic collective consciousness, so implying possibility of *prayer-optimized* [1,2,17,33,34] (most probable and energetically most convenient) *preferences of cosmic collective consciousness* (and conversely, on modification of the *cosmic-consciousness-observable* classically-reduced stochastic state of the complementary particle cosmic environment, implying possibility of *prayer-optimized preferences of future cosmic alternatives*).

From the above there appears that classically-reduced level is permanently emerging from and dissolving into quantum-holographic level, and this permanent pulsating is going on extremely fast, with observing Bohm's *explicate order* of classically-reduced mixtures of quantum-holographic reality *via* measuring devices/senses. On the other hand, non-stationary quantum-holographic reality of Bohm's *implicate order* of quantum superposition over product states of some complete set (i) of quantum system $|\Phi_i\rangle_S$ and complementary environment $|\Psi_i\rangle_E$ ($|\Phi(t)\rangle_S|\Psi(t)\rangle_E = \sum_i c_i |\Phi_i(t)\rangle_S |\Psi_i(t)\rangle_E$), might be observed *exclusively* in non-stationary quantum-coherent superpositions of states, characteristic of quantum-holographic creative-religious altered and transitional states of consciousness (individual $|\phi^k(t)\rangle_{S_k} = \sum_i c_{k_i} |\phi^{k_i}(t)\rangle_{S_k}$ or collective $|\Phi\rangle_S \sim \prod_k |\phi^k\rangle_{S_k} = \sum_i c_i |\Phi_i\rangle_S$). This viewpoint is close to experiences of many *shamanistic tribal traditions*, which consider that *genuine* (quantum-holographic) reality is represented by *dreams* [110,119], while (classically-reduced) awake state is lie/illusion (*maya*, as it is argued in *Eastern traditions* [66,64,71]).

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QUANTUM WILL BE THE MEDICINE OF TOMORROW AND IT WILL REVOLUTIONISE OUR LIVES!

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Abstract. Quantum medicine can be defined as a new medical direction, based on synthesis of all recent advances in quantum physics and the latest data on the deep nature of the living with the millennia experience of oriental medicine, or with the information-energy reality of a living substance. Quantum medicine is based on the use of energy quanta, i.e. small doses of electromagnetic radiation, for the purposes of diagnostics, treatment and prevention of many diseases, facilitating recovery of human health. In this case electromagnetic radiation is close to the natural level and intended to have a positive effect on functions of cells, tissues, organs, systems and whole organism. Although quantum medicine is at the initial stage, it promises revolution in majority of the methods to ensure human health in the near future. Through development of information-energy biologically compatible processes, quantum medicine might optimize all areas of healthcare.

Keywords: *quantum medicine, quantum diagnostics, quantum therapy, quantum prevention, future of quantum technologies*

1. Introduction

Illusion or magic for some, realistic and overwhelming for others, quantum physics upheavals mechanistic and rational materialism of our everyday routine.

We must however remember that nuclear fission was discovered by physicists in 1938 and that the atomic bomb was a "quantum invention" [1]... Is this an archaic utopia or more a sad reality?

Part of physics, chemistry, biology, cosmology and metaphysics, the quantum theory is bringing a true pacific revolution that will certainly influence future centuries.

S. Ortolì and J.-P. Pharabod in their book stated [1]: "The "wild", subversive and destructive theory of quantum physics destroyed the refined structure built up throughout the centuries by traditional science. Quantum physics sends us straight into the world of science fiction. Republican, Marxist, Islamic, and other revolutions may become insignificant one day when compared to the quantum revolution. Our socio-political structure and our way of thinking have been or will be even more disrupted than ever before!"

Victor Weisskopf, the renowned physicist and Schrodinger's assistant, confirmed [2]: "It is not the notion of uncertainty or Heisenberg's principle of indetermination that is at the heart of quantum physics, but that of identity, just like the "theory of absolute" (unfortunately called "theory of special and general relativity" stated by famous Einstein) is definitely a new conceptual framework that united mechanics, electrodynamics and gravity. It has brought forward a new perception of space and time, enabling us, for the first time, to formulate the laws of nature without referring to other systems of reference. In other words, in more precise terms, quantum physics allows us to give these laws a real meaning."

The *quantum theory* does not in no way change traditional mechanical laws (or physical laws) as far as body movement is concerned. This theory brings new light to the atom level and its components for which we had to create new kinds of formulations and adapt new thinking methods.

The quantum action concept was written in 1900 by Max Planck, however, it was not until 1913 that he could affirm that, "the quanta hypothesis brought forward the idea that in nature it underwent changes that were not carried out in a continuous way (according to the principles of the electromagnetic theory), but in an explosive way, in other words, a discontinued yet discreet manner."

Following the "field of physics" concept by Newton and Maxwell, quantum mechanics was developed in 1926 thanks to researchers Louis de Broglie, Niels Bohr, Wolfgang Pauli, Werner Heisenberg, Erwin Schrodinger and Paul Dirac [3]..

..."These physicists had the impression to suddenly be holding for the first time the keys to the universe!", Weisskopf wrote.

According to French professor Cannenpasse-Riffard who reveals to us through his work [4] the fullness of emptiness, the quantum theory approaches of the conscious and the physics of resonator systems: "Quantum mechanics is how matter and light behave in all their aspects, notably, all that happens on the atomic level."

According to a renowned theorist, who died in 1998, Richard Feynman, "On a very small scale, things do not act as waves nor as particles, nor clouds or pool table balls, or neither as weights on a rope nor as anything you have ever seen before."

2. Quanta and Photons Revolution

As we know, a "quantum" (in plural: "quanta") is a "seed", an elementary dose of energy emitted by an atom and, according to the definition by the English physicist Stephen Hawking, "Quantum is the undividable unity which can emit or absorb waves."

Quantum includes the two-sided nature of electrons, both particle-like and wave-like ... This may seem paradoxical but it is an atomic reality proven by de Broglie in 1923 and established in real quantum applications!

To this notion we add "the hierarchy of material systems" still dubbed "quantum scale" [2]: "The atoms identity prevails as long as it is not disturbed by quantum effects. A slight amount of energy, for example, is all that is needed to change the quantum state of a large molecule. A lot is needed to change the quantum state of the atom itself and hundreds of thousands of more energy to change the atomic nucleus. This enables us to come up with a quantum scale."

Light also reveals a double-sided nature as it is spread throughout space as a wave and concentrated in an infinite point as a particle.

Commonly known as a "seed of light", the "photon" is an elementary particle of light which is both an energy corpuscle and quantum whose flux makes up electromagnetic radiation. According to Hervé Dole [5] "Photons carry information on where they came from and what areas they have travelled through. The photon is a quantum object, vector of electromagnetic interaction. We can decompose light, which is very useful, as it reveals the chemical composition of matter! Each chemical element has a unique signature. It absorbs or emits just a specific family of energies and therefore photons."

This explains why we can use the expression "photonic medicine" or even the term "medecine superlumineuse" [6] according to the book title of professor Régis Dutheil and Brigitte Dutheil!

3. Towards Quantum Medicine or Photonic Medicine

As a result, quantum medicine is an approach which is not founded on the action of chemical substances within the body but on wave reactions or electromagnetic fields applied to the living organism to bring it back to a balanced state, still called "stable state". These reactions must take into consideration the entire biological nature of the patient and in particular his/her genetic predetermination, in other words his/her genetic make-up. Furthermore, "quantum medicine recognises fundamental interdependence between the spirit and body within all stages of life. It also considers the person's spiritual dimension as an inevitable aspect," according to Cannenpasse-Riffard [4].

This application corresponds to a quasi prophetic prediction by Erwin Schrodinger (one of the quantum mechanic founders) on the quantum theory of living matter.

"A human being should not consider his/her self to be matter driven by energy. It is energy that pre-exists matter and that orientates matter towards the vital phenomenon" confirms the Chinese scholar Lin Zhou.

It is important to underline that quantum medicine does not need great quantities of energy (as for the bistouri laser, for example) but only the emission of low level of energy and weak magnetic fields [7] via radiation [7] which are not perceived by the patient (no electrical currents nor heat is perceived).

It is not therefore an excitation or inhibition current that is applied to the organism but a "weak signal" which carries a certain type of energetic data. As a result, quantum medicine only reacts on an informational level on molecules and on cells and then via chain reactions interacting with the skin and the entire organism [8].

It is therefore possible to solely use an ultra-hertz energy emission of 1-3 electron volts (eV) during quantum therapy with a considerable positive influence on the organism and with immediate observable effects. In comparison, one must know that the bonding energy that makes up the atomic nucleus (association of protons and neutrons) is around a million electrons volts (MeV).

Russian scientists have been working on quantum medicine for over the last 20 years and quantum physics applications for man in Space and on Earth are as follows:

- laser emission of the optical frequencies range,
- emission of the ultrahigh frequencies range (millimetric waves) and of the hyper frequencies range (centimetric waves),
- emission of chromatic light in the visible frequencies range,
- electromagnetic emission of low frequencies,
- acoustic or oscillation emissions.

All these different wave emissions (still called oscillations) are specific to the being's physical state and are organically linked to the individual's vital activity process. Under certain conditions, these emissions can positively influence the living system's level of stability (biophotonic [9], a synergy of functions that fall within the "functional integration model" associating energies, information and substances).

4. What Kind of Information and Why?

The action mechanism for applications implemented by quantum medicine needs to study another field, that of genetics, to understand the reason for the efficiency and universality of the quantum revolution.

Firstly, we are going to tackle the biotechnologies problematic (genetic modifications and implants) and in particular the notion of cloning which we have often spoken about following the cloning of the famous Scottish sheep called Dolly. Cloning is the artificial reproduction of a living being, a carbon copy made from one living cell. What is the point for an individual to clone one or several carbon copies of one's own identity (and surely not with the same personality)? Like a machine with spare parts? This possible mechanical and surgical solution does, by no means, answer life's everyday questions!

What mainly interests us is the answer to the question itself. How can an original cell maintain all information on the adult copy of Dolly? What colour will its wool be, its eyes? How will it behave and interact with its congeners? The questions we can ask ourselves on how an individual relates to oneself and to one's surrounding environment are endless! Where is all this information stored?

Certain researchers calculated that in a gamete germ cell, for a chromosomal structure of a millimetre in length, if we compare the volume of genetic information in this cell to that of a computer, it would be equivalent to 5-7 times the distance from the Earth to the Sun!

These studies lead to a very important conclusion: The development of an adult gamete germ cell cannot be preserved and transferred solely on a cellular level. The cell's physical and chemical resources, in other words the cells matter potentialities are not sufficient enough to store the large quantities of information.

Therefore we can ask ourselves a question: Where is this genetic information stored? Where is this huge database that creates man from a foetus and which turns a simple sheep cell into a living sheep and an apple seed into an apple tree?

Furthermore, it is necessary to underline not only the colossal amount of genetic information but also the

prodigious reliable degree of storage and transmission or restoration of this type of information! The modification or the loss of one of these genetic unities can lead to death or disease of the entire organism. We all have in mind the obvious cancer process in which cell multiplication is modified although it has been genetically programmed...

5. Programme or Hologram?

The latest research shows that genetic inheritance (genetic code) is not only preserved as a biochemical gene substance but also in the form of a "field structure" or "quantum structure". This structure is nothing more than a quantum structure that carries genetic information and which is organised in a hologram form [8].

However the hologram has a prodigious and exceptional quality: Each of its parts contains information on the entity. We can therefore understand the reasons why the cell carries such information [10].

To create a hologram and to keep it going, we must have a source of coherent light (coherent radiation such as laser)! Where this light can be found in the living cell, this source of emission? The Russian scholars Gourvitch, Lubitchev, Beclémichev and Gariaev managed to prove that certain molecules, such as DNA, function according to the principle of coherent light emissions.

Apart from their goal to preserve genetic inheritance, all cells are able to transmit, to process like a computer, and even restore lost details – not forgetting the cells primary capacity which is to create a memorised development programme by strictly applying the energetic-informational transformations programmed sequence in a specific time and place (Space travels are inspired by this!).

Nowadays, a lot of researchers manage to recognise that chromosomes use emissions from the UHF and HF range (ultra-high and hyper-frequencies), laser light spectrum and acoustic fields for transmissions, processing and restoring of biological information.

6. Question of Nature's Memory Capacity or Quantum Image?

Experiments by American researchers on aura illustrate the cognitive and memory capacity of the living tissues for the organism where they originated from. For example, we cut off a part of a leaf from a healthy and entire leaf that came from a healthy plant. Then we took photos of this partially amputated leaf using very sensitive apparatuses capable of detecting the UHF frequency fields as well as laser, acoustic, and other electromagnetic fields. To researcher's surprise, they could observe an image of the entire plant on synthesised photography! ... How was the part of the amputated leaf reconstructed on the photo, as it was materially absent?

This means that the remaining leaf cells have a memory capacity – as a structured electromagnetic field – of the quantum image of the entire organism where they came from and which was made by nature.

7. Heading towards Quantum Medicine

We can define quantum medicine [4] as *a new medical application based on the synthesis of all quantum physics achievements [3], by adding the latest information on the profound nature of the living being with the millennium experience on Oriental medicine or on a living being's energetic reality.*

Quantum medicine is therefore based on the usage of energy quanta, in other words, small doses of electromagnetic radiations, for diagnostic purposes, for individual health prevention and restoration. In order to do so, we use electromagnetic action involving factors similar to those in nature, which have a positive influence on the system's cells, tissues, organs as well as the entire individual.

It is important to note that the low power levels of energetic action used in quantum medicine is entirely harmless. The method consists of re-establishing the abnormal functioning, in other words, the information linked to the disease, to regain a balanced energetic state, commonly know as a healthy state. This can be explained by the fact that quantum action uses the organism hidden adaptation capacities both on a cell level as well as on the living system level. This action quickly increases the organism's immunity levels and activates the body's defence mechanisms to build a robust resistance against functioning gaps (alterations).

Therefore, Yuri Kheifets, a Russian doctor and practitioner and quantum medicine researcher at the Energetic Institute in Moscow, gives this definition [11]: *"Good health lies within the harmonic energetic information relationships between an individual (the subject) and Nature (the object). This harmony is expressed by the organism's homeostasis process on a physical, mental and spiritual level"*.

The homeostasis process can be considered to be an optimal process for self-regulation, self-defence and self-curing mechanisms of the living organism, in other words, an active health process of the entire person.

Quantum medicine is based on the fact that all biological processes linked to vital living organism activity, have a unique representation in the electromagnetic information field structure. This structure can be found both inside as well as outside the organism.

8. Using Quantum Diagnosis

Quantum diagnosis is based on the observation that the energetic information parameters of the organism characterise – in a precise, concrete and reproducible manner – the functional state of the entire organism and its different parts: Organs and isolated linking systems (germ layers, metabolic activity ...). By recording the micro-electric parameters, corresponding to internal functioning structures, on the patient's skin, we cannot only observe the parameters of a disease but also how the disease progresses and utmost we can precisely evaluate the patient's potential disease predispositions. This is how we monitor astronauts' health status on a regular basis! This new "health check-up" offers an extra advantage: recorded digital data can be sent via satellite anywhere in the world and this new technique is called "telemedicine"...

9. For Quantum Therapy

Quantum therapy uses all types of biological and ecologically-pure radiation to re-establish the electromagnetic information that has been altered by the disease, bringing this field back to a stable state. In order to do so, the electromagnetic emissions used are in harmony with the energetic information process of the living organism.

The fields of quantum therapeutic application in human and veterinary medicine are as numerous as medical specialities such as cardiology, pulmonology, surgery, traumatology, gastroenterology, gynaecology, urology, stomatology, dermatology, ophthalmology, neurology, rheumatology, cosmetology and more. And numerous medical statistics confirm the efficiency of these treatments and have validated the results.

To date, the application field for quantum medicine is continually expanding and advanced research is being carried out in Russia for diseases such as: oncologist sicknesses (tumours), radiation sickness, HIV, certain cardiovascular sicknesses, sterility, alopecia, renal calculi, infant cerebral palsy, bronchial asthma, urinary incontinence, etc.

10. With Quantum Prophylaxis

Experiences show the importance of quantum technological applications as a preventive method, such as during allergy seasons or during epidemics. It is possible to use prophylactic cures for 3 to 5 days during 5 to 10 minutes per day.

Reliable Russian statistics show that the number of disease cases decrease by 4 to 5 times depending on the type of disease and the time of cure application. The same process is used both for quantum prophylaxis as well as for quantum therapy.

Quantum prophylaxis is also regularly used in sport and cosmonautic medicine fields, for preparing competitions and spatial flights.

A recent series of scientific publications showed that the use of quantum prophylactic technologies with 2-3 cures a year would prolong human life for 7-12 years!

11. Quantum Regeneration

The importance of quantum regeneration – still dubbed, recovery or rehabilitation – was underlined in many cases: recovery and post-operative scarring acceleration (following complex and major operations), and recovery following chemotherapy and/or radiotherapy. Recovery time can be 2 to three times quicker than normal.

We can quote the example of the Russian President, Boris Eltsine, whose quick two-week recovery after a triple bypass at the end of 1996 stunned the entire world!

12. Future for Quantum Applications

Quantum medicine applications are still very new and they have not yet gained entire public recognition. However, the rate at which quantum therapeutic technologies are progressing seems to greatly exceed all other forms of widespread medical technologies worldwide.

Quantum therapy's efficiency, coupled with its universal aspect as well as its ecological aspects (harmless and painless), with no iatrogenic effect nor any medicine addiction, represents a great advantage for the future health of populations. Furthermore, the cost of treatments, with an application recommended in more than 200 different symptomatic diseases [12-14], is low and avoids having to operate in certain cases such as calculi, gastric or varicose ulcers, prostate adenoma and fibromas...

Current studies affirm that quantum technologies will soon be used for prophylaxis and for treating diseases such as: auto-immunes pathologies, diabetes, cancerous tumours, atherosclerosis, epilepsy, schizophrenia, etc.

Current studies on how electromagnetic radiation affects genetic structures (DNA), species memory mechanism and genetic information systems, could lead to human organ regeneration on accident-lost, deformed or amputated organs, such as teeth, eyes, fingers, arms, legs, or liver. Taking as an example, worms, slugs and lizards have kept their natural capacity to restore lost organs or functions.

Rather than opting for a surgical implant which would justify all organ fabrication biotechnologies (via genetic manipulation, cloning or other methods), the Russian scholars make it a point of honour to find the key to quantum bio-regeneration of organs and other applications to determine human health in the future.

13. Conclusion

"Quantum medicine" still remains an unknown field. It is liable to revolutionise most investigation and care methods in the near future. With progress made in entirely biocompatible energetic processes [15], without having to carry out genetic manipulations or vaccines, quantum medicine will optimise all health fields by giving creation back its real meaning given by life!

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MODERN SITUATION AND PERSPECTIVES OF ELECTROPUNCTURAL DIAGNOSTICS AND BIORESONANCE THERAPY

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Abstract. More than 30 years ago Dr. F. Morel introduced a bright idea of the bioresonance therapy. Since that time we observe development of several directions of technical implementation of this idea as well as clinical application of the equipment. It should be noted that bioresonance therapy, homeopathy and electropunctural diagnostics methods are officially approved by Ministry of Healthcare of the Russian Federation. All that gave the chance for both fast and deep, accompanied by fundamental research, development of diagnostic and therapeutic methods based on integration of empiric conceptions and heuristic models of classical acupuncture, homeopathy, physiology, chronopathology, with support of electronic hardware. Medical educational institutions offer post-graduate retraining courses covering all methods of traditional medicine. Such favorable situation gave rise to development of domestic producers of equipment for bioresonance therapy and electropunctural diagnostics and therapy, for example Center of Intellectual Medical Systems IMEDIS, which produces all range of mentioned equipment. In Russia method of bioresonance therapy gained wide distribution thanks to researches and developments conducted by Center of Intellectual Medical Systems IMEDIS directed by Yu. V. Gotovskiy. First experimental works on development of bioresonance therapy were done in middle of 1980ies by the collective of developers of diagnostic and therapeutic equipment later formed as Center IMEDIS. In 1994 apparatus for bioresonance therapy IMEDIS-BRT for the first time was approved for production and application in medical practice in Russian Federation, and in 2000 Ministry of Healthcare of the RF approved methodical recommendations for bioresonance therapy. Conception of endogenous adaptive bioresonance therapy formulated and developed by Yu.V. Gotovskiy, based on meridional systematic approach to therapy of various diseases, is realized in equipment produced by Center IMEDIS. Along with creation of diagnostic and therapeutic equipment, collective of Center IMEDIS worked out principally new methodic approaches to application of bioresonance therapy for treatment of various pathologies as well as rehabilitations and sports medicine. The results of such work are used by Center IMEDIS for scientific research, development of educational packages for post degree training of medical doctors, and methodic recommendations. Bioresonance therapy is developing on the basis of experimental and clinical backgrounds at the modern level of knowledge. For example, one of the first researches in the area of bioresonance therapy in Russian Federation was the article of Prof. B. I. Islamov, entitled “BRT as method of non-pathogenic induction of protein synthesis in human blood lymphocytes”, published in 1995 in Reports of Russian Academy of Sciences, where it was shown that BRT restores synthesis of heat shock albumens in patients with stomach ulcerous disease, polyarthritis, spinal osteochondrosis, and that heat shock proteins responsible for development of autoimmune processes are also raised, e.g. an affect of similia is observed. During last 15 years a huge scientific research and practical work on application of the bioresonance therapy in clinical practice was done. Books, practical guidances, methodical recommendations, and articles in profile magazines were published. And candidate and doctorate works were fulfilled. Up to date results of experimental and clinical work will be presented during report.

Keywords: *Center IMEDIS, electropunctural diagnostics, bioresonance therapy*

**APPLICATION OF ELECTROPHOTON CAPTURE (EPC) ANALYSIS BASED ON
GAS DISCHARGE VISUALIZATION (GDV) TECHNIQUE IN MEDICINE:
A SYSTEMATIC REVIEW**

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Abstract. We present the literature search regarding ElectroPhoton Capture (EPC) analysis based on the Gas Discharge Visualization (GDV) technique in conventional medicine, psycho-physiology, alternative medicine and research studies. Systematic review has revealed that EPC/GDV method is being used in many different applications in these fields of study and shows excellent or very good results, having already found diverse correlations between EPC/GDV parameters and various medical, psychological and physiological parameters in humans. The investigations showed that the GDV-method delivers valuable holistic diagnostic information on the functional state of patients, allows monitoring their state and constitutes a convenient and easy holistic method for conducting preventive examinations of individuals, professional training and control in various areas of application.

Keywords: *ElectroPhoton Capture (EPC) analysis, Gas Discharge Visualization (GDV) technique, holistic diagnostics, literature search, systematic review*

1. Introduction

The gas discharge visualization (GDV) camera is based on the well-known Kirlian effect¹ and utilizes modern optics, electronics, and computer processing for analyzing weak photon emission from diverse subjects stimulated by a pulsed electromagnetic field. The first GDV camera was made in 1995. Since that time, the Russian company Kirlionics Technologies International (KTI) has produced hundreds of such cameras and developed new designs. There are various different types of devices based on GDV technique currently available from KTI. GDV cameras are being used in 63 countries around the world. The GDV electrophoton capture (EPC) method can be judged as an express method because it takes only 1–5 minutes to take images of 10 fingers, around 1 minute to calculate parameters of GDV images, and not more than 15 minutes to display and interpret obtained results.

The GDV-camera has a Russian Certificate of Conformance as a medical device. The name electrophoton Imaging (EPI) has appeared only recently, to describe the technique more directly. This technique is becoming very popular in alternative medicine and in a wide range of scientific applications (e.g., research on water, various materials, diverse research in agriculture and biology, etc.). 2–8 Simultaneously with these applications, the EPC technique has also been used in conventional medicine and in psychophysiological applications. This systematic review examines applications of EPC in conventional and alternative medicine, and psychophysiological practice.

This medical technique offers the following advantages:

- screening evaluation of the psychophysiological state and functional activity of an individual;
- noninvasiveness, safety, and complete sterility of the technique;
- assessment of anxiety and stress levels;
- quantitative information on the energy homeostasis level, both for the organism as a whole and for specific functional systems;
- monitoring an individual's reaction to various treatment procedures, allopathic and homeopathic medicines, and mild or subtle informational influences;
- possibility of tracking the evolution of various processes in time and comparing structural, functional, and time processes that take place in the organism;
- objective information, independent from the preferences and experience of the user;
- simplicity and convenience: absence of any particular requirements for the room, the environmental conditions, or the qualification of the personnel; during the investigation of an individual's state, measurements are taken only from the fingers and toes;
- clear and easily interpreted results, easy data storage and processing;
- relatively low cost of the equipment and procedures.

This review shows that the advantages listed are serious considerations when choosing medical techniques. The GDV technique is becoming widespread in alternative and conventional medicine.

Paper selection

The literature search yielded 132 sources published in peer-reviewed journal articles, theses, monographs, study aids, and proceedings of scientific conferences during the years 2003-2008, each using the gas discharge visualization method in medico-biological and psycho-physiological investigations. From all of the papers that were found, we selected only those related to medicine and psychology. Papers were also excluded if they did not represent original data or an analysis of original data (excluding commentaries, editorials, or expert opinion pieces); or if they are descriptive surveys.

Evaluation procedures

Papers were classified as follows:

- RCT: studies using random assignment to treatment group and making between-group comparisons of an intervention and a comparison treatment to evaluate efficacy. This includes studies using placebo or sham comparison groups as well as those using comparisons of different treatments.
- Systematic research report: papers that correspond to and observe some research over a long period of time by one group in a concrete field of study.
- Cohort and case control: large observational studies examining risk factors or prognostic factors.
- Other controlled studies:
- Pilot studies: small randomized or nonrandomized studies for the explicit purpose of developing protocols or feasibility, not evaluating efficacy; or studies that were defined by their authors as "pilot studies";
- Quasi-experimental: nonrandomized studies with two or more treatment groups;
- Single group interventions: pre-experimental studies performed under controlled conditions;
- Other small experimental studies of various designs.
- Case series: papers reporting more than 2 cases observed in clinical practice.
- Case reports: papers reporting 1-2 cases observed in clinical practice.

Quality rating

The examination of the discovered data determined the range of issues to be discussed: search for data with scientific foundations; decision-making concerning the inclusion of certain data into the meta-analysis; description of the characteristics of the original RCTs; results obtained in each RCT; analysis of the obtained data.

All RCTs were evaluated for quality using the Scottish Intercollegiate Guidelines Network (SIGN) and Jadad checklists. The SIGN checklist rates studies as high quality (+), low quality (-), or neutral (0). Three coauthors independently rated each study. Differences in opinions and rates were resolved by discussion. The Jadad scale rates studies on a scale of 0-5.

2. Results

The search yielded a total of 132 papers. Applying the exclusion criteria reduced the collection to 75 papers, as detailed in Figure 1. Table 1 summarizes the literature by field of study and type of paper. There were 19 RCTs in three of four chosen study fields. Thirteen of them were rated high in both standard checklists.

Table 1. Summary of papers

Field of study and reference	Type of paper						Total
	RCT	SRR	CO	Other ^a	CS	CR	
Clinical studies ¹¹⁻⁴²	10	11	6	1	1	3	32
Psycho-physiology ⁴³⁻⁶⁰	4	7	3	1	2	1	18
Alternative medicine ^{5,61-78}	5	2	4	1	6	1	19
Research ⁷⁹⁻⁸⁴	0	2	0	0	4	0	6
Total:	19	22	13	3	13	5	75

^a Includes pilot studies, quasi-experimental (nonrandomized) designs, single-group interventions and other small experimental or pre-experimental designs.

RCT - randomized controlled trial; SRR - systematic research report; CO - cohort study; CS - case series; CR - case report.

Clinical studies

Considering the results of all studies listed below, we can conclude that the GDV method or EPC technique can be used in diverse applications in conventional medicine, e.g. preventive assessment of allergic reaction risk, investigation of infectious pathologies, detecting different pathologic processes, anaesthesiology and reanimatology, assessment of hirudotherapy effects, monitoring the functional state of patients in postoperative period, and others. The GDV method has shown that it can be implemented as a very rapid express-method for assessments of treatment procedure effectiveness.

Psycho-physiology

Results in the psycho-physiological field of study show many different significant correlations between psycho-physiological parameters and parameters of GDV-grams, i.e. processes in the autonomic nervous system, anxiety, neuroticism, functional reserve capacity, emotional and nervous excitation. These results show that the GDV method is a very useful and quick (express) technique for evaluating emotional and physical conditions in human beings.

Alternative medicine

In alternative medicine the GDV technique can be used as an express-method for evaluating impact from various treatment procedures. Numerous correlations were found during these researches between GDV parameters and the patients' states after treatment procedures.

Research

This field of study shows that the GDV method can be applied almost everywhere humans are and in whatever they do. These two examples show that such human activities as polar expeditions and alcohol drinking are not exceptions from the large field of applications of EPC technique, and that there are significant correlations in these fields.

3. Discussion

There are several limitations to this study. First, the number of the studies based on EPC/GDV technique in medicine and psycho-physiology is relatively small, and the quality of presentations is generally not high. The number of all studies based on the GDV technique is not large, because this technique is comparatively young in the scientific world. Our literature search was limited to Russian and English papers. It is possible that some studies were missed because they were not presented during the last 5 years. Despite its young age, the EPC/GDV technique shows very good results in the surveyed fields of study and becomes more and more popular every year. Another limitation is the possibility of bias in evaluating the studies. We attempted to avoid this bias by using accepted checklists.

4. Conclusions

We have made several conclusions regarding EPC analysis based on the GDV technique in conventional medicine, psycho-physiology, alternative medicine and research studies.

1. Systematic review has revealed that EPC/GDV method is being used in many different applications in these fields of study and shows excellent or very good results.

2. Researchers have already found diverse correlations between EPC/GDV parameters and various medical, psychological and physiological parameters in humans. And they continue their researches with an aim to find other correlations.

3. The software and equipment EPC/GDV-complex is a convenient and easy to use device, which allows examining patients with various pathologies and, therefore, offers a wide range of applications. The GDV method has already shown itself to be a rapid express-method for evaluating the human organism's psycho-physiological state and trait.

4. The investigations showed that the GDV-method delivers valuable diagnostic information on the functional state of patients, allows monitoring their state and constitutes a convenient and easy method for conducting preventive examinations of individuals, professional training and control in various areas of application.

5. All RCTs reviewed suggest the GDV method as a prospective and effective method for different nosological and psycho-physiological applications and investigations.

6. There are no negative or undesirable characteristics identified for the GDV method in all reviewed papers, also there are no contraindications to application of the EPC technique.

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QUANTUM-HOLOGRAPHIC ENERGY SYSTEM & RESONANCE BIOFEEDBACK

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Abstract. According to the recent theory by professor Dejan Rakovic, the human mind-body system is constructed in such a manner as to produce vibratory electromagnetic energy patterns that add up to a holographic field that can be described by quantum mechanical formalism. This is also in accord with practical experience of the author who for 10 years has used electro-acupuncture and resonance-biofeedback to diagnose and treat diseases. Our technical equipment shows us that the information system of the human body is arranged as a hierarchical holographic system that is reflected in the electrical activity of the meridians and in frequency patterns in organs and tissues. This paper investigates an important aspect of the quantum holographic information system: the self-regulatory, quantum level, vibratory signals-system known as the meridians. It also investigates their fractal nature known as the ECIWO principle (Embryo Contained in the Whole Organism). The quantum nature of the system is reflected in the fact that the human bio-energy system reacts to ultra weak energies either taken from the body itself that are weaker than the -120dB noise-level of our technical equipment; and from radiation from substances and homoeopathic dilutions!

Keywords: *quantum-holographic body-mind energy system, ECIWO, resonance biofeedback, energy medicine*

“Make beliefs into known“

Robert Monroe,
Founder of Hemisync Technologies, USA

PART I: HUMAN BIORESONANCE ENERGY SYSTEM

1. All Medicine is Energy Medicine

The year 2000 I started a 10 year long project, called: The most efficient way to heal. The reason was that I myself was sick and had little hope to ever get well again. My project was therefore based on pure self interest plus competing against time; if not finding a way to better health my days as a MD would soon be over.

Having scanned most books on conventional medicine in my library my eyes fell upon the work of professor Hans Selye, Dr. John C Lowe, Dr. Broda Barnes, and Dr. Paul Eck. Their common interest was: How is biological energy produced in the cells and controlled by the neuro-hormonal system, called The Grand Adaptive System (GAS).

The end product of the GAS is controlling how the cells convert fat, glucoses and proteins into energy. And energy in question is the capturing of high energy electrons bound to these substances. In the Mitochondria inside the cells these electrons are ripped off in the respiratory chain called the Cytochrome chain by the use of Oxygen. The high energy electrons are then transferred to Phosphorus and then sent to each part of the cell as ATP for use by enzymes that runs the chemical processes! This leads to observation:

I: Metabolism is converting material substances into electrical energy.

Since electrons in movement produce magnetism this leads to second fact of life:

II: Biological energy is (also) electromagnetic.

Both observations are substantiated by scientific measurements. All living cells are surrounded by a measurable time changing electromagnetic field; in other words a radiating electromagnetic field obeying the field equations of Maxwell. The question is: Is there more to this field? Yes of course, frequencies.

The concept of frequencies to be discussed is a much complicated topic. As always what we observe is the interaction between a field and a technical instrument of some sort. If for instance we use photon-multipliers such as in the experiments of professor Popp back in the 1960ies, we transform a narrow band of the field into electrical current by the photo-electric effect. We will then recognize light, photons. Popp did this and discovered that there is coherent emission of photons in the vine red part of the spectrum (ca 630 nm).

2. The Idea of Energy as Information

However trying to analyze the field otherwise has proved frustrating! Except for rather strong fields around muscles, heart, nerves and brain giving rise to so called Action Potentials in the skin, measuring the information bearing unites of the field frequencies by attaching antennas to the body and sending signals to a amplifier and then to an oscilloscope has proved nothing but “noise”. That is random frequencies with equal probability of appearing on the screen, thus carrying very little “information” [1].

This does not mean that the information we can detect in the field (apart from the macroscopic signals as picked up by EKG etc) is thermal noise, it only means that thermal noise from random movement of atoms is far stronger than that of the information bearing signals generated by the sum of living cells and carried through the channels to the skin where they are picked up. Effort to extract such weak signals in noise is according to Kennedy and Chung possible with digital, nonlinear filtering [2]; however, understanding their biological meaning is something else, the same goes for implication of their methods into commercial technical instruments!

For my part, the instruments, amplifiers and scopes I have access, are not implementing Chung and Kennedy`s algorithms. They are simpler tools with a -120 dB signal to noise ratio which only means, whatever field signals are, they are more than -120 dB weaker than thermal noise of our instruments. Either these signals are as Chung and Kennedy assume variations in the noise levels like: Amplitude modulated noise where amplitude is the signal: They could be sudden spikes hidden in the signal, or they could be frequency modulated signals, even going beyond that as will be seen later on. For the moment enough to say:

III: Bioenergy field contains information with field-vectors that are extremely weak, most of the activity happens at signal strength weaker than thermal noise in most advanced technical equipment of the commercial market.

3. Abrams Principle

There is however a simpler path around the problem: In early 20th century Dr. Albert Abrams in California discovered that the human body can react with involuntary muscle to the extreme weak fields of biological tissues. By simply taking a suspension of bacteria in a glass vial and holding it close to the body, Abrams observes muscle contractions in the abdominal muscles of subject if these bacteria were already in the patient [3]! If not the body would not recognize them as a possible danger. The startling discovery lead to the theory that the human body is surrounded and permeated by an invisible ultra weak energy field that reacts to emissions from objects; living or dead. In accord with the vocabulary of the epoch, “etheric“ was adopted to the dismay of materialistic medicine of that time, where the knowledge of the language of physics were at an absolute zero [4].

The discovery of Abrams was soon forgotten and stamped quackery by medicine men of the day [5]; except for a small community of researchers who despite ridicule continued to investigate the etheric energies, or simply the human energy field (HEF).

Later on users of the Abrams method left the problematic percussion of tensions in the abdominal muscles arising when in contact with a toxic substance and moved over to radesthesia using a pendulum, moving due to involuntary actions of the hand of the practitioner [6]. By doing so Abrams method moved into borderland science. However, ridicule put aside, the Horder Commision [7] in 1925 put the method to the test by giving a

certain practitioner W. E. Boyd a number of patients to be tested. The commission declared that the results were a great success. Chance of results being pure accident and concussions of the mind was judged 1 / 333 554 432, and later published in the prestigious British Medical Journal [8]! The following year a sceptic out to disclose quackery; Dr. E. J. Dingwall had to admit defeat; neither he nor Lord Horder could disclaim Boyd and the Abraham method as quackery, a sad fact for those who hate research into energy phenomena.

Iva: The field reacts to similar weak signals from substances if these signals have a biological meaning for the survival of the organism. A condition seems to be that the organism must have had contact with the field of the substance beforehand and thus has a memory of its effect on itself.

Out of curiosity I bought a later day version of Abrams books and equipment made by a certain inventor, author and researcher Bruce Copen, PhD, from England with whom I exchanged letters for some time [9]. We agreed the best way around was to buy equipment and test it on volunteers. After some weeks I could produce diagnosis that could later be verified by conventional medicine; however, being a MD in a small town where prejudice is flourishing, lead me to put the method aside for some future research. Compared to sceptics and non-believers, I hold my own investigating attitude more scientific than just rejecting a discovery. First hand experience is what makes us better scientists.

4. Voll Unknowingly Verifies Abrams Principle

Sometime later a German neurologist Reinhard Voll from Munich, also trained in acupuncture and the controversial art of homeopathy, stumbled upon the Abrahams phenomena in a different manner. According to the lore he had a patient Werner in his office and measured the electrical activity in the acupuncture points on the finger; a method later adopted by Russian space agency medicine for testing astronauts health, marketed later on the name Prognos.

As Voll tested Mr. Werner, he noticed that all the so called endpoints, known to reflect the energy flow in the meridian system, suddenly became normal despite Werner's ill health, the very moment Werner put on his jacket. Taking on the jacket the end point values normalized! The mystery was solved by the fact that Werner carried his medicines in one of the pockets on his jacket! The energy radiation effect was rediscovered again, by chance and some luck. Only this time a serious medicine man had a tool for observing energy fluctuations in the body far more advanced than the primitive method of Abrahams, still yielding results in hands of a trained MD!

Summing up years of experience Voll and colleges in the electro-acupuncture trade came to the following observations concerning what we in this lecture have called the "field", the sum of all energies arranged in a hologram as expressed by professor Dejan Rakovic [10].

Let us say: If a person has a disease of a certain organ that has been caused by a substance X, this may be detected as described below:

- The endpoint of the meridian belonging to that organ or any other structure supporting the organ will show a non-normal reading on the GSR-meter, hereafter called an acupuncture-meter such as Acucheck from Holimed.
- When substance X is brought in contact with the patients's body; certain endpoints of totally normal meridian-points will start to show instability called "zeigerabfall"; the electrical resistance starts to increase and the voltage drops!
- If the substance X is put in a metal box made of copper or similar and connected to the patient through a wire the same results appear. The field remembers the substance X radiation /field energy as harmful!
- But now: if the same signal taken from X is fed through a phase inversion filter, "mirrored" and fed to the body, the previously abnormal readings turn normal as if the field is put back in order. All that was needed was to feed the field the inverted signals from X into one single point of the human body and that minute signal normalized the field and thus the human energy, at least as long as contact lasts!

IVb: The field reactions to a meaningful signal from a substance or a source (of any kind) is immediately reflected in the electromagnetic activity of the meridians.

This means, the field inside the body has a sort of memory of what has happened. How this can come about is to be speculated upon; but we know crystals has such nature and according to research by numerous biophysicists the human cellular system behaves like a super crystalline structure. This research is already beyond the speculation stage.

The explanation for this will be given later on. I want the reader to focus on one simple fact: The field has memory and acts on input in a meaningful manner which is precisely the nature of consciousness! As will be explained later on, consciousness is thus not what is going on inside the brain; more the brain is the interpreter of what is coming through our senses and what going on in the field. But because average person is not trained to convert field signals to social consciousness, 99.99% of people seem to be ignorant of field input, whereas people who are more sensitive utilize the field information on daily basis and are termed “special”, “psychic” or “gifted”.

5. Exploring Field with Resonance Biofeedback

This method /technology was discovered in late 1970ies by engineer Erik Rasche and Dr. Fritz Morell [11]. Morell later broke with Rache and teamed up with Brugeman, making his own equipment under the brand BICOM. Members of the Church of Scientology to which Morell subscribed, today owns the company. The third company to utilize the same principle is Holimed, established by Peter Barski and Wolfgang Bialas.

All three companies use the same method, based on the original MORA method: Taking energy from the human energy field by antennas made of brass, copper and gold, and sending back the energy to the field by antennas or even small probes held to acupuncture points. Doing so one can measure alterations in the field, acupuncture points and even the chemical composition of the blood . What kind of alterations/response depends upon what kind of signals (information) is extracted from the whole field.

This is done in technical terms by manipulating information from the whole field by use of amplifiers and filters. Reactions can be tuned as to exhibit the effects observed when people take therapies of any other type (none mentioned to avoid making the lecture too long). To achieve these effects known as Resonance Feedback or Bio Resonance Therapy one must utilize hardware such as:

- Linear Amplifiers with a certain bandwidth. The first feedback amplifiers from MORA and BICOM had bandwidth of 100 kHz, improving over the years. However the state of the art that we now use, Holimed Remiwave Pro, has 1MHz bandwidth which is 4 times better than what is commonly used.
- Use of frequency windows by application of filters: low pass, high pass, band pass.
- Stable or sweeping band pass filters.
- Wobbling band pass.
- Pulsed or stable output from amplifiers to human body.

Adding up 34 years of Bio-feedback according to the MORA protocol, the community of practitioners now know:

V: The Sciences of biofeedback has so far charted biological meaningful frequency windows (transmitting noise + embedded biological signals) within the field ranging from 0 Hz to the photonic level. These windows are open for the correct combination of frequency and amplitude [12].

All these frequencies seem to arise within the material generator of the material human body. We say “seem” because there are field observations that go beyond mere materialism [13]. According to German theoretical physicist B. Heim these extra-material phenomena are projections into the 4th dimension (space-time) of energy phenomena taking place in higher dimensionalities of existence [14]. Heim called these higher energy-realms the organisation realms, the information realms and the G4 realm; realm of pure ideas. The fundamentals of these realms are today mathematically described by Heim and his students.

6. Eddies and Densities of Field

Because the body generates the field, various parts of the field has varied frequency patterns and field-strength. The strongest field strength is found over the heart, a much weaker but still significantly strong field is found around the head, the 7 locations [15] of the glands, the hands and the feet. Scientific data also show that these fields have identifiable signal patterns typical for their structure. This makes scientific methods like EKG and EEG possible.

VI: Various parts of the body generate their own field strength and frequency patterns (Adey windows), that adds to the total field. They can be influenced by information using the same Adey window in which they send.

These frequency patterns, strength plus frequency composition in space and time, that is in 4-dimensions, in other words their topology contains unique information of the biological processes and the function of each part. Experiment to prove this:

If we by an antenna pick up a part of the field, over the body surface, filter this and send these signals back to the whole body by the method of Resonance-feedback, the whole field reacts in a way that seems to promote healing/normalisation of that body part. We may also do the opposite, information from the whole field may be picked up from a hand, then filtered and certain signals unique from the heart may be extracted from the whole field information, and fed to example given: The heart for healing. Such experiences from Resonance-Feedback show that each organ/body part adds something unique to the whole field, and that these unique qualities may be isolated from the field and fed back to the body part we like, by proper filtering techniques.

VII: The whole field contains the sum of all parts, and each small part of information is to be found at any part of the field. This means: Each singular part is permeated by all the information of all the parts plus the part it generates itself.

Since this is a practical experience by practitioners, we may deduct that each part has all the vibrations of the field, but is only using a part of it and thus react to only a part of Adey Windows [16].

7. Information Lost Due to Crudeness

In nature electromagnetic frequency patterns we in our technical equipment reduce to the term signals, have a deeper meaning. Ordinary medicine, which is a more primitive version of advanced science puts no importance on the human bio-field except as a tool for deducting some simple information from the heart (EKG), the brain (EEG), the muscles (EMG) and nerves (Neurography). The only real utilisation of the field in medicine, but on a cruder scale, is the use of the MRI which by using strong pulsating external fields up to 4 T can analyze the energy densities in the human body. The technology behind MRI is based on holographic mathematics, but apart from these necessary but crude machines, conventional medicine has no relationship to the field where signals are analyzed in their own energy domain.

We have mentioned one such technology resonance-feedback, more often called Bio-Resonance or the MORA-technology or lately renamed Human Software Engineering by Tom Stone in USA, using the recent wideband feedback system made by Peter Barski and Wolfgang Bialas and sold under name Holimed. Whatever name, it is a Field-Feedback system with waveforms extracted from the field. So far this has been a very happy method to look deeper into the field in its own energy domain. The proof of these ultra weak signals is as previously mentioned the reaction of the body itself to manipulated signals extracted from the field.

VIII: The whole field is composed of some strong and unknown number of ultra weak signals, the latter not detectable with current measurement instruments, but are recognized by living beings/cells as being meaningful for life. They can be picked up from living beings by proper antennas/probes, fed through copper wires and sent back (feedback) and still give meaning to the entity (works on animals too).

Actually what we are doing is taking multidimensional field phenomena: electricity, magnetism, photons, volume, time etc. and transform them to signals that has less variables, only voltage, current density, and time variation, then manipulate these few phenomena and sending them back [17]. More will be said about this later.

8. Field Spin!

Using such methods a few astonishing facts have been discovered about the field. One is Spin. In Quantum physics Spin is a central concept. Since the human field is arranged out of spinning particles arranged in a solid crystalline structure called the human frame by philosophers or simple the body or body-mind, we could expect there to be spin present. This can be demonstrated by a very simple, yet astonishing method developed by research scientist Buryl Payne in USA [18]. By using a spin-detection antenna, one can observe how the spin of the human field couples to the material in the antenna and moves it clockwise in a healthy subject. The more healthy and energetic, the more clockwise the antenna will move.

If however exposed to a harmful outer field like that emitted from mobile phones put to the head, being close to radio antennas, high voltage power lines or standing over/living over areas in the earth where there are fields harmful to health, the antenna will show a counterclock wise rotation. The same goes for people when being poisoned by toxic substances, having acute infections, or when there is much electrical disturbances in the atmosphere or using a mobile phone [19].

IXa: The whole field has an intrinsic spin. The spinning axis goes when standing, from a appoint between the legs, through the perineum to the top of the head. In a healthy subject the spin direction is towards right (+1) (Clockwise)

and

IXb: The human energy intrinsic spin direction is +1, but under certain condition may temporary reverse : -1

Reversing factors known to the author through practical first hand observations and the research community are [20]:

- Fields/radiations from radio masts, high voltage lines, transformers, mobile phones etc.
- Atmospheric
- Solar flares causing abnormal atmospheric
- Acute infections
- Toxins
- Great anxiety, fear, terror

Xa: The human energy field is an open field, interacting continuously with the enviroment through multiple pathways, some known and some yet to be explored (e.g. estra sensory perception etc).

9. Field Listens to Molecular Spin!

The spin nature of the human field goes very deep into how the field listens to energies around it. It has for some time been known to science that all matter is composed of particles out of which most have an intrinsic spin. When a spinning particle exists in the magnetic field of the earth all particle will exhibit a wobble that leads to emission of spin frequencies. This is today common knowledge in nuclear science. As early as 1975 the two German scientists, physicist Strube and Dr. med. Aschoff made a revolutionary experiment. They put forward a hypothesis that all elements and “things”, dead/living in nature, has a spin resonance structural field around them: a spin resonance structural hologram.

Further their hypothesis was that signals from the spin hologram was what the human body (and other living entities) “listen to”. To prove their point they set up a simple experiment [21]:

- A piece of mineral was put in contact with the body through a copper wire and alterations in the field were registered by means of altered Galvanic Skin Response. This is what electro-acupuncturists do every day to find substances that may be used for diagnosing or treating human sickness.

- Then the mineral in question was replaced by a signal generator producing the same frequencies as the known, measured spin resonance frequency of the mineral. The measured Galvanic Skin Resonance response was the same!

The spin resonance generated structural field hologram may thus be the answer we are looking for!

Xb: The human energy field is a macroscopic holographic spin resonance structure that interacts with the environment through spin resonance with the spin holograms of “things” around it. These spin resonance emissions/signals all belong in the subtle field of energy emissions.

10. Aura: Shape and Colours of Field

Going from microcosmic spin resonance hologram to the macroscopic world a very provoking and revolutionary question arises within the inquisitive mind: What shape does the macroscopic field have? Or going back in history to the stories told by seers and medicine men/shamans around the globe: The macroscopic field can actually be seen to the trained eye or to those borne with certain abilities termed “paranormal”.

Several investigators have gone to work by various means. Inventor-scientist Harry Oldfield has for years explored the Russian Krilian Technique, known as “electro-photography” where the body is subjected to high frequency current and starts emitting electrons and photons; creating a synthetic aura that is a mixture of the subtle field and a more “gross field”. By using a proper scanner, Polycontrast Interference Photography (PIP), Oldfield and his researchers could actually “see the field”. The field consists of photons, electromagnetic waves and even sounds (solotrons). The key to health according to Oldfield is to keep the body in a state of being that produces coherent wave-patterns. Oldfield even goes so far as to recommend chakra-meditation using mantras. Others researching in the same field prefer music like the Solfeggio music – project based upon the scales of old Gregorian Church Music [22] or the Monroe Institute Hemisync Technology [23] using binaural beats!

As for myself, like many others doing similar things, I trained myself using certain methods to “see the field” in the same manner as shamans and yogis: After some period of training, man, animals even plants can be “sensed” as having an energy-envelope that represents their “true self” or intrinsic energy radiation particular to that species, strain and individual. None are alike, most are similar.

Adding up data, the energy field extends several meters from the body. There are several layers and the most dense layers forms like a cocoon around the body like luminous sphere with vibrating colours. To substantiate my claims I have over years made drawings of my patients auras, then tested patients in my biophysics lab or the hospital. Comparing data my aura diagnosis has proved strikingly correct in several situations if not all. Distance from the subject seems be of no importance [24]!

XI: The human energy field appears as a layered cocoon around the human body structure with various colours that change as the patient person changes his/her mental attitude or frequency-patterns within the self, as a structure of being here.

For those who would like to explore more, I recommend the Gateway Training CD home study-program created by the Monroe Institute.

PART II: HUMAN GENERATIVE MATRIX

11. Human Liquid Crystalline Nature

According to conventional level of thinking within Western commercial society, the human body is studied as the material/chemical sum of its desiccated parts down to the cellular level. Little if any interest is shown as to the structural science of medicine and its electromagnetic properties. Researcher in the West and especially in USA who has looked for medical knowledge based on structural and electromagnetic properties of the human body, has more than often ended in the court accused of “quackery” by colleges representing the ordinary wisdom of the day in the commercialized “school medicine”!

Most of the science of structural and electromagnetic medicine therefore is either to be found the science of smaller groups of scientists within closed university communities, military research or research done in countries with a strong tradition for energy-science like certain Eastern nations, USSR and certain East European Countries.

The state of scientific knowledge so far is briefly summarized as:

The human body is permeated by a living matrix (connective tissue) that fills cells, surrounds them and behaves as one singular continuum. This matrix has a liquid crystalline nature. This liquid crystalline matrix is mainly composed of proteins, water and minerals, with embedded fibres of proteins and cytoskeletons with quantum like antennas. The electromagnetic properties seem to be able to produce sustained noise free quantum coherence that enables the body as an organism to function as “a whole”!

Properties of this structural nature of the living has a number of verified properties [25]:

- It can sustain quantum coherence of its parts behaving as one whole. Thus any cell within the matrix can be in communication with any other cell simply by being in tune with the matrix locally (non-local properties of cells) [26].
- Frequency and phase angle dependent Amplitude trains (“signals”) can move through the matrix with zero resistance like superconductors. Any part of the matrix can therefore add to the field properties of the matrix without loss of information for any other part.
- Specific signals move through the matrix, making the matrix behave as a signal conducting system.
- The matrix is self-organized through pan-cybernetic feedback loops.
- The matrix has semiconductor properties.
- The matrix has pilot-electrical properties.
- A major part of its nature is organized macromolecular clusters of water.
- Certain signals are even magnified, so that their field strength gets increasingly strong as the signal moves from A to B.
- The understanding of the various observed 4-dimensional energy-properties of the matrix can only be understood by the 12-dimensional physical theory of Burckhardt Heim [7].

These are but a few properties of the matrix where the various organs and parts of the human body are literally “permeated by (intercellular matrix)”/“covered by (facie and dense connective tissue)”/“immersed into (soft connective tissue)”.

In a way of expressing: Each part is but more condensed part of the matrix having a specific location, form (topology), mass, charge and vibratory nature (eigenfield or signature field). According to recent Russian theory the topology of any organ in the matrix is but a subclass of topologies expressed by one set of formulas describing the whole human embryonic form, which again is a subset of a set of equations describing the earths ecliptic movement around the sun over the course of several billion years. Man is thus strangely enough the “child of the solar system” or a “solar being” as envisioned by ancient masters in the Eastern lore of Yoga.

XII: The human energy is generated by cells in and by the matrix that permeates the whole body. The matrix has organized, liquid crystalline, semiconductor like properties (varying from location to location). A theory of these phenomena might be similar to the quantum-holographic framework of Rakovic and further advancement may include the 12-dimensional unified theory of Heim [7].

Such facts are so far not accepted in the commercialized medical system of thinking about their own creed “to help, alleviate and comfort”. How more comforting would it not be if each man had an idea of myself as an energy being with countless abilities and possibilities hidden within the science of energy, instead of a simple materialistic building with limited abilities and just a few locations to be.

12. Meridians

Although the matrix functions as a holistic communication system or may indeed be the true “inner being” (not denouncing the importance of the brain), there are certain parts of the matrix that has specialized properties of purely signal conducting and data computing nature. The exploration of the nervous system is today main

stream in neurophysiology, however the “other nervous system” called the “meridians” first described by Indian Yogis and Chinese doctors more than 3000 years ago is however viewed with disdain abate some curiosity by men “of science”. This is not only peculiar, since the very men of science each day utilised the meridian system to move their bodies, since parts of it is matrix pathways in the dense connective tissues covering all muscles.

The meridian system has proved its worth in practical acupuncture therapy for thousands of years. In the mid 1960ies the Chinese government encouraged Chinese hospitals and universities to start a systematic research to prove the reality of the system of “lines” along the body. After 10 years and more than 60,000 tested volunteers it was discovered [27]:

- When stimulating certain points on the body with square or sine wave 10-100 Hz cca 20% of test persons experienced a “creeping”/“crawling”/“tingling”/“flowing cold“ sensation that moved along a linear system. When asked to draw these lines on their own bodies, the lines were identical to the ancient “meridians”.
- The sensation moving along the channel is however very slow compared to nerve signals, only 1-2 cm per second.
- When heating or massaging the joints over which the meridians went, more than 80% of the volunteers had PSC (Progressing Sensation along a channel). This was also described to be expected in 3000 year old books on acupuncture.
- Certain brain tumours lead PSC, proving there was a neurological mapping in the brain equivalent to the “meridians”.

XIII: Wavelike and ionic signals in the field flows through certain structures known as meridians. Their existence is clinically proved, although they are not neuronal signals, but their existence is sensed by neurons!

But what were the meridians “made of”. Several ideas were put forth, but it had to wait until 1980 and later to get some ideas. Here are some facts/explanations:

- The location is in the connective tissue covering all the muscles and organs and structures of the body.
- There are no visible macrostructures for singular meridians in these “wrapping” of the body (none has been found yet).
- The main function of each singular meridian seems to be “transmission of information”.
- Each meridian carries information about the tissues along its course, the status of a certain segmental part of the spine, a certain organ, a certain sense quality, a certain number of glands, a certain number of nerve plexus, and a certain mood/emotion one can be in.
- Meridians can further be classified according to their influence on the autonomic nervous system and the 7 “glandular centres” in Asia known as “chakras”.
- When activated, meridians influence the parts from which carry information and stimuli, to activate a certain “meridian effects” ranging from mere touch, stroking, massage to needles and all the way to coloured lights, lasers, electrical signals, magnets and finally thought and best of all(?) signals taken from the field by means of resonance feed-back.
- Signals seem to flow on a sub molecular level through certain low resistance pathways in the Matrix, with semiconductor or even superconducting properties. For certain electromagnetic windows there seem even to be amplifying properties explaining why certain extremely low signals lead to certain strong reactions in the body.

The nature of all the meridians taken as a whole seems to be “self regulation” of the human organism of a more fundamental nature than the nervous system. James Oschman finds clear similarities between a distributed computer network and the meridian system, the same does Rakovic [26] who contrary to Oschman not only proposes a schematic for such a network, but describes it as a part of the human quantum-holographic bio-energy system that can be described by a set of formal equations similar to the formalism of wave mechanics of Feynman.

The similarity between meridians and a distributed computer network has a number of interesting facts to it [17]:

- Meridians are bidirectional signal lines transmitting “control information”.
- Signals are picked up by nodes (acupuncture points) capable of receiving the message, identify the source and transmit further its own signals. This makes each node capable of knowledge of all nodes.
- Each node has topological knowledge of certain other adjacent nodes, but not all, although having knowledge of the energy signature of all nodes.
- All signals seem to have start and stop messages.

XIV: Meridians are molecular structures in the matrix that serves as pathways for signals, with quantum region information operating similar to computer logic. These signals have a vibratory nature. All in accord with Rakovic’s theoretical model for the bio holographic quantum field of the human body.

13. Frequency Logic of Meridians

Using filter techniques and extracting signals from the field by means of antennas, a modern Resonance feedback system like that produced by Holimed in Germany can manipulate the meridians.

Remember what is “taken out” are sub-noise signals of electromagnetic nature with molecular signal components that lie in the quantum level, and must be described by Heim’s 12-dimension mathematical and according to Heim needs at least subspace X5-X6 of the total R12 dimensional space [7]. Using proper filters one has discovered, from the beginning of Resonance Feedback back in 1970 when Morell and Rasche started it all, that certain qualitative manipulations of the Field lead to certain predictable results:

- All pass filters makes all weak meridians more active, but with a cost: Abnormal meridian readings tends to get more abnormal, while patients complain the problems have gotten worse!
- Phase inversion fed through all pass filters makes overactive meridians “calm down”. Patients feel better. Like having taken a sedative.
- Selective phase inversion of unipolar signals (D for disharmonic) has a function similar to an anti-toxin that makes meridians influenced by toxins more normal. Effects much like an antidote to your disease. Patients feel better.
- Selective amplification of healthy bipolar signals (H for harmonious) activates body energy, activates all weak meridians without the problem of making symptoms get worse, like taking a “tonic”.

XV: Meridians and the field information have vibratory nature explored by the signals from the field itself, up to 1 MZ by bio feed back. The information embedded in the signals can be understood in terms of frequency windows, phase angles, moving bandpass, wobble and amplitudes. The real significance of the information may be understood as both digital and analogue.

By introducing low pass, high pass or band pass filters, after filtering one can “direct” energy to specific locations in the body, even to certain meridians or one meridian, although the signal is fed back to the whole field through lets say a foot, a hand, or a part of the back or in more extreme cases through one single point contact! Once the signal taken from the field is filtered and manipulated, the “tailored” signal will “find its way” to the part of the body the therapist so desires.

The saying: “...Take a healthy dose of your own energy” is a reality.

The measured frequency windows of each meridian is to be found in the Appendix 1 of the paper.

14. Behind the Scenes: Higher Logic

The use of filtering, phase inversion, signal manipulation and even use of more exotic techniques such as sweeping band pass: A part of the energy spectrum caught by a band pass that wanders up and down at a certain speed, has helped bioresonance-feedback researchers to understand some of the field-logic:

- Healthy body parts /organs /tissues /vessels/nerves/glands etc. emit coherent bipolar signals within certain frequency ranges called “windows”.
- When diseased the same sources emit additional unipolar, chaotic signals that are typical for the cause of the disease and the source that is affected.
- Healing takes place when the field identifies the chaotic unipolar signal, generates phase inverted mirror image of the disease signal and feeds it back to the diseased source. Phase inverted version of the “disease signal” add up to zero if properly tuned.

Field logic is thus based on body parts receiving and sending information through narrow frequency ranges (windows), phase angles and pulsations. Logic of the system as understood through the science of bio resonance-feedback seems like a simple binary logic: Either functioning or not functioning. However, when analyzing the data over years, simplicity is very soon lost. The overall logic is far more advanced; it is based on the principle of maximum cost/effective energy-production and utilisation relative to the environment, demands for activity, food supply and of course age, sex and overall health of the body. Disease is not a linear process from unhealthy to sick but goes through a series of stepwise adjustments. US researcher Paul Eck [28] has identified no less than 12 distinct steps: Three stable hyper-active states, three stable hypo-active states plus no less than six meta-stable states, where the body may end up either in a hyper- or hypo-active condition.

XVI: Meridians and the field base interpretation of information on amplitude, frequency windows, phase angles and wave symmetry or absence of such. Signal mechanism on the cellular levels appears to be based on molecular quantum spin resonance phenomena

15. Holographic Nature of Meridian System

Electronic analysis of the 12 bilateral meridians and their reaction to tuned bio-feedback signals (and other tuned signals) reveals the total holographic field and its status and the cause of the present state. The system is so effective that the USSR Space Agency has used this method of diagnosing their cosmonauts for several decades. It is currently marketed in the West as Prognos Diagnostic System and has to date been tested on 14 million test runs.

By using bio-feedback together with diagnostic similar systems like Prognos, we get a clear information of the following facts [29]:

- What part of the body is currently most “out of order” causing the field to react or adjust in a specific manner = the meridian whose energy is such that when its flow is corrected, all other meridians are corrected.
- Why that part is out of order, the very cause(s) of the disturbance = the substance(s) that gives off such signals that when phase inverted 180 degrees the causative meridian gets corrected when brought in contact with the signal.
- How that part influences the other parts = see point 1.
- What kind of signals must be fed into the disturbed part to adjust the whole field = see point 2.
- What kind of shift that takes place in the field after temporarily eliminating the disturbed part with proper signals = retest after feeding the most disturbed meridian with the phase inverted signals from the substances that are linked to cause.

As we do this we discover that having adjusted on imbalance (state), the whole field jumps to a new and more stable state that reveals a new cause-effect situation, much like peeling an onion.

Summing up we get a clear situation picture: The meridians are an important part of the field. They work as a secondary “nervous system”. They contain all together all the important frequencies in the field, whereas one meridian alone contains some of the information but is connected to all the other meridians plus that the energy in the meridian is influencing all the other meridians. How this is done is to be explained since each meridian works in its own frequency window, but a simple mechanism is proposed: The whole field gets informed by one meridian and then informs back to the other pathways.

16. Fractal Nature of Meridians

In a holographic field any part of the field contains all the information of the field. This is quite well documented in cases of so-called “sensitive people” who by merely holding their hand a few centimetres above any body part can “read the whole situation in the field“. Many groups teach such techniques today like for example Latin American psychologist Silva’s Ultra-mind courses or USA psychologist Joe Gallenberg’s sync-creation courses.

But if the field is holographic some degree of holography should be expected in the material construct of the body. The most striking of these holographic constructs must truly be the discovery of Chinese professor Yingqing Zhang who discovered the ECIWO system of points situated along the bones of the extremities, an abbreviation for Embryo Contained In Whole Organism, meaning a set of acupuncture points arranged such that they seem to form a map of a miniature human embryo on the surface of the whole body [30].

Similar system of “all of the body projected on a part of the body” is known to be located where the body “ends”: soles, palms, face, ears, scalp. These terminal area point systems have been known before in Ear-acupuncture, Foot Zone therapy, Hand Acupuncture, Facial Acupuncture and Scalp Acupuncture. The strange thing about the ECIWO system of the bones however is their fractal nature. Each bone from the upper arm down to finger have exactly the same repetitive patterns of points, point to a fractal pattern in the construct of the body: The same basic design repeating all over. When comparing it we see it all as a repetitive pattern of the segmental organism whose major structure is the spinal column with its end structures: The head and the pelvic.

The accuracy of diagnosing disease with the ECIWO system is stunning! In one experiment testing 1710 patients Zhang quotes $p < 0.01$ for therapeutically effects varying between 81.3-100%, with average degree of success quoted 92.9% of problems investigated.

Zhang claims in his book *ECIWO Biology & Medicine* that the fractal nature of the body explains all of the meridian effects. The smallest area to diagnose and influence the whole as for cm is then undoubtedly the metatarsal of the second finger. This answers the question: How small a physical part on the body is needed to know the whole field, the answer is cca 8 cm, the metatarsi of the 2 finger of the hand. If including the ear, the next answer is to the question: What is part of the body giving that has the most detailed representation of the whole body? Equivalent to: Which material part in the field gives best access to the whole material part bringing forth the field? Equivalent to: Is there any substructure that has such a vibratory nature that is containing a complete, discrete map of the whole body? The answer is the ear-system known as ear-acupuncture:

XVII: Meridians contain specific, unique measurable points that refers to certain set of structures. When studied in more detail each meridian along the limbs is composed of subsets with identical topology. Each subset of points refers (maps) the segmental nature of the axial being (head-spinal column-pelvic). Subsets taken as a whole is thus of a fractal (repeating the same pattern) nature.

Explaining these sub-systems of the body where one part contains information about the whole would take a whole day or two. But we end the story with a few thoughts to remember [22]:

- The ECIWO system of the bones of the extremities is a repetitive (thus fractal) representation (mapping), that is an isomorphic representation of the whole body in a manner similar to the axial skeleton (cranium, vertebral column and pelvis).
- When there is a disturbance in some part of the body that is innervated by a certain segmental level of the spinal column, the same energetic disturbance appears in the point of each ECIWO map along the bones of the extremities.
- In the ear the map of the whole is even more detailed. Disturbances are not only segmental, but are split into various sub-maps, each representing morphological sub-structures of the human body. On the ear there is thus a complete map of the muscle-skeletal system, the nervous system, the sense organs, the endocrine system, the vessels, the inner organs, and even parts of the brain!

All these complete sub-maps on the body surface cannot be explained in any conceivable manner by the traditional nervous system. There is not enough knowledge yet of the sensory pathways on the micro-level to explain these phenomena. However certain vibratory phenomena cast some light to the holographic nature of the

sub-systems. If signals are taken from the whole field, amplified and sent through an all pass filter, split into Disharmonic and Harmonic waves, inverting the Disharmonic, then pulsed and sent back to points on the sub-maps, the whole field responds!

Example: A man had his leg broken. He got a big scar tissue on the outside of his injured leg after the operation. This caused pain. When measuring the energy of the meridian it was found that the electrical activity of the gallbladder meridian point through the injured area was the cause of all the disturbances in the body. On the ear the point of the hip plus that of the gallbladder was disturbed. When sending energy there to these two points, not only did the pain get somewhat less, the gall bladder meridian got temporarily corrected. The signals sent to the ear were so weak that this could not be explained by current knowledge of the nervous system, however using the crystalline nature of connective tissue and the inter- and intra-cellular matrix things can be explained by wave theory, obeying quantum field properties.

17. Instead Conclusion: According to Rakovic and Heim

Due to limited time my lecture stops here. The facts presented are based on mostly empirical data derived from what I do every day in my laboratory. The theoretical explanation is provided by various authors. The major understanding that binds all the pieces together has been provided by Rakovic's quantum-holographic theory of human energy-information system (related to acupuncture system and consciousness) and its implication for bio-energy [26].

The other contribution is provided by Heim's 12 dimensional unified theory (explains QT + macroscopic properties of space/gravitation and forces). According to this theory reality has four levels:

- Dimension $X_1 - X_4$: Material space + time (according to some clock).
- Dimension X_5 : Structures or arrangement of events, when added time as a dimension forms a plane called the entelechial dimension.
- Dimension X_6 : Is according to Heim the aeonic dimension.
- The remaining dimensions are non-material.

The outcome of the theory when adjusted to measurements is a 100% correct prediction of 100 known elementary particles, plus unification of Quantum Physics, Theory of Relativity as explained by Einstein and the laws of Newtonian physics. When this theory is added to Rakovic's theory of quantum holographic body-mind energy system we move into a territory where we are approaching a unified theory of the phenomena of man on several planes: physical, mental, spiritual. We are also approaching a "Weltanschauung" of a multilayered world: The seen and the unseen. This new concept/paradigm of existence may not be a support for a specific theory in the past. It may not be a support for a known ism. Instead it may be a blueprint for an exploration of reality: For once man's mind accept a belief system based on certain facts, new realities seem to start to manifest according to what we believe is possible. Not out of wishful thinking, but because we dare to chart new lands!

An another promising research direction related to human torsion fields is to be found in the Appendix 2 of the paper.

Appendix 1. Frequency Response of 12 Meridians using Body's Own Energy as Input

In the Table below are presented the response charts obtained by Morell and Rasche using band pass filtering of the patients own unique field energy, extract from a hand-probe or foot-plate, then filtered by a band pass, then split into an amplified harmonious component, and an 180 degree phase inverted disharmonious component, that was then summed and pulsed with 7 seconds on and 3 seconds off. Using this set up and feeding the altered signal into the body on any part of the body, a unique response was attained from a specific meridian. The third column shows equivalent band pass filtrated signals from substances fed to the field, compared to a homeopathic dilution of the same substance!

Frequency window kHz	Meridian	Homeopathic potencies
0.01 – 0.025	Small Intestine	
0.025 – 0.050	Urinary Bladder	
0.050 – 0.10	Endocrine (3Heater)	
0.10 – 0.20	Gall Bladder	D3
0.25 – 0.50	Large Intestine	D6
0.50 – 1.0	Stomach	D8 (0.5-0.7) D10(0.7-1.0)
1.0 – 2.5	Heart	D12
2.5 – 5.0	Kidney	D15
5.0 – 10.0	Circulation-Sex	D30 (5.0-7.0) D60(7.0-10.0)
10.0 – 25.0	Liver	D100
25.0 – 50.0	Lungs	D200
50.0 – 100.0	Spleen	D400

Appendix 2. Human Torsion Field

Each molecule in the matrix has an intrinsic spin and a wobble caused by the fact that we live in a sea of electromagnetism created by the earth, its biosphere (the living things immersed in the electromagnetism and gases of the atmosphere) and the influx from energies from the planets and the sun. Since sun and several planets have electromagnetic spinning fields their spin will create holographic spin field resonance in the biosphere. More and more scientists who deal with energy research in conjunction with biology are coming to believe that the energies, especially from the sun may be the major driving force behind all living beings on the earth [31]! Going along this road of reasoning spin fields must play a major part in creation.

Russian scientists have for several decades, going back to early 1980ies, been investigating spin fields, known also under the term: torsion fields. According to Akimov there are three distinct T-fields: E(electrical)-field, G(gravitation)-Fields and S(spin)-Fields. Common to the T-fields is the fact that they are “subtle”, not belonging to classical fields and cannot be shielded for [32]. They have a number of qualities: they move faster than light, more than 109 faster, they interact with material and biological objects and change their behaviour and affects local gravitation fields, and have thus been subject to military research as a method for antigravity propulsion.

Substantiated rumours have largely confirmed that such vehicles now exists at least in USA and been the cause of the UFO-sightings around the world.

The biological implication of T-fields is vast: They are generated within all living beings, cats, dogs, elephants, humans. They are emitted from all living things. They move at superlumious speed. They create holographic spin fields around things and beings, and beings interact with each other and things by selective coupling of spin-fields from other “generators”, “dead” or living, as has been shown in this lecture. Living beings influenced by a T-field is temporarily or permanently alerted as is shown by the Abrams-Voll effect and explained by Sturm-Aschoff experiments; to quote a few sources.

Living beings thus function as T-field “recorders” and what we emit is thus not something that rests with our free will; but also largely depends upon our field-environment. Studying various religions and their distribution over the globe makes one notice that various environments with their population structure, climate, geomagnetic patterns and life-forms have created various languages, belief-systems and religions in accord with the enviromental factors. Strangely enough, the only common with all religions are the importance of trances: Making shamanism with its trances the universal language of man. Seen from this angle, shamanism is the basic religion of man. It is not based on evolution, but simply upon ability to go into trance and there experience whatever is to be gained by a mind trained to transform energies into meaningful pictures and emotions.

Summing it all up, we may suggest this:

- Humans have a material form that reflects in the energy it produces.
- The field is a holographic, vibratory, torsion field with quantum physical nature.

- The field has 7 major centers related to the neuro-glandular centers of the body; previously known as “chakra system” of Asia.
- The field is also created by and reflected in a system of self-regulatory lines in the human matrix known as “meridians” in the Orient.
- The field and its various parts are influenced by and influence the function of the brain (thinking)/heart (emotion) electromagnetic system.
- The field is a partly open system which emits and receives information from the total environment and is a sum of a number of inputs. Not all inputs are accepted and absorbed; but certain “windows” related to survival of the entity.
- The torsion field emits signals faster than light containing information about electricity, spin and gravitation of the entity. It should therefore be possible to obtain information about an entity environment, body and thought if receiving these super-luminous 100 times faster than light signals!
- According to Heim’s Unified Field Theory, now proven in more than 100 special cases, the field is multidimensional. In the later Heim’s theory of 12 dimensions it is possible to account for physical dimensions, structure dimensions, information dimensions and intelligence information.
- According to Heim a part of the Field can survive the death of the physical part of the entity!

Summing up: Man and all animals, man in particular, is an energy being worth studying with the same intensity as today vested into studying material man. Since man is a partly open energy system with a wide range of self-regulatory sub-systems, we may sustain a stable life-form under various conditions. However, being partly open, the concept of a totally free will seems beyond any reasonable doubt impossible, since our “consciousness”, being “here”, is but a variable structure maintained in relationship to total environment plus whatever free will we have to counteract surroundings. Scientist philosophers as Heim clearly supports on a scientific basis determinism and not free will. This is open to debate!

Also study of the fields structure of the world and humans opens for supporting a growing evidence that matter is but a manifestation of energies and that part of the energies contained in a being can continue after its material counterpart is decayed and then “dead”. Field science thus seems to bridge into the realm previously reserved only for religion.

Acknowledgements: With this I thank professor Rakovic for his wonderful symposium. A truly renaissance man has risen in the East to bring more youthful explorer’s spirit into exploration of “reality as we may know it”.

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MAN AS A QUANTUM-WAVE PSYCHOSOMATIC SYSTEM

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Abstract. The author considers the Man from a position of the theory of *wave-particle* duality of a matter. It has opened existence in a nature of ways of interaction and information interchange between genes, cells, persons, about which we did not suspect or knew a little. The concept of duality has allowed understanding the riches of the information contained in the man that has enabled to consider him as a *psychosomatic system* and to explain some features of thinking and behaviour of the people, sources of their talents and problems, and also feature of functioning in a society and relations with each other. In the certain measure the concept of duality gives an explanation of reasons of diseases, and gives interpretation to methods of treatment, which (despite of the efficiency) ascribe to alternative and do not admit by official medicine. Author describes the uterine myoma as a psychosomatic process, manifesting itself in ischemic uterus disease. He substantiated and used the holistic approach and nonstandard method of psychoelectroregulation in these patients which gave the long-term results.

Keywords: *theory of duality, genes, wave genetics, memory of water, cellular memory, biofield, man as a psychosomatic system, uterine myoma, psychosomatic disease, psychoelectroregulation*

1. Introduction

The term "the psychosomatic disease" assumes that in pathological process both psyche and soma are involved. But it means also, that we know also about existence of psyche and mental illnesses separately. Such classification was quite true for a certain stage of development of science. Contemporary the Man is considered as complete psychosomatic system [1]. Certainly, one can have a temptation to determine it by traditional representations: as the aggregate consisting of the brain (the biological predicate of psyche), and organism (the biological predicate of soma). However, from a position of modern knowledge and philosophical representations it is not quite correct. Why?

Our representations about structure of the world began to vary with occurrence of the theory of corpuscle-wave duality of a matter. In the beginning of 20th century Einstein by his early researches [2,3] has shown that light can be interpreted as a flow of energy quanta (i.e. the corpuscles), which in many physical effects also show properties of electromagnetic (EM) waves. Bohr with the colleagues has tried to rescue the Maxwell's wave theory of light, but should surrender and confirm Einstein's correctness. In subsequent de Broglie, developing these ideas has put forward a hypothesis about universality of corpuscle-wave duality of a matter [4]; by de Broglie, the electrons and any other particles of a matter (not only photons) have both corpuscular and wave properties.

The Russian geneticists Gurvich [5] and Beklemishev [6], on the basis of new paradigm, have put forward a hypothesis about the wave condition of genes. The Russian geneticist of a Chinese origin Dzang Kangeng [7] showed it experimentally by his device for transferring the wave gene information, and he received hybrids of plants and the hen-ducks. These data were confirmed by research of the Russian geneticist Gariaev [8-10], who together with the colleagues successfully continues to develop wave genetics.

A little bit earlier Kaznacheev (not being fixed exclusively on genes) has published a line of papers [11,12], in which has shown that carriers of the information in biological systems can be quanta of EM field, or biophotons. He believed that the EM channel of information communication in the alive substance carries universal character and is widely used between cells.

2. Cellular Memory

Each cell is a multi-component organism, which includes a membrane with set of receptors, and cytoplasm with set of organelles and nucleus. The nucleus contains a complete set of genes containing the information on morphological structure and *function* of a cell, organs, and whole organism.

The researchers by LSD-25, other psychedelic drugs, and holotropic breathwork, have shown that the man can comprise in his memory the events experienced by previous generations, the steady psychological features of ancestors and certain modes of their behavior [13-15]. The researchers believe that the intelligence of the man and his mentality are connected to a heredity [1,16,17]. That is, the genes are the carrier of both morphological-functional and mental features of the man.

The researchers working in area of prenatal and perinatal psychology have found many data on inclusion in memory of prenatal child (PCh) the events experienced most emotionally together with the mother during pregnancy and labor, and even her thoughts, emotions, and feelings. They are reflected (sometimes as in mirror) in thinking and behaviour of the born child. The prenatal stress can cause mental disorders in a wide range: from unusual habits and psychological discomfort to the heavy mental diseases such as schizophrenia. Besides mental disorders the child who has experienced prebirth stress, as a rule, receives somatic disorders accompanying him during life [18-27]. This pre- and perinatal information can be transferred to the following generation. This is confirmed experimentally [28,29] and most likely is connected with regulating processes investigated by epigenetics.

It is possible to assume, that a genome contains both somatic and mental information and is able to include new data of such quality. From this view on the genes each cell of organism is the carrier of quasi-consciousness, and memory, and is a psychosomatic structure initially.

However, this information is incomplete, because we have said nothing about water. Each cell of the body includes more than 90% of water. The various organs contain various quantity of water, for example, the brain contains up to 90% of water, bones up to 22%, etc. The content of water in organism of the man depends on age. So, embryo in the age of 6 weeks contains 97% of water, the prenatal child of 16 weeks up to 92%, newborn near 72%, and adults near 60-65% of water [30].

I mentioned about water, as the numerous research of last years have shown, that water has information properties: it is the original generator of EM waves of MM range, can perceive, carry and transfer the wave information, carries out a bio-informative role, has high biological activity, can perceive psychic energy and the thought information, executes a role of the synchroniser, and standard of time in bio-systems [31-36].

This is confirmed in fact by long-term homeopathic practice. It is important that both structure and properties of water and the water solutions can change under influence of the mental information [34,37,38]. It gave us the opportunity to advance the hypothesis that owing to the fact of the bio-information properties of water, this is an environment for information interchange between the mother and her unborn child [39].

At last, each cell of organism contains the molecules of proteins, which also are carriers of the information [40]. Peter Gariaev [8,9] has experimentally proved that cells, chromosomes, DNA and proteins pass the hereditary information in space of organism, the information by the physical fields – electromagnetic and acoustic waves.

It is possible to assume that such cellular structures as DNA, the molecules of water and proteins can generate, receive, save and pass both corpuscular, and wave information.

The large support to idea of information properties of water was rendered by research of the Nobel winner Luc Montagnier and his team [41]. They have shown that water is capable to include the information from DNA. In our opinion, it can mean more: between DNA and molecules of water, and it is possible also for proteins, at a level of the cells there is a constant information interchange, and therefore, the cell represents the information unity.

So, it is possible to believe that every somatic cell of organism contains DNA, molecule of water and protein, and due to them includes the coded information, both somatic and mental.

If to take into account researches by Gurvich, Kaznacheev, Gariaev and other scientists, the cells are the carriers of the information both as particles and waves, and therefore it is possible to speak about the cells as the psychosomatic structures.¹

From a position of considered paradigm of matter duality, the billions cells of multi-cellular organism are in instant wave-like contact among themselves. As a result of such close interaction each cell of organism in the same time receives the information on a condition and needs of all other cells. At the same time cells, their subcellular elements and genes, are under influence of the external factors and can accumulate the physical and mental information, save it and pass to each other.

The wave amplitudes of separate molecules can be superimposed among themselves, forming the general coherent EM wave. In a similar way, probably, there are superimposing waves of subcellular elements and cells of separate organs, forming a resonant frequency specific to the given organ. So, the frequency of electrical activity of heart is within the limits of 1 Hz, of brain within the limits of 5-20 Hz, etc.

It is possible to assume, that the superimposing of waves of cells, tissues, and organs, at the end forms a man's *biofield* with resonant frequency specific for the particular person. The traditional view on the biofield as a surrounding environment of the man should be changed. A wave informative cloud as a product of functioning of the alive cells wraps and penetrates the man. It includes the knowledge at a quantum level about his physical and mental components and relates to both consciousness and unconsciousness of the man.

I think we should support the idea that the memory is not an exclusive prerogative of a brain. It is function of whole organism, whole man. The brain in these conditions carries out the major function of acceptor, and converter of the coded information in clear for us images, symbols, pictures, words. Sir Charles Sherrington, Sir Jon Eccles, Wilder Penfield, Stanislav Grof, and David Chamberlain advanced these ideas during 20th century.

In confirming this idea I would like to remind the phenomenon of change of some character traits and preferences at the people with the replaced organs [42]. Also, Karl Pribram has found out that many people which experienced traumas of a head brain with partial (and even significant) loss of its part, have not lost memory. He has assumed that the centers of memory are in all brain, and subsequently he has offered a holographic hypothesis of brain functioning [43].

Speaking about this function of a brain, *I do not exclude* participation of its neurons in perception of the information, accumulation and use of this memory, because the nervous cells also contain genes, molecules of water and protein.

Of course, the function of a brain is not limited by participation in mental processes. The brain not only controls the emotions by neurotransmitters (catecholamines, serotonin, morphine-like opioids). The brain carries out the very important functions of regulation of all organs and systems of organism: cardio-vascular, breath, digestion, endocrine, etc.

So, we can summarize: the man represents complete psychosomatic system (PSS). This composite PSS is a closed system in its aspiration for self-regulation. On the other hand, it is an open system, because it is in constant communication with the external world: by what we breathe, what we are eating and drinking. It is not less important that this system is in interaction (including the wave interaction) with similar people and other alive essences, including flora.

From here, any illness of the man should be considered as the psychosomatic disease, though undoubtedly there is an essential difference between diseases caused by the infectious agents or emotional stress. The consideration of the man as PSS is a substantiation of the holistic approach to health, or to restoration of it. I would like to explain this on one example. In my practice and researches I attracted a special attention to the study of such mysterious disease as uterine myoma (fibroid, fibromyoma).

¹ The experts in the field of quantum physics warn that the quantum objects are neither classical waves, nor classical particles, getting their properties only in some approximation. These terms were taken from classical physics, and methodologically more correct is the formulation of the quantum theory through integrals on trajectories (propagative), free from use of classical concepts.

3. Uterine Myoma

The investigations of uterine myoma are carried on more than one hundred years; however, there are no considerable results in conservative therapy of patients with such pathology. The estrogenic theory was the leading conception of myoma, while new concepts (immunologic, oth.) have not serious supporting. Perhaps, it is useful to consider some other aspects? Our investigations showed that patients with uterine myoma simultaneously had many extragenital diseases of psychosomatic genesis: mainly the diseases of cardio-vascular system (arterial hypertension, myocardial ischemia, oth.) [44]. Maybe the uterine myoma is a psychosomatic process too? The clinical observations became a foundation for carrying out investigations by complex methods, such as: closed clinical interview, psychological, electroencephalography, reflexometry, hormonal, biochemical studies, electrolytes (Na&K) in erythrocytes, plasma, urine, and tissue of uterus, electrocardiography, ultrasonography, electron microscopy, statistics, and other methods of research. We examined 373 patients who were suffering from uterine myoma and 231 women without pathology of the genitals (control group) aged from 24 to 54. The results of our investigations showed that the prolonged relapsing conflict situations, provoking negative emotions, psychological peculiarities of a woman, and her reaction on psycho-traumatic situation resulted in the appearance of chronic psycho-emotional stress, which clinically reveals itself as a syndrome of ***psycho-emotional tension*** [45]. This syndrome becomes a system-forming factor and forms a ***pathological functional system*** (PFS), which involves mainly central nervous, autonomic nervous, blood circulating, neuro-endocrine, and reproductive systems with the uterus as a target-organ. Our complex investigations showed that the processes, discovered in the uterus, have displayed the picture of ***ischemia***. The latter can develop as the result of activation of the sympathico-adrenal and neuro-endocrine systems.

Activation of the ***sympathico-adrenal system*** can lead to ischemia of uterus along some ways. The first way: increasing monoamine secretion (adrenaline, noradrenalin), activation of adreno-receptors, which cause intensification of contractility of smooth muscular cells (SMC), including vessels, which result in arterial spasm and the increasing of blood pressure. The second way: degranulation or lysis of labrocytes with yielding of heparin, histamine and proteolysis enzymes, which leads to local microcirculatory disorders and ischemia. The third way: activation of lipolysis, which is followed by the damage of lipid-bi-layer of membranes of endotheliocytes and SMC, which lead to electrolytes disorders and hyperhydratation and damage of the cells. This may be connected with the activation of adreno-cortical system.

In the reaction of the ***neuro-endocrine system*** the three variants may be isolated. The first variant is connected with formation of anovulative circle with hyperestrogenia, which is accompanied by an increase in secretion of antidiuretic hypophysis hormone. It leads to the delay of sodium and water, the rise in the circulating blood volume, the dilatation of capillaries and arterioles, injury of the endotheliocytes, which are followed by an increase in vascular permeability, and this leads to the edema of the cells and interstitium, plasmorrhage, hemorrhage, lymphorrhage. The second variant can be explained by the well-known feature of estrogen hormone retain sodium and water in the organism, to provoke the dilatation of vessels with the increasing of blood filling, damage of endotheliocytes and pericytes. All that lead to the condition of edema appearance and percolating of plasma and lymph, which impregnate the walls of vessels, fill in the interstitium and this, perhaps, plays a definite role in the developing of sclerosis including vascular sclerosis of myometrium. The third variant is connected with general stimulation of ovaries, which provides proliferation of SMC. Therefore, there are many functional damages that lead to microcirculatory disorders and tissue hypoxia. The factors reflecting the ischemic state of uterus myomatosis include: microcirculatory disorders, arterial spasm, venous congestion, lymphostasis, the weakening of oxidizing-reducing process, reduction of glycogen level, the increasing of glycosaminoglycans, the decreasing of level of nitrogen exchange, intensification of lipolysis with lipoidosis, prevalence of metabolism of anaerobic type, intensification of collagen formation, inclusion of SMC into the process of collagen formation, sclerosis of the vessels and interstitium, and hyalinosis [46]. The literature data and carried out investigations gave us the possibility to put forward a conception of etiology and pathogenesis, which considers ***uterine myoma as psychosomatic process, manifesting itself in ischemic uterus disease***. It is a systematic disease, in which the mentality, nervous and cardio-vascular systems are involved. The uterine myoma is a brightest, though it is possible not main display of pathological process.

As each patient has an individual combination of etiologic and pathogenetic links we may say that "each woman with myoma has her own myoma". However, the high frequency of psycho-emotional stress was the reason for the usage of psychoelectroregulation (PER) as basic therapy for patients with uterine myoma. It included the *individual rational psychotherapy* with the following actions on the central nervous system by impulse currents by means of the apparatus LENAR (for the destruction of the developed stable PFS).

The investigations showed that only PER exerted a tranquilizing effect, decreasing of level anxiety, promoting a normalization of the functional condition of the nervous, endocrine, blood circulation and reproductive systems, restoration of electrolyte balance, and decreasing level of morbidity in the different classes of disease. The growth of the uterus is stopped or its sizes are even diminished immediately after the course of treatment at the half of 76 patients. The stabilization of uterus sizes or diminishing of it took place in 72.1% of patients [47].

Why does uterine myoma decrease in size? Before we answer this question, we must consider the other question: what causes the increasing of uterus when there is myoma? Our morphological and electron-microscopy investigations showed that there are the following factors: the increasing of SMC at the expense of the increasing of new active organelles (quantity, volume), edema of the cells and of interstitium, venectasia, plasmorrhage, hemorrhage, lymphostasis and lymphorrhoea, calcinosis of the cells and interstitium, hyalinosis, vascular and interstitial sclerosis, lipoidosis, and proliferation of SMC. Of course, sclerosis or hyalinosis do not disappear, but the used treatment (PER) removes disorders of microcirculatory and metabolism, decreases ischemia and edema, and stops the growth of myoma and later on helps its diminishing [48]. It is necessary to add: acquainting with social and psychological situations of the women gave us the opportunity to individualize the psychotherapy, to improve the results of treatment, and to give the recommendations for prophylaxis of illness recurrence. In our opinion, such holistic approach to the patients with uterine myoma as a psychosomatic disease is more productive than separating the patient and her uterus.

4. Conclusion

We argue that the man represents the quantum-wave psychosomatic system. Any disease of the man is necessary to consider as a psychosomatic process irrespective of its reason. The holistic approach in treatment as well as prophylaxis assumes the obligatory inclusion of individual psychotherapy along with special methods of official or alternative medicine, as we demonstrated by treating uterine myoma as a psychosomatic process, with the long-term results.

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PRENATAL BASES OF DEVELOPMENT OF SPEECH AND LANGUAGE AND PRENATAL STIMULATION

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Abstract. This paper globally discusses development of hearing and bases of verbal communication in prenatal period as well as postnatally, in the early prelingual phase – period of vocalization. It includes Milakovic's scheme of programming prenatal child, and discusses results of both our and foreign researches so far. It also offers critical review of psychological and linguistic theories of child's development, since none of them analyzed very significant prenatal period of development. It also points out the significance of prenatal period and stimulation of prenatal child, not only for postnatal period, but also for the entire behaviour during life. Particular emphasis was given to the relation of congenital, inbred and acquired in the development of speech and language, which indicates the necessity of simultaneous integral perception of articulation and acoustic process in speech-language communication. The paper emphasizes the significance of prenatal communication mother-child. It includes experiments which indicate that prenatal child not only hears, but listens to spoken language, moves in response to it, memorizes and learns. It indicates interconnections and correlations of listening and movements which are primary for speech-language development of a child, not only in relation to the process of listening to speech, but also the process of articulation and meaning. The paper offers short survey of the effects of prenatal stimulation and suggested activity for providing adequate staff in this field, as well as the level of organization of care of prenatal child.

Keywords: *prenatal development, speech and language, psychophysiology, acoustic theory, articulation theory, development theory*

1. Introduction

Human population mostly lives without noticing truly miraculous events which happen in our lives. Pregnancy is also experienced as something which is taken for granted. We seldom ponder upon how much it takes for all the "coincidences" to comply so that conception happens, and how great is the *MIRACLE* of a human being developed from two cells. It is fascinating that such fast and complex development of a human being takes place in only 9 months. Are we aware that during this period a child feels, communicates and learns? Researches carried out over a number of decades indicate that a child is capable of all these functions. Unfortunately, this knowledge has not yet been adequately and widely applied in the world.

There is a tribe in East Africa whose behaviour indicates existence of ancient awareness of the significance of prenatal period. In this tribe, the art of true intimacy is fostered even before birth. For these people, the birth date of a child is not counted from the day of its physical birth, nor even from the day of conception as in other cultures. For this tribe, the birth date comes the first time the child is a thought in its mother's mind. Aware of her intention to conceive a child with a particular father, she goes off to sit alone under a tree and waits until she can hear the song of the child that she hopes to conceive. Once she has heard it, she returns to the village and teaches it to the father of a future child, so that they can sing it together as they make love, inviting the child to "join" them. After the child is conceived, she sings it to the baby in her womb. Then she teaches the song to the midwife and the old women of the village, so that throughout the labor and at the miraculous moment of birth itself, the child is greeted with this song. After the birth, all the villagers learn the song of their new member and sing it to

the child when it falls ill or hurts itself. It is sung in times of triumph, in rituals and initiations. The song becomes a part of the marriage ceremony when the child is grown, and at the end of life, his or her loved ones will gather around the deathbed and sing this song for the last time.

Privilege of a man - *homo loquens* – to communicate by speech relies on his initial ability to sing. The song was the precursor of speech. In order to form a song, and later on speech, hearing was perfected. Tomatis says that “90% of energy which the brain needs is stimulated via hearing. The brain was developed from the organ of hearing and owing to the EAR, over millions of years, it became more refined and complicated in its structure“ [1].

We will focus our attention on the most complex psychophysiological function of human organism – speech and language, and point to the dynamics of their development in the prenatal period and their significance for the overall development of a child.

None of different theories on child’s development considered prenatal period in the appropriate way. It is known that preverbal communication enables a child to learn the language and that communication between a prenatal child and its mother or father begins very early during pregnancy. However, linguistic theories on language development have also neglected the existence of the prenatal period in communication development.

Surely enough, we must bear in mind that each theory marks a period in which it was created. If we remind ourselves of all the concepts, theories and most renowned names such as Piaget, Vygotsky, Vallon etc, it will be easy to conclude that each theory has its “advantages and disadvantages”. In the area of developmental psychology, each author made great progress in his own time, and in the world of psychology, each provided accepted, sophisticated concept of development.

However, according to present knowledge on prenatal development, none of the theories can be fully accepted. None of the theories recognizes real child’s potentials and cognitive abilities, nor do they mention possible influence of prenatal development and stimulation on subsequent development. That is why there is no single theory on development which can be fully accepted. New scientific facts require changes in existing theoretical frameworks. Vallon rightly emphasized the significance of the first communicational system, and Vygotsky rightly claimed that an individual cannot be separated from the social milieu. It is also known that emotional communication has significant role in human development. Some other ideas can also be acceptable, but unfortunately, there is not a single theory on development which can be adequately adjusted (having in mind prenatal aspects) to changes of reality of human development.

The most adequate approach would be to acquire from each theory everything which seems acceptable and valid according to present knowledge, in order to gradually develop new theories on human development. In new approaches, cognitive aspects of development which include speech and language should be emphasized, since contemporary literature abounds in facts on prenatal abilities and significance of speech and language for individual’s development.

Language acquisition in children is obviously very complex process and cannot be explained based solely on one theory. Nowadays, there has been a considerable increase in the number of researchers whose work indicates that language has a significant role in human development.

However, it is surprising that prenatal period was not taken into consideration, either in linguistic and psychological theories, or in the concept of language acquisition in psycholinguistics.

According to Johannes Merkel, previous researches on speech and language development in children indicate rather controversial assumptions. He lists following theories which basically designate historical order of arguments over this problem:

- Classical model of verbal development assumes that children learn to speak imitating words they can hear from people who talk to them.
- Noam Chomsky believes that language material which children listen to and imitate is not always consistent with certain language rules, but regardless of that, children can construct sentences they never heard before. Based on this, he concluded that it is the ability to speak with grammatical correctness which enables a child to learn a language.

- Opposed to Chomsky's theory were speculations which served as the basis for conclusion that people's care about children leads to language acquisition, which facilitates speech acquisition, and that without such care a language cannot be learned.
- Jerome Bruner developed a concept according to which a language is learned through mother's communication with a child, which triggered comprehensive program of experimental researches.

Johannes Merkel, analyzing only the period before beginning of speech, without including development of grammar and Chomsky's attitude, concludes that three concepts are related to certain phenomena significant for development of speech and language:

- In word acquisition, after the first spoken word, imitation obviously has an important role. Children hear words, and then adopt them and use as such.
- Interaction between mother and child, after birth has crucial role.
- If a relationship of a parent and a child is not coordinated, child's participation in the dialogue will not be successful. This also applies to pronunciation of sounds, monitoring the development from the first gesticulation until the first spoken word.

Insight into the listed attitudes shows that prenatal period was completely neglected.

However, it contains the nucleus of verbal communication, which is first realized through the connection and communication mother-prenatal child, then, parents – child - surroundings, so this period creates the basis for the development of prelingual phase which begins with the first cry upon birth, and ends when a child begins to talk at about one year of age.

Namely, by „global perception“ of speech content, through acquisition of supra-segment structure of speech, in which a child incorporates words and sounds of mother tongue as speech matrix, with later development of time-space relations between a child and its surroundings, and with the ability to speak with grammatical correctness, a child acquires and develops speech in a very short period from prenatal period until three years of age. In this period, a child completely masters so-called functional verbal communication.

We will discuss the dynamics of the development of verbal communication from prenatal period until the early prelingual period.

2. Development of Listening and Programming of Prenatal Child

With the aim of observing the process of the development of prenatal communication, we will make a short survey of prenatal dynamics of hearing development, as the basis for the development of verbal communication and prenatal programming.

Researches indicated that morphogenesis of auditory analyzer begins at a very early development phase of a prenatal child (Fig. 1). In the 4th gestation week (GW), the inner ear is divided into two parts, cochlear and vestibular. In the 6th GW cochlear canal looks like a short, closed, coiled tube, in the 7th GW it forms a real coil, and in the 9th -10th GW cochlea has 2,5 coils, but its height, from the base to the top is only 3mm. The size of 6-7mm, as in an adult, cochlea reaches at the 5th month of prenatal development.

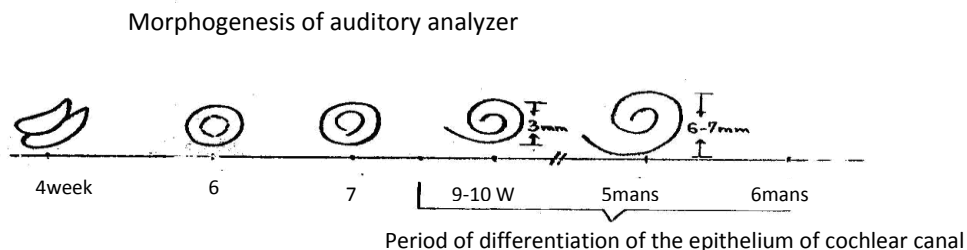


Figure 1. Morphogenesis of auditory analyzer (stylized scheme)

Differentiation of the epithelium which covers the cochlear canal begins at the 8th GW and ends at the 6th month of prenatal development. Development of different parts of the Organ of Corti does not happen simultaneously. The development begins from basal parts towards the apex. Process of myelinization commences in the area of cochlear nucleus and spreads centrally and peripherally. Cycle of the myelinization of the part of auditory system in the brain stem is very short and lasts from the 5th to the 9th month, whereas myelinization of thalamo-cortical projections is much slower, ending until the 4th year of age.

Analyses of prenatal development of the auditory system and numerous researches spanning a number of decades indicate that reflexive listening commences at the 16th (GW), and the reliable response to sound stimulus from the outer environment is registered in the period between the 25th and the 27th GW [2].

Tomatis says: "... everything in sensory nerve cells and vestibular system is similar to the cells of the Organ of Corti in the cochlea. It can also be said for the sensory cells in the skin. Therefore, someone might see cells in the Organ of Corti as differentiated parts of skin, or skin as a differentiated extension of the ear". He also established that vestibular and cochlear systems are in significant interaction. Development of vestibular system plays an important role in posture, balance and movements of our body. This will later enable the body to have the most suitable posture for listening and speech – vertical posture.

During the intrauterine life fetus receives the first idea of the body through vestibular system. Tomatis concluded that "in order to receive information, the whole body, as well as the complete nervous system need to be prepared for listening and focusing on sounds". Locomotion must be considered important in the child's speech development, not only in relation to the process of listening to speech, but also in the process of articulation. The connection between listening and articulation (movement of the organs in our body) is obvious through the whole life of a human being, starting with the development of hearing and speech organs of a fetus [1].

We will analyze the way a prenatal child reacts to outer sound stimuli and how "programming" a child is carried on, having in mind Milakovic's scheme of the initial stage of creating child's personality in the prenatal period. Milakovic presented this scheme far back in 1968, at the *V Congress of Biocybernetics* in Naples. The fact that after birth, a child is capable of surviving in the outer world means that this ability was acquired in the prenatal period.

He asked the following question: How can mother teach a baby in her womb to adjust to future life conditions? The starting point was Sontag's theory that child is a part of mother's psychosoma, and she transfers the states she is in via "blood excitations" i.e. she transmits her experiences to a child.

Milakovic made a step further and in the possibility of transferring mother's experience he noted the process of "fetus programming". It is via "blood excitation" that a mother teaches a prenatal child about everyday oscillations and models of frustration and satiation, which will be the content of its life after birth.

Communication mother-child in the prenatal period is both mental and verbal, and is of the utmost importance for children's development, whereas mother's voice is the "pillar" of child's personality [3].

The simplified explanation would be that learning takes place on the metabolic level, because the areas of CNS in charge of metabolic and vegetative control, are fully developed, such as mesodiencephalon, where integration centres of soma-psyche relation are situated. Via mechanisms structured in such a way in their organisms, prenatal child and mother communicate via placenta and information will be transferred from mother's mesodiencephalon to child's mesodiencephalon in a few seconds, following the principle transmitter (mother) and receiver (child). Programming of a child, according to simplified Milakovic's scheme goes through following stages (Fig. 2):

- In the first trimester of pregnancy, hereditary factors have dominant role and mother's messages do not penetrate into neurophysiological structure of a fetus. This formulation is no longer acceptable. Namely, it is certain that even at this period "communication" mother-child is present, while heredity is predominant.
- In the second trimester, mother's messages penetrate and program child's structures by their rhythms.
- In the third trimester, a child refuses mother's messages and fights unpleasant outer influences, fighting for its own homeostasis.

Fig. 3 gives a simplified scheme (A) of the process of information flow from mother into child's organism. 1, 2, 3 are stimuli which come into mother's mesodiencephalon (4) from her senses, inner sensors and memory. Via reactions of mesodiencephalon, mother's state is reflected on the composition of blood which circulates towards the placenta (5). Via the placenta (6), composition of mother's blood is taken over by child's blood (7) and then, via umbilical cord it enters its bloodstream and reaches child's mesodiencephalon (8). Received information from mother's blood is memorized as a program in mesodiencephalon and other centres, and are completely identical to the mother's. This level of programming lasts from 0 to 6 months. Scheme B shows the period during which a child creates its own program with the aim of preserving homeostasis. Via auto control (10) it reacts to any influence which disturbs its homeostasis. Thus, a child will react to mother's "messages" of thirst – by drinking amniotic fluid, to the increase of her blood sugar it will react by the increased secretion of insulin etc. In this period, communication mother-child is intensive and it can be physically detected by intensifying or reducing child's movements while verbally addressing a child, stroking the abdomen, listening to music etc. This process of programming is realized within 6 to 9 months.

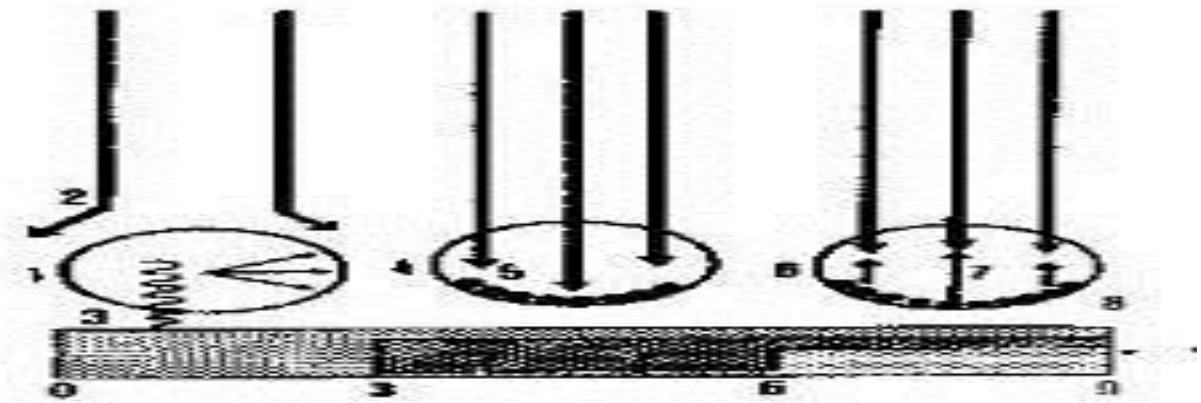


Figure 2. Programming of a child according to simplified Milakovic's scheme

This simplified presentation of the process of programming a prenatal child shows that it consists of genetically modulated development, as well as a child's ability to adapt. A child carries one part of instinctive knowledge as heritage (congenital), whereas it has to learn the other part during the prenatal period (inbred) in order to develop adaptation mechanisms which will provide "survival" during birth and after birth.

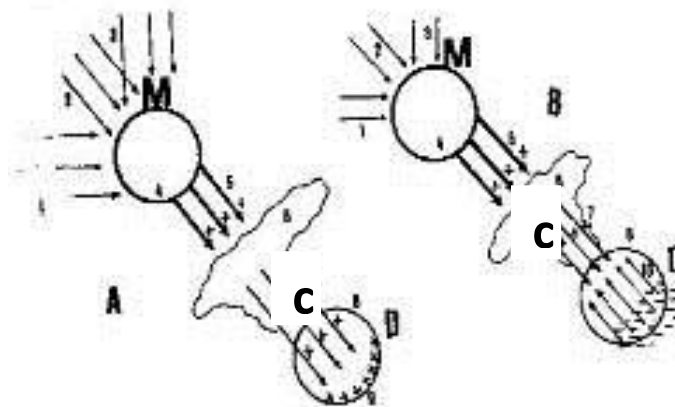


Figure 3. Process of information flow from mother into child's organism, after Milakovic

Mother's sudden stresses cause recognizable chemical changes in the amniotic fluid. When a mother talks to a prenatal child in a relaxed manner, this communication is usually full of emotions. They can help a child to better understand mother's language, just like they help a baby to better learn a language. Researchers established the effect of mother's emotional speech, which is transferred through the placenta, and leads to the increase of heart activity of a fetus. It was also established that in mothers with negative attitude towards pregnancy, changes occur in their pulse, breathing and vascular rhythms. This influences the change of rhythms in a fetus, causing disharmonious, repetitive, arrhythmic discontinuity in its acoustic-vibratory surrounding. This form of communication is carried out through the communication below consciousness threshold, and is known as "emphatic connection" between a mother and a prenatal child, or "emphatic communication". Instead of the term "emphatic communication", which assumes the ability of compassion and the assessment of a person one communicates with, telepathy would be a more adequate term, since according to parapsychological definitions, it appears between very close persons.

By adequately educating mothers, this communication can be developed into a complete, conscious communication with a child in prenatal period [4].

3. Prenatal Communication

As it is already known, sounds which a child hears in mother's womb come from two sources, much like a stereo system. The first comes from mother's body, such as: heartbeats, movements, breathing, blood flow in blood vessels, bowel sounds (these are predominantly low-frequency sounds), tone of her voice which is transferred through tissues, bones and fluids, whereas the second source are other people's voices and different sounds coming from the outside, which creates basis for acoustic surroundings of a prenatal child.

Sensitivity to high-frequency sounds gives fetus an opportunity to live in the womb in a relaxed manner (intrauterine sound level is about 80 to 95 dB) and the possibility to listen to its mother's voice. Fetus obviously listens to its mother and keeps her speech specificities. Newborn's first cry (crying) is similar to characteristics of its mother's speech. Newborn's first cry (crying) is unique, almost as much as a fingerprint and it is full of information about its mother's speech characteristics which coincide with the characteristics of its first cry. It is known that a newborn possesses auditory preference for human voice, and its sound influences a newborn greatly [5].

Our researches indicated that already two or three days after birth, newborns have different reactions to noise in the environment compared to speech: in the maternity ward 50% of newborns stop crying when they hear nurse's speech, whereas the other half of newborns lower crying intensity or make longer pauses between two crying instances. This preference for human voice stems from prenatal auditory stimulation to which a prenatal child is exposed via mother's voice and voices from the surroundings [3,6].

There is a number of proofs which indicate that prenatal auditory experience can be significant for postnatal perception and the development of speech. Results of different researches showed that a newborn reacts more intensely to mother's and father's voices, as well as to the story read by the mother prenatally, compared to strangers' voices and unfamiliar stories. Research results obtained in the experiment on pregnant women who read out loud the same story twice a day, six weeks prior to birth, indicated that after birth their babies "could" choose a story by changing the rhythm of sucking. They quickly learned to adjust sucking in order to get the story read by the mother before birth. All this implies that a newborn processes speech, because it kept the story in memory and compared it to the new one [7].

Over the previous years, in our researches we examined reactions of a prenatal child to a story read by the mother during the third trimester in the 7th and 8th month of the prenatal period. Experiment, based on the analysis of CTG recording, aimed to establish differences in the reactions of a prenatal child when: the mother read a story, when the same story was read by unknown female and male voices, and when an English translation of the story was read by the mother and by an unknown male voice. At the same time, rustle of water and murmur of people were used as stimuli.

Results of this experiment indicated that prenatal child reacts identically (there are no significant changes of the heart frequency) when it is stimulated by rustle of water, murmur of people and reading a story in English,

regardless of whether it is read by the mother or a stranger. Significant increase of the heart rhythm frequency appeared when the mother read a story in mother tongue. When a story was read in mother tongue by unknown male or female voices, differences appeared in the reaction to these two readers, but the heart frequency was significantly lower in both cases compared to the period when the same story was read by the mother.

The experiment was repeated after birth, at the beginning of the second month (after birth a newborn was not stimulated by this story), and newborn's reactions were monitored by quantitative EEG (maps) with a record. Again, it was unmistakably established that during the stimulation by rustle of water, murmur of people and reading the same story in English, the same cerebral regions are activated, whereas completely different regions are prompted when the story, by which a child was prenatally stimulated, was read by the mother. There is also a difference in the activation of zones between unknown male and unknown female readers.

In this experiment, which was conducted at the beginning of the second month after birth, an additional task was introduced – all readers read an unfamiliar text as well – a child heard the text for the first time. The results were fascinating. The unfamiliar text activated new cerebral zones in a newborn in response to all three readers, compared to a familiar story in mother tongue and in English. The differences appeared again in activated brain zones when a new text was read by a mother compared to unknown male and female voices. Zones which were activated during the stimulation by murmur of people and rustle of water were identical to zones which were activated while listening to an English translation of the story [8-11]. We can also conclude that a child is postnatally capable of distinguishing familiar text which it listened to prenatally from an unfamiliar text, a foreign language from mother tongue and mother's voice from unknown male and female voices. Rustle of water, murmur of people and a foreign language have the same level of meaning for a child during prenatal and postnatal period.

Having in mind that a prenatal child has perception and memory, it is obvious that this knowledge is transferred into the postnatal period. Namely, a newborn is prenatally capable of learning and memorizing acoustic characteristics which determine their target position, as well as the structure of sounds and that it can recognize them again regardless of which voice is reading them. Therefore, a newborn can again recognize rhythmic and melodic structures which it often listened to even before birth and has an "imprint" about them in its consciousness.

Obviously, a newborn manages to decode and recognize the content of the story which was read, it "absorbs" the content of the story and can recognize it based on prenatally adopted patterns, which are maintained postnatally. It is capable of recognizing not only the voice, but the text as well. This experiment indicated that engrams, formed prenatally, remained 72 days after birth, although some researches established that postnatally, memory traces of prenatal stimulation last up to 21 days.

An unborn child, on the one hand, can "receive" messages and communications through extra-sensory channels. A newborn probably adopts linguistic sequences as music cadences. It can be assumed that messages which a child receives prenatally represent the basis of linguistic signs, particularly when they are directly related to the child, so it can be assumed that besides being able to memorize linguistic sequences, a child can also connect them with feelings and messages.

In this way, telepathic communication would be paraphrased by the manner of speech (emotional speech expression and suprasegment structure of speech) and sound. Development of nonverbal and gesticulation forms of communication, which is developed after birth between a mother and a child and mostly stimulated by a mother, can be based on this. The next step after gesticulation-symbolic communication and until the first spoken word represents speech as a predominant means of communication.

4. Role of Rhythm in Development of Prenatal Speech Basis

In the prenatal period a child registers sounds, it can feel two basic elements which represent the basis for future talent for music, at the same time forming the basis for verbal communication. These two elements are rhythm and sound which is defined by duration, frequency and intensity.

In the 1970s Condon's researches indicated that listener's body moves rhythmically in relation to the speaker, which is related to changes connected with articulation. He called this phenomenon "interactional

synchrony". This does not mean that the speaker and the listener have identical body movements. Persons who communicate do not adjust to each other automatically, but they show intensity of shared communication by mutual rhythmical movements and the degree of understanding, agreement or support which the listener shows. Intensity of "interactional synchrony" depends on how much a listener is motivated and interested in a certain subject.

Condon examined interactional synchrony in newborns applying the same methods which he used in adults. He discovered that the first day after birth, a newborn makes synchronized movements based on adults' speech in the form of rhythmical movements which remind of dancing and maintains them during the speech which contains about 125 words. A newborn maintains the same body movements as long as a voice seems the same, changing the movements when a voice changes. If a child is already making some body movements, which happens in most cases, as soon as a voice changes, body movements change adapting to the changes of voices.

Adaptation of a newborn to rhythmical structures of human voices is possible because it listened to its mother's voice already in the prenatal period, since the fourth month, and thus formed the basis for sound identification. It can be proved that newborns not only mother's voice, but familiar voices from their own surrounding and that perception of these familiar sounds changes the speed of the heart rhythm. Synchronization of body movements does not depend on a voice unknown to a child, it does not even depend on whether it belongs to mother's tongue or not. For example, American newborns reacted in the same way when they heard sentences in Chinese. However, rhythmic coordination stops instantly when artificially created syllables or sounds are played.

Interactional synchrony is connected with the very nature of speech - newborns recognize human speech as such and get used to its rhythm. These results are in complete accordance with previously mentioned results from our researches that newborns react to human voice immediately after birth.

A group of Japanese researchers who examined newborns' abilities to synchronize their body movements based on human speech, confirmed by computer analysis that adult's speech influences newborns' movements.

Relation mother-child indicates that coordination from mother's side appears with different intensity. Mothers who are in constant contact with their children are more synchronized than those who are not in the constant contact with their children. Newborns show their closeness with adults based on synchronization of their movements i.e. when they are in the contact with an unfamiliar person, their movements are less synchronized than when they are near a familiar person. This decreased synchronization is connected with increased negative emotional influence on a newborn. This represents a way of child's communication – synchronization can mean "continue", and desynchronization can mean "stop".

In the prenatal, as well as in the postnatal period relation between a mother and a child can be influenced by the degree of their mutual coordination and synchronization. Since adapting to rhythms of human voices can be noticed in newborns, it is considered that this communication is definitely developed before birth. However, it seems that the level of interactional synchrony depends on the relation itself and that prenatal differences are probably developed, which later influence acquisition of language as well as on sensorimotor and general psychophysiological development.

Based on further classification of rhythmic, body movements are recognized as integrated signal units, which separate intonation from an expression and enable sounds to differ one from another, to be clearly heard, obtain the meaning and be deciphered as communication.

A child practices rhythmic schemes in a thousand ways. Prelingual phonology actually emerges from rhythmic values which are present already in the first cry. It contains all language universals, which create the basis from which any language can be developed. Acoustic structure contains all acoustic elements of human speech such as: formant, noise and combined acoustic structure, its duration corresponds to the duration of a complex sentence (1.84 sec), dynamics of its intensity is within intensity limits of pronouncing sounds (30 dB), whereas its frequency field corresponds to speech area of 0-5000 Hz.

Nobody teaches a child how to cry, which will be followed by speech and singing which will have the same basis proto-rhythms. These are organized elements and without their repetition a child will not be able to develop speech and singing. Present are the rhythms of: breathing between two crying instances, gasping, coughing, sneezing, sucking etc.

In the prenatal period, besides rhythm, suprasegment structure of speech is adopted (SSS), as a matrix for sounds, words and sentences. SSS implies intensity, frequency and duration of sounds, syllables, words and sentences.

Prenatal child perceives speaker's SSS and that is the initial step towards communication, it becomes familiar with the range of human voice, on the level of frequency and intensity range and duration. It then perceives segments, then it deciphers, and then adopts harmony, adapting to the speaker's voice – all this is a prerequisite for communication i.e. basic process for language acquisition.

When words and sounds are separated from continuous flow of perception, they can be recognized as semantic units and then rhythmic structure enables selection and distinguishing of individual segments. Mutual synchronization mother-child-surroundings provides an initial pattern based on which any sound or word can be inserted in the speech matrix with which a newborn is born as an inbred speech level. Through the formed pattern, as a bearing component, flows emotional speech expression. Prenatal child perceives its mother's language and surroundings both in its phonetic form and on a certain level of semantic- emotional content.

5. Connection of Patterns of Prenatal and Postnatal Reaction to Verbal and Sound Stimulation

A prenatal child and a newborn are sensitive to sound intensity, pitch and duration. Even a praematurus born in the seventh month responds automatically and behaviorally to numerous acoustic variables. In the first moments of life, a newborn can identify a source of a sound and make difference between true, real crying compared to computer-simulated crying. It also reacts differently to sounds of its own crying compared to other newborns' crying, or older children's crying. Children stopped crying when they heard a recording of their own crying. The message is probably recognizable and it sounds familiar, being similar to the one they are producing. Similar experience is also present when a newborn listens to its mother's speech. There are differences in listening to her voice outside, compared to listening in the womb, when a child experiences different sensations caused by changes in mother's body which happen while she is speaking [4].

Both a prenatal child and a newborn react motorically to acoustic sensations. Sound with a corresponding pitch, intensity and distance will lead to immediate movements of a prenatal child. In the application of the prenatal hearing screening, developed at our Institute, which is carried out after the 28th gestation week, 75% of prenatal children react to sound stimulus by increasing the speed of blood flow in aa.cerebri media, and by decreasing flow rate by 25%, which is probably connected with two types of psychosomatic reactivity – introvert and extrovert.

Newborns react globally to sudden changes. One of the well known postnatal reflexes, known as Mohr's reflex, shows global effects which sound can have on newborns: they react to sudden loud noise or discord, first by spreading arms, then by putting them together, while the hands open and close into a fist, and the spine and legs stretch. These reactions are not accidental and they are not symptoms of learned reactions to sounds and feelings – they represent a newborn's attempt to control its reactions.

Researches established that a newborn moves in the precise rhythm of mother's vocalization and that changes in movements of body parts are in accordance with changes in speech syllables and even that certain body movements are connected with particular sounds. These parallels are not obvious at first sight. These reactions have prenatal basis in the movement of prenatal child in the rhythm of its mother's speech [7].

6. Prenatal Movements of Speech Organs and Development of Speech Communication

Some authors are of the opinion that fetus has a far larger number and a far wider distribution of gustatory connections in its oral cavity compared to a child or an adult. Fetus is in contact with fluids in its surroundings. Amniotic fluid enters its mouth at 9.5 weeks, whereas swallowing and tongue movements are noted at about the 12th week. Fetus has differentiated preference for different tastes. It prefers sweet taste and doubles the swallowing when it feels it. The taste of amniotic fluid changes depending on mother's state, her feelings and attitudes [4]. In this period, besides the development of swallowing, a child also develops sucking effect and an ultrasound often shows it sucking the thumb, sticking out its tongue etc. This is just another different fact about

basis of the development of verbal communication which needs to be reviewed. Organs which are active in speech and listening are multifunctional.

Production and perception of speech is only one of their functions. They are formed in such a way so as to enable utilization of other functions in learning a foreign language even since the prenatal period. Having in mind these facts as well as both our own and foreign research results on the development of vocalization during the first and the second month after birth, which indicated that nuclei of vowels are the first to develop in all languages, including research on the dynamics of vocalization development, we can conclude that basic movements for pronunciation of vowels are developed prenatally, because these are actually movements of sucking, swallowing and opening and closing the mouth (Fig. 4). This is confirmed by the order of appearance of vowel nuclei during the first and the second month upon birth - A, E, U, i.e. baby opens the mouth, takes the mammilla - A, it squeezes the mammilla between the palate and middle part of the tongue - E, it draws the mammilla and the tongue backwards, raising the root of the tongue towards soft palate - U and swallows. In homeostasis, a newborn repeats these movements alongside with laryngeal voice, forming nuclei of these three vowels.



A – medium, low E – anterior, medium U – posterior, high

Figure 4. Movements of sucking, swallowing, opening and closing the mouth as a basis for pronunciation of vowels

Our researches on speech development in prelingual period [6] indicated that vowel nuclei are developed during the first month in the following order: A, E, U. If this order of vowels is compared to the movements of sucking and swallowing, it can easily be observed that during vocalization these movements produce sound, conditioning the production of nuclei of the listed vowels. Our researches showed that the order in which vowels appear in speech follows the order of sucking movements in the following order:

- A – opens the mouth, the tongue is at the bottom of oral cavity, accepts mammilla,
- E - raises body of the tongue towards the palate, squeezes mammilla,
- U – raises root of the tongue towards the palate - draws milk and swallows

Direction of tongue movements in the act of sucking and swallowing is identical to articulatory movements:

Vowels I and O appear in the second month and it is evident that movements needed for pronunciation of these vowels are not primarily included in the movements of sucking. Phonology of children's speech is later formed from primary rhythmic network (proto-rhythms) of physiological origin: rhythmic vowel sequences which have genetic basis, and then language is formed in the social context of these proto-rhythms.

This approach clearly indicates that speech and language are at the same time congenital, inbred and acquired, and that connection between hearing and speech is essential, which completely eliminates any dilemmas whether main characteristics of sound are its acoustic or articulatory properties. Of course, articulatory properties are easier to control. First sound experience of a prenatal child via mother's speech, as well as speech from the outside surroundings, transmitted by kinesthetic, bone and water ways indicates that both acoustic and articulatory processes must unavoidably be respected and that there are no reasons for classifications and different theoretical approaches. This can also be explained by the origin of listener's ability to decode acoustic patterns.

This ability is applied in the development of language during the period of prelingual development, when a newborn first develops perception in atmospheric conditions, and then practices its articulators and develops motor and cerebral control over voicing, relying on adopted and inbred prenatal models. A congenital model implies movements of sucking and swallowing, inbred model implies the development of prenatal suprasegment matrix of mother tongue, whereas acquired model is developed postnatally in atmospheric conditions through the development of prelingual suprasegment structure of speech, voicing of sucking and swallowing movements and development of sounds, syllables and words.

It is known that basis of a foreign language can be established during prenatal life, just like in the case of Indian people, where English and Hindi are used parallelly in higher castes, so a child starts speaking in both languages.

Our researches indicated that mothers who spoke a foreign language during pregnancy, gave birth to children which in the postnatal period stopped crying, cooing or moving when mothers addressed them in that foreign language. At a later preschool age, those children were more interested in learning a foreign language in which their mothers stimulated them during the prenatal period [6].

Tomatis described a four-year autistic girl whose understanding was better when her parents addressed her in English compared to French, her mother tongue because her mother, while pregnant, spoke English at work [1].

7. Prenatal Stimulation of Speech and Language Development

Existence of prenatal basis of speech and language imposes adequate prenatal stimulation, i.e. adequate utilization of this period for promotion of verbal communication development and thus the overall psychophysiological development of a child. Contemporary literature abounds in models of prenatal training and education.

Stimulation mainly flows through communication below consciousness threshold, which is known as empathic or telepathic relation between a mother and a prenatal child. However, results of the application of prenatal training and education, spanning over a number of decades, indicate that by educating a mother this communication can develop into a full, aware communication with a child in prenatal period.

Different programs of early stimulation of prenatal children have been designed, but most of them contain general stimulation modules, such as: auditory, vestibular, visual, sensorimotor and tactile stimulation, relaxation, breathing, massage.

One of the main goals of prenatal stimulation is to educate and encourage parents, brothers, sisters and members of a wider family to develop positive conscious relation with a prenatal child and to realize conscious communication with it as a present family member.

Development of mother's positive emotional attitudes releases endorphin in mother's limbic system, which positively influences: growth of a fetus, development of its immune system, its intelligence, sensorimotorics, cognition, reasoning, language abilities, emotional development, as well as formation of prerequisites for establishment of adequate relation mother-child after birth and during the whole life.

Prenatal training and education implies education of fathers, which further develops triad relation mother-father-child and provides father's complete participation in child's development and essential development of strong, harmonious family. In education, special attention is given to creative visualization, which helps realization of essential communication with a prenatal child.

One of the significant factors of prenatal training and education is to train parents to adequately use emotional speech expression as major components in verbal communication. Addressing prenatal child, as well as addressing a newborn in the postnatal period must be followed by adequate expression of emotions in speech. Speech should be slow, with variations of speech melody, it should abound in nice words addressed to child's appearance, talents, virtues etc.

Comparative researches on music stimulation and music therapy showed that music, both instrumental and vocal, positively influences development of the brain both in prenatal period and after birth. Nowadays, application of music stimulation has a special role in the neonatal intensive care unit, positively influencing the development and recovery of children [12].

Generally, music encourages harmonious communication in the triad mother – child – father, both in prenatal and postnatal period. The kind of musical experiences influence prenatal child in different ways. Symbiotic connection between mother and child is carried out in different ways depending on the position of a child, mother's posture and musical stimulation. Stimulation by songs provides higher social and interpersonal awareness, whereas lullabies tend to develop inner, self-centred awareness, awareness of oneself.

The same differences are present both in speech and language. If speech stimulation is directed more towards sound structures, it should contain variations of tones, syllables, accents (tone, duration, length) intonation and rhythms. If it is directed towards the stimulation of meaning, different texts should be used: lyrical, epic, dramatic, spiritual, fictional, or stories about real life. Around the world, comprehensive researches in the area of assessment of the influence of prenatal stimulation of the development of a child indicate that in stimulated children, compared to those who were not stimulated, the following develop faster and in greater scope: language 38%, memory 47%, social intelligence 51%, reasoning 82%. Also, motor development is faster, intelligence quotients are higher and permanent, birth weight and length are better, Apgar score is higher, teething commences earlier, as well as verbal and cognitive development..

8. Instead of a Conclusion

Researches on prenatal and perinatal language communication indicate the existence of the ability of prenatal child to listen, learn and memorize speech-language contents, starting with suprasegment structure of speech, up to "absorbing of certain speech contents" which are primarily emotionally coloured. Inbred patterns which are developed in prenatal period and acquired in prelingual period should be the subject of researches of different scientific areas and disciplines in order to adequately study the nature of the development of speech and language, its role in modelling and development of behaviour, the role of language in noetic process, as well as significance of emotional speech expression for the development of adequate behaviour. Prenatal period abounds in dynamic processes of the development of verbal communication and behaviour, which implies active inclusion of this period of development into researches and theoretical considerations of linguistic, psychological and sociological theory.

Prenatal period implies activation of new approaches in psychology, pediatrics, defectology, pedagogy, with the aim of spreading knowledge and designing programmes and strategies to organize prenatal training and education. Developing and cherishing awareness of the role and significance of prenatal training and education, and verbal surrounding in particular, will provide advancement of general development of a child through speech-language development, cognitive development, development of creative and inventive thinking, as well as the increase of child's learning potentials.

Prenatal language communication is not limited exclusively to mother's speech, but also applies to premises by which her thoughts, language, attitudes and understanding can be transferred onto a prenatal child without a sound. This fact offers new views of different language levels and the very notion of mother tongue, whose development begins in the prenatal period, which is the only period when mother's language has a predominant influence on a child.

Rhythm has an outstanding significance for the development of verbal communication. Without rhythmical structure, it is not possible to segment and decipher speech or intelligible speech. Rhythm is extremely significant for speech, starting with pronunciation of sounds up to body movements during the speech act. As it was already mentioned, getting accustomed to rhythms of human voices is developed before birth, and the degree of mutual synchronization depends on the relation child - mother, which later influences language acquisition and development of an individual on the whole. Particularly significant aspect in this relation is emotional speech expression in the communication with a prenatal child, as well as in the postnatal period.

Results of the researches in prenatal psychology and prenatal medicine provided the development of different methods of upbringing and education of a prenatal child. At some of the universities around the world, prenatal psychology is studied as part of basic studies, or within postgraduate studies of psychologists, gynecologists, medical doctors etc. However, existing knowledge has not yet been widely applied. For the organized care about prenatal education and training it is an imperative to educate staff that will master multidisciplinary knowledge

which includes medical, psychological, pedagogical and defectological aspects of a child's development in prenatal period, and its influence on psycho-physiological-sociological development of a human being.

Adequately educated staff would carry out three levels of prenatal care about children's development. The first level is education of all levels of profiles of experts who look after children's development, upbringing and education, such as: gynecologists, neonatologists, pediatricians, kindergarten and primary school teachers, psychologists, pedagogues, social workers, defectologists etc. The second level is education of: adolescents, young people who are about to get married and education of married couples who want to have a child (preconception education). The third level implies direct work with parents and a family which expects a baby, from the moment of conception until birth, and from birth until the first year of life.

Only societies and states which responsibly, in an organized manner and with long-term goals approach the increase of the development of entire physical, mental and spiritual potentials of their posterity compared to their ancestors, are the only ones which can provide development and progress.

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HOMEOPATHY: ENERGY-INFORMATIONAL HOLISTIC VIEWPOINT

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Abstract. Homeopathy is a medical system founded by the German doctor and chemist Samuel Christian Hahnemann (1755 – 1843) who had profound insight into life, the human body, health and disease. Only recently modern scientific disciplines, such as quantum physics, have started to explain the discoveries to which Hahnemann came intuitively. Homeopathy, contrary to conventional western medicine, is based on the belief that humans are much more than their material physical body. Homeopathy recognizes levels of existence that are not perceivable by our five senses. The core of our being is made of energy, our vital force. It abides at the energy level, but manifests itself on three different levels. The most subtle level of its manifestation is the mental level where it manifests as thoughts, the next level is our emotional level where it manifests as emotions, and on the physical level its manifestation is material body. When the vital force is in its natural state of balance, its ideal state, it is manifested as mental, emotional and physical health. However, if our vital force is out of balance it is considered in homeopathy as disease. This disease will be expressed by our vital force as pathological symptoms on the mental, emotional and physical levels, extending the concept of disease that classical medicine upholds. For homeopathy disease is possible only at the energy level. Symptoms on the mental, emotional and physical level are only the external, visible manifestation of the disease. In homeopathy influences on the vital force that throw it out of balance are called miasms. Miasm is a word of Greek origin which means pollution, impurity, or stain. Hippocrates was the first to use word miasm to explain how diseases are spread by air, water, or other ways. If we treat a single case of pneumonia we can heal it as an acute illness without understanding of miasms. However, if it reoccurs with other illnesses of the respiratory tract, this means there is a tendency towards these diseases. Our aim is to address the tendency and we cannot heal it without the understanding of miasms. Miasms are pathological energy fields that influence the vital force and keep it out of balance. This causes a predisposition towards different kinds of diseases that occur repeatedly, or towards a chronic disease with various complications and the onset of low immunity. As miasms are energetic influences, they could be treated only by other energetic influences, which can be homeopathic remedies. The therapeutic effects of homeopathic remedies are not based on biochemical reactions as in classical medicine, but on the interaction of energies.

Keywords: *homeopathy, vital force, energy level, mental, emotional, physical, disease, symptoms, miasm, energetic influences, predisposition, chronic disease, homeopathic remedies*

1. Introduction

Homeopathy is a system of healing [1-7] founded by the German physician and chemist Samuel Christian Hahnemann (1755 – 1843). Through his medical practice Hahnemann gained deep insight and understanding of the human organism and the conditions of health and disease. Remarkably, what he discovered more than two centuries ago modern science like quantum physics, molecular biology and neuroscience have only recently started to understand and explain.

Homeopathy is based on understanding the human being not merely as a physical body, as is traditionally accepted in allopathic medicine, but as considerably more. Homeopathy recognizes levels of existence that are not detectable by our five senses. According to homeopathic philosophy the core of our being is the vital force, or life force, which is energy that manifests itself on three different levels: On the mental level as thoughts, on the emotional as feelings, and on the physical as a physical body.

When the vital force is in balance, this manifests as mental, emotional and physical health. This is vital force's natural state. In *Organon of Medicine* [1] Hahnemann writes in paragraphs 9 – 13 about the spiritual vital force that animates the physical body, rules it and retains all parts of the organism in harmony. Without the vital

force the body is incapable of sensation, function and self-preservation. When a person falls ill this spiritual force is disturbed by a dynamic influence, by a morbid agent, inimical to life. This imbalance of the vital force is what homeopathy considers as disease and what constitutes its object of treatment. This is a radical departure from the traditionally accepted definition of disease.

Since the vital force is invisible, the only way the person can become aware of its influence is through its effects on the organism. A morbidly affected vital force, thrown off balance, manifests itself by producing symptoms. According to homeopathy a disturbed vital force evokes symptoms by trying to reduce its own dysfunction. Symptoms are only the external manifestation of internal disturbance through which the physician learns about internal disease. Symptoms are the expression of the vital force as it struggles against disease and not the disease itself. In other words, symptoms are not entities separate from the vital force and they cannot be treated this way. In allopathy symptoms are often misunderstood and accepted as the disease itself. As allopathy does not recognize the vital force, symptoms are treated separately from the underlying disorder. Consequently, allopathic treatment often leads to the suppression of symptoms, which is detrimental to the organism because it intensifies internal disease, or the disturbance of vital force by blocking its natural outlets.

In paragraph 201 of *Organon of Medicine* Hahnemann explains that the vital force that is burdened by chronic disease instinctually forms a localized malady on some external part, which will reduce the internal disease. However, the local affliction is never anything but an aspect of the internal disease. Further, on paragraph 202 it is mentioned that if symptoms are treated separately and removed without considering the internal disease, nature will make up for it by awakening and intensifying the internal disease.

This approach to healing was known long before the inception of homeopathy and it is explained well by the words of the Swiss physician, alchemist and philosopher Paracelsus from the 16th century:

Those who merely study and treat the effects of disease are like those who imagine that they can drive away the winter by brushing the snow from the door. It is not the snow that causes winter, but the winter that causes the snow.

Paracelsus was also the first physician to establish the Law of Similarity in healing, on which homeopathy is based. This means that any substance which can cause particular physical, emotional or mental symptoms in a healthy human being, can restore to health an individual with the same symptoms caused by disease.

2. Theory of Miasms in Homeopathy

From the homeopathic point of view disease can exist only on the energy level where the vital force abides. Everything that takes place on the mental, emotional, or physical level is nothing but a manifestation of the state of the vital force. The question that arises here is what are the dynamic influences, or morbid agents that disturb the vital force and produce disease. The vital force is energy, as we already know, which means that it can be influenced only by other energetic agents. These energetic influences are called miasms in homeopathy. Accordingly, healing can take place only on the energy level.

The word miasm is of Greek origin and it means pollution or stain. Hippocrates was the first one who used it to explain how contagious diseases could be transmitted by air, water, or other means. Later it was used to explain atmospheric influences that could cause disease. In Hahnemann's time it was used for the unknown causes that produced disease in the entire organism.

Hahnemann noticed in his work that there were diseases which were caused by mechanical or external influences such as trauma, inappropriate diet, poisons, extreme cold or heat, to mention but a few. The first step in their treatment was to change the environment, or the patient's life style. However, he also noticed that there were diseases that could not be helped to a process of healing just by a healthy life style. No matter how healthy the life style of a patient was, new symptoms and aggravations would arise and the disease would progress all the way to death. Hahnemann considered these diseases as true chronic diseases. A healthy life style might cause the disappearance of a tumor, for example, but it could never eradicate the tendency of a body to produce tumors as an expression of internal disease, or imbalanced vital force. The cause of this tendency is miasm and this cannot be cured by a healthy a life style.

In his work Hahnemann also noticed that, in some cases, even a well-chosen remedy would work for some time and then its curing power would decrease. In the end symptoms would reappear. Furthermore, he noticed that very often, when one disease disappears another one would appear. He came to the conclusion that there must exist some obstacles to the cure that must dwell within man, not outside. Following the family history of his patients for a long time he discovered patterns of disease across generations. These patterns depend on miasms which are internal obstacles to the cure. His final conclusion was that until miasms are cured, chronic diseases cannot be cured completely, even with a well-chosen remedy.

In the book *Chronic Diseases* [2] Hahnemann explains his theory of miasms. He presents three miasms: psora, sycosis and syphilis. Psora is the first and the main miasm from which everything else developed. Later his followers added two more miasms. Pseudo psora, also known as tubercular miasm, which combines psoric and syphilitic miasms and cancer miasm, develops when at least two miasms that used to be active are suppressed. Later homeopaths added many other miasms and there is also a theory that every chronic disease has its own miasm.

Miasms can be inherited or acquired throughout life. They can be acute or chronic and dormant, latent, or active. Acute miasms can be fixed, such as childhood diseases, but they can also be recurrent, as in the cases of cholera, yellow fever, pneumonia, or diphtheria. Dormant miasms show no symptoms, but can be detected with a carefully taken case history, including the history of the patient's family of origin. Latent miasms show minor, usually unnoticeable symptoms for which a person would not necessarily contact a doctor and active miasms lead to clear symptoms and fully developed diseases.

Hahnemann talks of miasms as infections. Of course, these are not infections in today's sense because in his time microorganisms had not been discovered. He means energetic infections that disturb the vital force and cause diseases. Miasms are energy fields, which influence the vital force by interference of energy. If the vital force is not influenced by miasms it will be in balance and its manifestation will be health on the mental, emotional and physical levels. Once the vital force is overpowered by miasms it will influence the whole organism because it is kept constantly out of balance. The vital force reacts against this influence by producing symptoms in its attempt to re-establish the balance. This is why, as we mentioned before, it is not good to treat symptoms as separate from the underlying cause. This could block the process of self-healing and cause the internal disease to increase.

Miasms also weaken the vital force making it susceptible to other influences to which it has been resistant. This accounts for tendencies toward certain diseases, or predispositions for certain diseases. If a vital force that is infected by miasms is not treated with anti – miasmatic remedies miasms will not only stay for life, but will be transferred to the next generation. This is the reason why, along with suppression, even though allopathy is very well developed nowadays, more people are becoming ill every day, certain diseases remain incurable and appear at increasingly younger ages. It is not possible to cure miasms through allopathic medicine.

3. Homeopathy in Modern Time

Our current understanding of life is founded on the philosophical ideas of past centuries: French mathematician and philosopher Rene Descartes regarded the world as a big machine. He divided it into an objective sphere of matter, which is the domain of science and a subjective sphere of mind, which is the domain of religion. According to Descartes these two parts are completely separate and independent. The English physicist Isaac Newton established the principle of causal determinism, according to which all motion can be predicted, given the laws of motion and knowing the initial conditions of the object. Furthermore, Charles Darwin's theory that human beings are the result of genetic mutations in the process of survival according to which the better and stronger survive, leads us to conclude that we humans are no more than survival machines.

According to the above, the human body is no more than a physical-chemical machine with two centers, the heart and the brain, in which everything is controlled and regulated by hormones and enzymes and predisposed by genes. If there is a malfunction, it is possible to be fixed by the addition of certain substances, or by the removal, replacement or addition of a certain part. Partially this is true, but only partially. Biology and medicine based on the Cartesian-Newtonian system recognize only visible stimuli that influence the human body. This

system of thought has been taught to many generations and many people still base their understanding of life on it. In this light, it is common sense that homeopathy would not be accepted as a science. There is no possible way for this system to accept a homeopathic explanation of the human organism, health or disease, nor to explain how homeopathic remedies work. For the Cartesian-Newtonian biology and medicine what is not perceivable with our five senses does not exist.

However, modern scientific disciplines that were developed in the twentieth century, such as quantum physics, molecular biology, or neuroscience recognize and focus on the invisible influences that are of great importance for human beings and life in general. Quantum physics recognizes the zero point energy field. This is the field of subatomic particles between which there is a constant interchange of energy. Although it is not perceivable by our senses it does influence everything that exists, including human beings. Einstein said that a particle is ruled by the field. A particle represents matter and the field represents the energy that surrounds us, although not visible to us. This means that properties of matter depend on energy. This is exactly what homeopathy claims: the state of the human body, including emotions and thoughts, depends on the state of the vital force. The energy field of the human body, invisible to us, is called morphogenetic field by quantum physics and vital force by homeopathy.

Hahnemann's miasmatic theory has not been very widely accepted, either by his followers, or by contemporary homeopaths [3-7]. Many homeopaths consider it controversial and unnecessary, for the possible reason that they lack proper understanding of it and cannot use it. Kent, the second best known homeopath of all time, says that treating a patient without understanding miasms is like treating Jack in the box.

4. Conclusion

As we can see, homeopathy recognizes aspects of the human being that allopathic medicine does not. This is why homeopathy is called complementary medicine (from the Latin word *complementarius* that means to complete a whole, to supply a deficiency).

It is not possible to grasp miasmatic theory through common sense or allopathy. Quantum physics, however, is able to explain it. With proper understanding of miasmatic theory homeopaths would be able to use it with success in healing. And not only this. Understanding quantum mechanics could finally explain how homeopathy works, which would dissolve all speculation whether homeopathy is no more than a placebo treatment [7].

It is of the utmost importance that we understand the nature of human beings before we embark on treating them. Quantum physics and contemporary advances in science offer us the unique opportunity to enrich our knowledge of our nature and apply treatments that are in harmony with it, such as homeopathy. If we do not understand our true nature, no matter what system of medicine we use, we can have only partial results in healing.

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CARDINAL CHARACTERISTICS OF TRADITIONAL CHINESE MEDICINE

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Abstract. Traditional Chinese Medicine (TCM) has a history longer than 4000 years. During that time, it had gradually developed into a medicine with unique and integral medical system. Because of high effectiveness and possibility of prevention of disease, it shares an important place with Western conventional medicine in Chinese public health system and it also became very important part of world medicine. Nowadays, the growth and globalization of TCM are evident in all sectors, from application to education and training. Theoretical system of TCM has two cardinal characteristics: conception of holism and treatment determination based on syndrome differentiation. TCM holds that the human body is an organic whole in which all constituent parts are structurally inseparable, functionally interactive and coordinative, and pathologically inter-influencing. It recognizes the close relation between man and its natural and social environments. Syndrome differentiation is to analyze, differentiate and recognize the syndrome of disease. Treatment determination is to consider and formulate the corresponding therapeutic principle and method according to the result of syndrome differentiation. Diagnostic methods, “four examinations“ which are being used in syndrome and disease differentiation, include looking, hearing and smelling, asking, pulse examination and palpation. Basic theories in TCM includes: yin and yang, qi and blood and five elements theory, internal organ and channel theory as well. The main parts of TCM includes: Acupuncture and moxibustion, Chinese materia medica, Chinese massage (tuina), dietology and Qi Gong. In 1972, the World Health Organization (WHO) nominated 43 kinds of indications of acupuncture and moxibustion to the whole world. After a lot of studies and evidence-based medicine being done, they further expanded and modified this list in 1978 and 1982, and sum up the indications of acupuncture and moxibustion to 300 species. Acupuncture is one of the most effective methods of relieving pain. It is giving very good results in treating diseases of muscles, bones, joints, nervous system, cardiac, respiratory, gynecological disorders... Chinese Materia Medica gives the system of using the Chinese medical herbs in forms of herb formula in order to treat different syndromes. Qi Gong is a science, a philosophy, a way of thinking. It is an art of maintaining good health and balance through aligning breath, physical activity and awareness. The basic principles of TCM remain the same, adaptation is always done in order to better integrate for the use of today's global society. It could have complementary nature to Western conventional medicine.

Keywords: *traditional Chinese medicine, acupuncture and moxibustion, holistic system*

1. Introduction

Chinese medicine has a long history. It is a summary of experiences of Chinese people in their struggles against disease, being an important part of the outstanding Chinese culture. In a long period of medical practice, it has gradually formed and developed into a medicine with a unique and integral theoretical system. Chinese medicine belongs to the category of life science. It is an important part of world medicine, taking the mission to promote continual progression and creativity of life science [1].

2. Chinese Medicine Today

During more than 4000 years of development, TCM has greatly improved its theory and clinical service quality. Body differentiation and effectiveness of TCM treatment impressed the Chinese and the people around the world, and it is sharing an important place with Western medicine in Chinese public health system, provincial, municipal and town TCM hospitals or service center provide in different level with local herbs and

special techniques. A data from State Administration of Chinese Medicine P.R. China, showed that 9213 species of disease can be treated by traditional cures [2].

Nowadays, the growth and globalization of Traditional Chinese Medicine are evident in all sectors, from application of TCM to education and training .The use of acupuncture and acupressure is evident and increasingly accepted internationally almost everywhere. Accelerated increase in awareness, usage and acceptance in TCM practices and remedies increased the need for TCM education and instruction in many countries around the world [3].

3. Basic Theory of TCM

The beginnings of the theoretical system of Chinese medicine date back to the Warring States and the Qin and Han dynasties. Nowadays, the fundamental books of Chinese medicine are well-known: *Huangdi Nei Jing (Huangdi's Inner Classic of Medicine)*, *Nan Jing (Classic on Medical Problems)*, *Shang Han Za Bing Lun (Treatise on Cold Pathogenic and Miscellaneous Diseases)*, and *Shennong Ben Cao Jing (Shennong's Classic of Medical Herbs)*. Theoretical system of Chinese medicine has two cardinal characteristics: conception of holism and treatment determination based on syndrome differentiation. Chinese medicine holds that the human body is an organic whole in which all constituent parts are structurally inseparable, functionally interactive and coordinative, and pathologically inter-influencing. It recognizes the close relation between man and its natural and social environments [4]. Cardinal characteristic of Traditional Chinese Medicine is treatment determination based on syndrome differentiation. Syndrome differentiation is to analyze, differentiate and recognize the syndrome of a disease ; and treatment determination is to consider and formulate the corresponding therapeutic principle and method according to the result of syndrome differentiation. Disease, symptom, and syndrome are different in meaning. So called disease means a complete morbid process including specific cause, mode or onset, typical clinical presentation, and developing the law and outcome. The so called symptom is discomfort felt subjectively by patient (for example; nausea, lassitude..). The sign is abnormal changes presented objectively on the body (for example: macule, papule, red tongue...). Therefore symptom in a broad sense include sign. The so called syndrome is a pathological summary in a given stage of a disease in its course made by doctor, which includes :cause of disease, focus of disease, nature of disease, situation of disease, and relationship between the pathogenic and the vital [5]. Basic theories in TCM includes: theory of yin and yang, qi and blood and five elements theory, internal organ and channel theory as well.

4. Acupuncture and Moxibustion

Many aspects of Chinese culture including technology, geography, philosophy and social relations, contributed to the invention and development of acupuncture. There was one well-known association between the channels of the Earth (macrocosmos) and the channels of the body (microcosmos). As a concept of holism, the awareness that each part mirrors the whole, represents the one of the most fundamental principles of classical Chinese philosophy and medicine. Later on, these understanding was incorporated into some of Qi Gong exercises. It is believed that Human and Nature are similarly constituted and govern by the same laws [6].

Techniques of acupuncture and moxibustion are so closely related, and in clinic very often used together, that very often they are mentioned as one technique – acu-moxa. The science of acumoxa techniques mainly explains the basic conceptions, concrete operation techniques of needling and moxibustion, and its applications and precautions, which must be mastered for clinical treatment of acumoxa. The chapter Guan Zhen (Official Needling) in *Ling Shu (Spiritual Pivot)* said: “If disease could not be treated by acupuncture, moxibustion might be the suitable method“ [7]. But basically, these two techniques are also different. Acupuncture is mechanical stimulation, while moxibustion is heat stimulation. It could be said that acupuncture is the usage of needles which are penetrating and stimulating specific points on the body in order to restore normal function and energetic balance. Acupuncture points are the spots from which both the Qi and the blood of Zangfu (internal organs) infuse into the body surface, along the course of meridians. They are sites on the skin, often located in small depressions by the bones, on place which nerve or vessels passthrough, and between two bones, two muscles or

between muscle and bone. Correct location of a point is usually confirmed by the reaction to finger pressure. The first mentioned of needling is found in the Historical Records, in the biography of Cang Gong (215-140 BC). He was leaving in time of Western Han Dynasty (206 BC-24 AC) at the time of the birth of acupuncture. Bian-stone was considered as the earliest form of “needle“. The ancient needles also include bone needle, bamboo needle, ceramic needles, etc. Later on, many discussions on acupoints were mentioned in Neijing (104-32 BC). The Neijing states that there are 365 acupoints, corresponding to the 365 days of the year, although only 160 are mentioned by name [8]. There are numerous acupoints throughout the body. They are generally classified into three types: meridian acupoints, extraordinary acupoints, and a-shi (“o-yes”) points. The effects of acupoints are directly related to the condition of the patient. Puncturing an acupoint will generally not produce any effect on a healthy person [9]. In case of disease or disorder, puncturing the same point in the same way may produce opposite effects depending on condition being treated. This is called biphasicity of acupoint. For example, puncturing PC6 - Neiguan can slow down a rapid heart beat in the case of tachycardia, or can speed up a slow heart beat in case of bradycardia. Variability means that needling one point can influence the function of several organs and that needling several points may influence the function of one organ. Needling acupoints can have: local, sectional distal and specific effect. Attaining needling sensation is very important moment in acupuncture procedure. It is also known as arrival of needling sensation – *arrival of qi* (*de qi* 得气). It is including patience, experience of local sensation of soreness, numbness, heaviness and distension, coldness, hotness, and also includes practitioners feeling of heavy and tense reaction under the needles. Other symptoms could be: local redness, sweating, tension or loose of local muscles. Attaining the needling sensation is the key point for achieve therapeutic effect of acupuncture. It is also the basis for conducting further needling manipulations. Factors which are related with attaining needling sensation are: constitution of the patient, condition of the patient disease, accuracy of locating acupoints, depth of needling, skill and power of qi of the acupuncturist, status of spirit of both patient and acupuncturist, accuracy of selection points according to the syndrome. In 1972 World Health Organization (WHO) nominated 43 kinds of indications of acupuncture and moxibustion to the whole world. Recently thirty years, a lot of scholars make a study in together and sum up the indications of acupuncture and moxibustion extend to 300 species [10]. Acupoints could be located (or not) on meridians. “Meridian theory is the basic of all principles of acupuncture” [11]. The meridians are distributed through the body, forming a network that links the upper and lower, and the internal and external, into an organic whole. A series of modern studies more than 50 years proved that the meridians system has the characteristics of dominant diffusion of sound wave, light, electric sign, heat, magnetic sign and so along meridians, verify that the meridian system is objective existence. In the national zero-magnetic laboratory of China in Beijing is showed that the magnetic spectrum on non-meridians area is unstable with many peaks in wide range, and with big fluctuations; whereas, on meridian it is quite stable with standing waves, strong and almost time-independent. This order of magnetic spectrum is always broken by disease and could be recovered by acupuncture on meridian. It is also confirmed that meridian system is a network of matter-energy-informational current, and the meridians are mutually related with the low electric resistance pathway and standing wave that electromagnetic oscillation, chemical oscillation flowing along, and the meridian–qi flow along meridians like quantum with the ‘particle-wave’ dualism character [12].

5. Four Examinations

Patterns of traditional Chinese medicine (TCM) are discriminated by means of the four examinations (si zhen). These are visual examination (wang zhen), inquiry (wen zhen), listening and smelling examination (wen zhen) and palpation (qie zhen). It is by means of the combination of these four methods of examination that a TCM pattern is identified. Most of modern TCM clinical manuals describe this combined summation and analysis in terms of main symptoms (zhu zheng), examination of the tongue (she zhen), and pulse examination (mai zhen). In other words, in clinical practice, patterns are based on three broad groups of information: (1) signs and symptoms, (2) tongue examinations, and (3) pulse examinations. It is the comparison and corroboration of these three groups of information which differentiate one pattern from another, and it is extremely important that

no one sign or symptom means anything except in relationship to all other signs and symptoms gathered by the four examinations.

5.1 Pulse examination

Pulse examination is one of the main methods of establishing TCM pattern discrimination. Pulse examination in modern TCM primarily means the feeling of the pulse of the radial arteries at the styloid processes of both wrists. It is believed that the pulses felt here represent the flow of qi, blood and body fluids of the entire body [13]. Practitioners of Chinese medicine have been diagnosing and treating patients on the basis of pulse examination for at least 2000 years. Usually pulse is taken on both hand, and three positions are considered in each of them. Basic anatomical location is divided both longitudinally from distal to proximal and in terms of depth, from superficial to deep. These three positions are called:

- *Cun*, inch
- *Guan*, bar
- *Chi*, cubit

Common rule is that practitioner takes patient's right pulse with their left hand, the *guan* or bar pulse is felt directly under the practitioner's middle finger when that is allowed to rest on the patient styloid process. The *cun* or inch pulse is than felt by practitioner's index finger which is resting in the space between the styloid process and the base of trainer eminence. The cubit or *chi* pulse is found directly under practitioner middle finger, immediately proximal to their middle finger resting on the patient styloid process. (x)Typically, when all of three of these positions are spoken of, they are named from distal to proximal: inch, bar, cubit, *cun*, *guan*, *chi*. According to depth, they are two ways to analyze pulse. In first way the uppermost or most superficial section corresponds to heaven, the medium depth corresponds to humanity, and the deepest section corresponds to earth. Also, it could be said according to *Nan Jing (Classic of Difficulties)*, that heavenly section corresponds to disease in the area from the chest upward to the head, the human section corresponds to diseases located between the diaphragm to the navel, and the earthly section corresponds to diseases located from below the navel to feet. Nowadays, this system used by some Vietnamese, Taiwanese and Japanese.

Contemporary TCM pulse examination is usually based on *Bin Hu Mai Xue* (The Lakeside Master's Study of the Pulse). Usually, 27-28 pulse images are described, and their definition and indications almost in the same form as we are using them today in clinical practice, were added by Li-Shi-Zhen in 1564 AC. One of the key differences between the system of *Nan Jing* and *Bin Hu Mai Xue* is that now the inch, bar and cubit position represents the upper, middle and lower burners respectively. Thus each position may correspond to the main viscera or bowels in each of those three burners or any other part located in each of these three burners. Each of these locations is divided into superficial and deep level. So, *cun* location superficially corresponds on left arm to small intestine and on right arm to large intestine. Deep level corresponds on left arm to heart and on right arm to lungs. *Guan* location superficially corresponds on left arm to gallbladder and on right arm to stomach. Deep level corresponds on left arm to liver and on right arm to spleen. *Chi* location superficially corresponds on left arm to urinary bladder and on right arm to triple burner. Deep level corresponds on left arm to kidneys and on right arm to pericardium. It is important not to call these positions by their viscera and bowel correspondences, because these all is connected with personal patient constitution, tongue fur and other signs and symptoms [14].

All pulse images can be divided into normal pulse images, called *ping mai*, and diseased pulse images, called *bing mai*.

Ping mai, the normal pulse, has three characteristics:

1. You shen: It has a spirit.
It is coming and going are distinct. It also has force. The beats of pulse are clearly, the pulse is regular in rhythm and it's not interrupted.
2. You wei: It has stomach (qi).
This pulse is flexible, harmonious, slippery, uninhibited and not deep. If pulse doesn't have at least some slippery quality, it is lacking of stomach qi.

3. You gen: It has root.

This pulse is not floating, and its *chi*, cubit position can be felt down to the bone. If pulse *chi position* cannot be felt all way down to the bone, it is called *wu gen*, without root.

The four basic pulse images are: floating, deep, slow and rapid pulse. There are different physical techniques of examining the pulse. All of them have something in common:

Time – The Su Wen (Simple Questions) states: “The pulse should be taken in the early morning“. It is traditionally believed that yin and yang are relatively in balance macrocosmically just before dawn, and that patient have not yet eaten, engaged in work...Nowadays, its recommendable to ask patient before taking pulse about their recent activities.

Posture – The pulse is routinely felt while sitting across from the patient at the practitioner’s desk. The forearm should be horizontal and held slightly below the level of the heart. The palm of the hand should be faced up and the wrist should be held straight and kept relaxed.

Breathing – It is believed that respiration is associated with the movement of the pulse. It is important that patient breathing is relaxed and normal.

Finger placement and movement – practitioner should respect the rules of placing fingers on cun guan and chi position. The techniques of applying and releasing pressure as well of pushing and search for pulse are referring to depth and pulse longitudinally

Duration of examination. – it can be initial palpitation for short period of time (less than minute) and that one is usually sufficient for clinical practice. Also, there is extended palpitation from several to 15 minutes (it is done when is important to establish patient’s constitutional pulse)

Cultivating stillness during pulse examination – practitioner must be able to achieve a calm but alert state of mind.

Common factors which are affecting the pulse are also: age, sex, and body type, and lifestyle, anatomical and seasonal variations.

5.2 Tongue inspection

Tongue inspection is a method to diagnose the disease by inspecting the patient’s change of the tongue texture and coating. Tongue inspection has a long history and was recorded as early as in the Huang di Internal Medicine, the tongue inspection and the diagnostic method has been continuously developed by successive dynasties doctors. A long term clinical practice suggests the change of tongue reflect the state of illness objectively and exactly. It’s important basis for diagnosing disease, understanding the development and changes of the state of an illness and differentiation [15]. The excess and deficiency of the visceral, the exuberance or decline of Qi and blood, the wax and wane of body fluids, the existence of exhaustion of Stomach-Qi, the deep or shallow location of disease, the mature of disease and the favorable or unfavorable conditions of prognosis, all can be reflected objectively by tongue [16]. Inspections include observing tongue body (texture) and observing tongue coating. Observing tongue texture is observing the abnormal changes of the vitality, color, shape and movement of tongue body. Tongue coating observation includes observing the color and the texture of coating. The normal tongue is characterized as middle size, soft, neither tough nor tender, free moving, pink color, covered by thin and even white coating with moderate moistness, which could not be scraped away and it has its root in tongue. The tongue is closely related with viscera, meridians, Qi, blood and bloody fluids. Results of tongue inspection can be change according to the age, sex, climate, environment, constitutional and congenital disposition, habits and customs.

5.3 Chinese materia medica

The Chinese Materia Medica, an important part of the Traditional Chinese medicine, is a special subject for studying the theory on properties of Chinese drugs, their producing areas, collection, preparation, effects, dosage and administration. Chinese drugs originated from productive and medical practice by laboring people in ancient China. One of the first records “Shen Nong tasting a hundred herbs came across 70 toxic substances in a single day“ is a vivid description of the discovery and development of Chinese drugs by laboring people in ancient

China. At first, profound knowledge about Chinese herbs was disseminated and accumulated generation by generation in spoken language, and after the invention of written languages, the knowledge about drugs was properly recorded. Traditional herbs are divided into Chinese Materia Medica, Medical Chemistry of Chinese drugs, Medical Botany of Chinese drugs, Pharmacology of Chinese drugs and many other related subjects. As many as 5767 kinds of Chinese drugs were compiled in Chinese Materia Medica Dictionary published in 1975 [17]. Today it is supposed this number is above 6500. According to main tools of syndrome differentiation and treatment, formula-forming requirement for determination of dosage of drugs, and form of preparation, formulas of Traditional Chinese medicine are formed. The total number of entitled formulas has amounted to more than 100,000 by the end of Qing dynasty [18]. Drugs are used to eliminate pathogenic factors, restore normal function of the internal organs and rectify hyperactivity or hypo activity of Yin, Yang, Qi and blood, enable the body to recover from illness. The theory on drug properties and the law governing applications are pharmacology of Chinese drugs, including four natures and five flavors, effects of lifting, lowering, floating or sinking, channel tropism and toxicity. Natures and flavors of drugs are the first principle of all indicated in books on Material Medica of all ages. Four natures of drugs are determinate by their curative effects on cold and heat syndromes, and they are: hot, cold, warm and cool. Five flavors are determined by their actual taste and proven clinical applications, they are far beyond pure tasting, but closely linked to the effects of drugs. They are: pungent, sweet, sour, bitter and salty taste [19]. Lifting, lowering, floating and sinking effects of drugs according to different causes and states of illness can be used to eliminate pathogenic factors, restore Qi and purge heat, enable patient to recover from illness. Channel tropism means on what area the drug acts on, because it has strong affinity to specific internal organ and channel. Toxicity is referred to as harmful effects or toxic effects of drugs on the human body. That is why, practitioner should pay attention to: the dose of a poisonous drug, the using the toxic drugs correctly and preparation techniques should be followed. According to their functions drugs are divided into different groups: drugs for relieving exterior syndromes, heat clearing drugs, purgative drugs, anti-rheumatics drugs, drugs for regulating qi, aromatic drugs for resolving dampness... To prepare formulas from different drugs, the eight therapeutic methods are used: purging, sweating, harmonizing, warming, tonifying, resolving, emesis, clearing [20]. Formulas can be prepared in forms of: decoctions, powders, pills, honey pills, water pills, paste pills, condensed pills.

5.4 Qigong

Qi Gong is an ancient Chinese practice – the art of maintaining good health and balance. Through aligning breath, physical activity and awareness, practitioner is becoming able of exchanging energy and information with one's environment. It is a science, a philosophy, a way of thinking. In the Chinese language, Qi Gong is written with two characters – qi and gong. Qi is a substance that permeates the Universe. It has three components: material, energetic and spiritual. Qi exists in all things including the water, air, food.. In the body, Qi represents the unseen vital force that sustains life. “Gong” means the “the flow of”, “force“ or “the practice of.” Qigong, then, means the flow or practice of energy. Due to some sources this practice exists more than 4000 years, due to other – more than 6000 years. The origin of Qi Gong is commonly attributed to the legendary Huang Di Nei Jing – *Yellow Emperor Book* and the classic *Book of Internal Medicine*. It is said that the Qi flows through all of the Yin and Yang organs, and it's very closely related with flow of blood in our bodies. To have physically and mentally healthy body, means to maintain smooth and constant flow of Qi in the meridians, collaterals and acupoints. If this does not exist, different form of stagnation or deficiency of Qi and blood could occur, and they could manifest in variety of physical and mental symptoms (pain, lassitude, depression, insomnia...). The quality and quantity of Qi determines ones physical health, potential and reproductive functions and long activity [21]. By practicing Qi Gong it is possible to activate, improve and transform the energy of Lower DanTian (the main energetical center in human body according to Chinese medicine, in the level of RN6 acupoint)

Medical Qi Gong is the form of Qi Gong which is suitable for practitioners of traditional Chinese medicine. As a practitioner of energy medicine it's important to achieve and maintain the unobstructed flow of Qi in one's own meridians and collaterals. Exercises are design to balance yin and yang within the body, open channels and bioactive points, heightened sensitivity, which on the end increases results of the treatment of the patients. Later,

practitioner also can teach patients suitable exercises. The highest form of medical Qigong is the practice of directing Qi with mind through non-movement.

6. Conclusion

Nowadays, the growth and globalization of Traditional Chinese Medicine are evident in all sectors, from application of TCM to education and training. With the development of scientific technology, numerous new techniques of acupuncta are developed through combining the techniques of modern electricity, optics, visualization, point injection and acoustics. All those new technologies enrich the contents of acupuncta techniques and expand range of acupuncta. They represent the holistic interaction between practitioner, patient and the needle. A fundamental study and common manipulation of western medicine knowledge enables practitioners to get more profound results using ancient techniques of TCM.

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A NEED FOR HOLISTIC APPROACH TO THE OCCUPATIONAL HEALTH DEVELOPING (IN SERBIA)

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Abstract. Countries in transition, such as Serbia, have been going through obligatory system reforms, including the reform of the healthcare system. As a rule, occupational health becomes marginalized by the authorities who decide on medical care. In spite of the fact that this branch of medicine cares for working population that mostly carries the burden of transition, when material situation equals the existential minimum, its potentials are not recognized. On the other hand, the World Health Organization makes a remark that such population's health is undermined now more than ever, and adopts a binding Global plan for member countries and their experts in occupational health to take urgent measures for overall working people's health according to their needs. It seems that former work method of biomedicine specialists could not realize such ambition. This paper discusses the possibilities of occupational health future orientation toward holistic medicine, for the sake of workers' well-being and better quality of their lives, then creation of more humane society and vocational affirmation. Health promotion at workplace and Salutogenic concept may have crucial roles. This concept is a huge challenge for academic public and vocational practitioners in poor countries in transition that are already burdened with the current economic and financial crisis. Each in their own way, helped by self-education and education, without big material investments, together they may take their countries to the road of health, the road still rarely taken, yet more secure.

Keywords: *holistic medicine, quality of life, philosophy of medicine, occupational health, salutogenesis, health promotion at workplace, transition*

1. Introduction

Poor countries in transition that are experiencing the current financial crisis, zealous to make visible and rapid changes, have made the moves that in the long run have quite the opposite effects, in many different spheres of life. The health care system is usually affected first. Since the countries want to cut the health care expenditure, the health and well-being of working population, which is supposed to bear the burden of transition, have been directed to businessmen and employers that do not have capital, and do business mostly by trading in kind. Their lack of consciousness of how important it is to invest in the protection of the working people's health, and the lack of legislation which should be binding for them, are additional hindrances. State authorities do not recognize occupational health as an important link in the health care system they have been reforming, in spite of dramatic changes occurring in the area of work and severe consequences to workers' health. They also refuse to recognize the fact that workplaces are places where workers spend most of their awake time, and where they and their health can be affected in large scales.

Serbia is not an exception. Being a country in transition, after a turmoil that has been going on for a while, about the future of occupational health as a branch, some logical questions have been put forward: does it have a future? If it does, which is the best way to develop it? The author of this paper deems one thing to be for sure: silent acceptance of the status quo where occupational health is TODAY can only worsen its position. Therefore, development directed properly is possible only if we have the perspective of how occupational health should look like TOMORROW. Crucial understanding of the text that has been chosen to be a motto of the profession at the global level, "A healthy worker at a healthy workplace" [1], thus, has to be the basic inspiration for all people who dare take the plunge into the topic. Possible remarks to such attitude, regarding the fact that such motto refers

to the ideal condition which is unattainable, would be correct. Moreover, we must not forget that reaching the ideal is the prerequisite of survival.

It seems that even the World Health Organization (WHO) followed exactly the same determinant when it decided to make a Global action plan for further development the protection of the working people's health, applicable to all member countries in the period of 2008-2017, with priority tasks in the period of 2009-2012, after it had had an insight into the results of regular monitoring of working population's health in the world, which were pretty alarming. [1,2]. Such plan was presented to the representatives of Southeast European workers' health regional network, which Serbia also belongs to, held in June this year in Croatia [3] (the plan was adjusted to the earlier WHO's recommendations and adopted directives).

It is widely known that every small community, if it wants to continue to exist, has to find its own sanctuary and support to maintain its stability. Therefore, a professional vision of occupational health has to be supported by the current plan of the WHO and the objectives it defines. The detailed guidelines for concrete definition of its future actions in that direction should be looked for in the definition (WHO, 2009) [2] related to the notion of "healthy workplace" which reads: "A healthy workplace is a place where workers and employers cooperate and continually improve the process of protecting and promoting health, safety and workers' well-being for the sake of sustainable development of a workplace, all of which is based on identified needs, taking into account the following: health and safety in physical work environment; health, safety and well-being in psycho-social work environment, including organization of work and culture at a workplace; personal health resources of the employed, and the way a community participates with the aim to improve the health of workers, their families and other community members."

If we agree that basic stimuli of "Occupational health- tomorrow" in Serbia are determined by the organization that directs the activities related to health at global level (WHO), then, it can be concluded that the basic activity of occupational health in future, as up till now, will be oriented to risk assessment in the physical environment and activities directed to worker safety, the prevention of occupational diseases and injuries. It is certain that state-of-the-art technology of contemporary business does give a hint on a possibility of new risk occurrence (e.g. bio- and nanomaterials, on-line working, etc.), which will unquestionably condition an inevitable modification of the existing methodology for risks to be precisely detected, but it can only be a great temptation to the vocation in times to come, not a hindrance at all. The development of vocation in this direction is indisputably important, but it cannot be sufficient as such [1-3].

What gives the meaning and justifies the necessity of existence of occupational health is definitely a Man- a worker, and concern for his/her health. Moreover, occupational health, even according to the definition, is a state of complete physical, mental and social well-being at work- not only the absence of diseases or disability produced at work or elsewhere. Thus, we need to clarify the notion of physical well-being: it suggests optimal functioning of all physiological systems and organs; mental well-being, on the other hand, implies the possibility of making choices, progress, communication, the right to information and the ability meet refusals; the emotional mental well-being implies comprehension, recognition and emotion control, whereas the spiritual well-being means the development of awareness of the point of life and its values.

Health, as well as life, is a dynamic and complex process and it is not possible to grasp it apart from the religion, then, social, economic, political, cultural or any other influences. Modern pace of life, the development of new technologies, the internet, a large number of information we need to process, obliteration of clear borders between time (working hours) and space (workplace), all largely shape work characteristics, hence, the needs of a modern man [4,5]. Yet, a limited ability of adaptation and inability to satisfy the needs of the workers, or the absence of the meaning and point of life, create tension and inner dissatisfaction, i.e. stress in workers, that progressively damage their health and cause an enormous increase in psychosomatic disorders. The phenomena of burnout, mobbing, violence at work, etc. reduce additionally the quality of their lives. Current financial crisis enhances the intensity of negative connotation of modern business doing, particularly accentuating, in psychological sense, burdening a human being as a carrier of work process [6-9].

The evolution of society has led to evolution of consciousness in people, changing their attitude toward health and illnesses greatly. A prerequisite for health is satisfaction with life and the possibility of self-realization.

Therefore, the perception of health nowadays equals the quality of life of an individual, whereas illness is a consequence of poor quality of life and imbalance at the level of basic human needs. There is scientific evidence that physical health of a human being is directly proportionate to emotions, and it is conditioned by thinking. That is why health and work psychology, as the parts of health science, and well-being of the employed have become strategically very important disciplines, when it comes to personal existence and development, the development of work organizations, even national economies that gain in importance when the crisis is globally escalating [10-15].

In this paper, the individual's and public's health is viewed as a dynamic process, but not independent of other dynamic processes (e.g., economy, politics) that are all part of a much bigger process. Furthermore, it is argued that it is not merely sufficient to account for all known factors to be holistic. In this paper, the holistic conceptual model is illustrated, using public health as the central issue.

2. Today is Tomorrow

Occupational health, as a preventative branch of medicine, must as soon as possible demonstrate the ability of answering the challenge it has been facing. At the same time, this is an opportunity to prove necessity of its existence within the state healthcare system. This way, an appropriate practical reaction may turn the vocational problem into an opportunity. The existence of occupational health is mostly conditioned by how much it is capable of influencing the quality of lives of workers and employers it is serving [16,17]. That is why TOMORROW is already TODAY for vocation such as occupational health. In a nutshell, TOMORROW depends on how much it is present TODAY.

In this sense, anti-stress management program is the first and urgent preventative activity such vocation should carry out. If truth be told, the need for this type of engagement exists ever since the Law on obligatory risk assessment at work has been adopted for every employer in the country. At the end of the official act, the results of such assessment in most cases contained, among all, a verified noxa: stress at workplace [18]. Thus, orientation of the occupational health to this direction has become a feedback to real situation, and quick reaction to WHO's recommendations presented within the Global plan, which as a whole has only one objective: consideration of workers' health in its entirety, not only related to occupational health. As this is a complex phenomenon, a hard and thorough work is required, which implies adoption of standardized generic instruments for testing Work Ability Index (WAI), the quality of life, burnout, mobbing, Human Work Index, etc [1-3].

WHO's Global plan is certainly binding for all member countries, yet it seems to give considerable freedom to each individual country to define its own objectives. At this particular moment, if occupational health as vocation in Serbia is capable of recognizing such freedom not as "freedom from", but "freedom for", and qualify enough to meet the requirements and needs of the workers as they are, it will, by all means, give Serbia the chance to develop significantly as a humane society. A workplace is a suitable ground for realization of such idea, a place where people spend most of their awake time, and the area which can be influenced most, for common good and to mutual satisfaction. Hence, freedom refers to whether the vocation in the upcoming period will be waiting for guidelines of already directed development as recommended by the WHO's Global plan, which is undoubtedly good, and just follow it, or, they will be paving the way to the common goal with their own creativity, knowledge, experience, skills. One has to admit that it would be a zigzag road to take; it requires the energy and loads of knowledge, typical for people who are dedicated to their profession. The index of success of vocation moving toward this direction would be the Human Work Index, considered carefully in the above-mentioned document - WHO's Global plan, which the profession should implement as the instrument in everyday work [19,20].

The freedom of choice, however, without the sense of responsibility and respect of the basic moral-ethical principles, rarely leads to desired goal. This is being mentioned now because the profession of occupational health has to take huge responsibility for working culture in Serbia, no matter how hard it is to discuss it now, and we know that there is not enough political willingness and financial support to take culture even into consideration. The connection between health, life quality and culture needs not to be questioned. Teaching others- in this case, the employers, owners of small and medium-sized companies, their employees, craftsmen-

any culture, even working culture, is a complex task; it is not easy at all. It is a process which needs to be done according to certain rules [21]. Occupational health experts that are familiar with the code of medical profession, and that have officially adopted the professional code, therefore have the task to transfer their experience to all companies and legal entities whose health they take care of, so that the companies and legal entities, too, can adopt their own code of behavior [22,23]. However, the code of behavior and business doing is more than a code, it certainly is transmitted best (if not solely) by a personal example that includes the art of dialogue, communication, assertive behavior, mutual understanding and respect. These are the characteristics one should constantly master within their own profession, through continual education in the area of social and emotional intelligence, non-verbal communication, neuron-linguistic perception, etc. Constant improving of our own code of behavior is the only way the code of behavior of management and employees can be altered substantially, which in the end defines the level of culture at work. This is the only way that occupational health can become an example of good practice to those for whom it exists [24]. Holistically viewed it doesn't matter how good a stress management may be in a workplace if the management culture is one of bullying. [25,26] There is evidence that adoption and development of new management philosophy, developed as it has been described, and implementation of the co-manager position, have resulted in positive work atmosphere where stress is reduced to the lowest possible level. Co-managers (i.e. experts in work organization management in charge of workers' health) may and should be recruited from the profession of occupational health, tomorrow [27]

3. Occupational Health → Workers Health

Official health, biomedicine, directed to concrete illnesses and treatment of the said by medicaments, in spite of fantastic development of the pharmaceutical industry in the previous decades, almost from the very beginning, has not turned out to be enough, regarding the perception of human health. Although there are preventative branches of medicine, health promotions through the institutes for public health, health education through individual and group work within wider medical disciplines directed to reduction of health risks, the hiatus between sickness and health has been deepening day by day. Inability to control stress that modern life generates, contributes to gap widening even more. Since the dawn of time, when pathogenic medicine was conceived, scientific world has been trying to find out other paths to health as a whole, for everybody has long ago agreed that health is much more than the absence of physical illness. As a result of mutual cooperation and multidisciplinary approach to the matter, holistic medicine emerged (Greek, *cholos*- complete, whole). It deals with substantial human values, recognition of the purpose of life in individuals, as the links missing in the biomedicine chain, on the road to ever-sought-for health as a whole [28-34].

Holistic medicine is the one displaying ambition to cure patient's character, no matter how difficult it is to understand such concept [35]. It is the kind of medicine where doctors deal with virtues of a human being, their talent, recognition of the purpose of their lives on the road to self-realization, the lack of which make life unbearable. Let me remind you, life satisfaction is prerequisite for health. This is a type of medicine preaching the positive concept of all therapeutic procedures, either healing or treatment, for the sake of better quality of life, as a measure of perception of modern age Man's health. A human being, a patient, has a crucial role and responsibility for the outcome of treatment, since holistic medicine is the medicine of self-healing. The insight they have while in the process of healing (or prevention, for that matter), perception, understanding, acceptance, ability to connect, gained experience related to that, and practical realization of newly-formed attitudes toward life, are major paths to the cure. A holistic doctor should just give directions to people and help them recognize the key events in their lives that were lived out improperly, but have established their character and behavior which largely contribute to the state of sickness. Of course, they have to be capable of meeting the requirements of the position they have in the holistic health concept. Their competence is therefore determined by their characters, the ability to give themselves to others spiritually, and by morality, i.e. the ethical code. That is because they envisage the encounter of doctor and patient in holistic therapy as the encounter of two souls on the path to inner peace. This is a process, not giving out prescriptions and medicaments, waiting for them to take effect, although the above-mentioned process implies that, too. This is a process that certainly embarks upon philosophy and psychology of life and in many aspects resembles a kind of art. Yet, health, the gist of it, is in a

way a logical consequence of the art of living [36-47]. Therefore, holistic medicine cannot be the same as medicine NOW. It takes a critical mass of conscious and educated doctors (and not only them) who will act according to complete holism. Occupational health doctors have to be aware of that. The following cannot be omitted: alternative medicine also aspires to be an indispensable part of health as a whole. Sure there is biomedicine which is irreplaceable where it is necessary. Integrative promotion of health can be ultimately decisive for this story, i.e. it can bridge the gap between sickness and health, even holistic and biomedicine. A positive salutogenic concept of health promotion seems to be promising mostly regarding the success of such aspirations [48,49].

It is not possible to observe health promotion outside the described concept of contemporary medical and scientific tendencies on their way to health as a whole, for it stands for their practical realization. Health promotion at work is, being an indispensable part of the whole, and according to WHO's Global plan, an obligatory activity of occupational health as vocation. The scientific area of occupational health TODAY and its implementation TOMORROW must be guided by the described Global tendencies. It implies the necessity of structural re-orientation of vocation, from being directed to health in connection to work, to health as a whole (Occupational health → Workers health). This seems to be the only path that promises survival of the vocation, even realization of its vision, "A healthy worker at a healthy workplace", regardless of how distant it looks like at the moment [1-3].

4. Workplace Health Promotion

Workplace Health Promotion includes the combined efforts of employers, employees and the society to improve health and well-being of the people at work (Luxembourg Declaration of 1997). Health (life) promotion in wider context implies the process which enables individuals, groups of people or the whole society to increase health control and improve health in physical, mental, social and spiritual sense. The very process should be supported by creation of environment in natural and social sense, where people could identify their internal and external resources, so that they could exploit them multiply, to make their wishes come true, satisfy their needs, make their lives meaningful and be able to accept or alter their environment for the sake of health promotion [50]. When it comes to workplace health promotion in Serbia, in the previous period, occupational health mostly dealt with health education, where workers and their employers had a very passive role regarding the issue of our interest. Nowadays, health promotion is based on the dialogue and active participation of all subjects and has long ago surpassed the activities such as promotions of healthy life-style. Hence, vocational activities have to be directed to development of workers' health literacy. Better health literacy is the key to the positive outcome of health education [51,52].

Health literacy denotes personal cognitive and social skills that determine the ability of an individual to get understand and use information to improve and maintain health. Classification to basic, functional, interactive and critical health literacy indicates that workers need to have a minimum level of functional health literacy within the framework of workers' health protection, so that they are able to exercise their right to health care. It is an obligatory step toward sharp inner perception of health determinants, as the highest goal of health protection in general, even workplace health promotion. According to the latest findings, this is the only possible way to health as a whole and quality life; together with full awareness of the wide spectrum of many inevitable changes in all spheres of life outside work that life puts forward. Moving in this direction demands appropriate training within vocation, through the programs of continuous education. A handbook for workers is vocation's duty on this road [53].

5. Salutogenesis

In the 70's of the previous decade, a different approach to health was developed, the one that primarily emphasized the factors that make it possible for people to maintain health, not so much the factors that cause diseases. As a counterpart to pathogenic orientation, this approach was called salutogenic, and one of the pioneers and the most important advocate of such approach was Aaron Antonovsky (1979) [54]. He adopted the attitude

that stress was a natural phenomenon in life. Disease occurred due to the absence of individual's ability to bear with it properly. Stress mechanism development and specific, yet simple description of possible procedures of unbalancing that a human being can adopt or learn through health promotion, were the initial inspiration of numerous scientific areas of research, such as: philosophy, sociology, psychology, economics, medicine, which were the pioneers of holistic perspective on human's health. The climax of helplessness of basic medicine in stress flood - the existential vacuum - resulted in rebirth of Salutogenic concept [55].

Within the framework of salutogenic health promotion model, the leading role in fighting stress is given to the sense of coherence, i.e. a dynamic sense of safety so that events in people's inner and outer surroundings become predictable and explainable, and that people have their inner resources (experience) at disposal which can be utilized to fight the tension cumulating when such unpleasant events occur, thus, these events need to be perceived as challenges to be solved, not problems. It is assumed that a stronger sense of coherence enables individuals to activate an efficient mechanism of confrontation in stress situations, which helps them to draw near health on the continuum. Nevertheless, a low sense of coherence disables appropriate resource activation, which leads to poorer stress management, increasing thus the probability of health deterioration. This is a process that needs to be developed from the moment we are born, during child upbringing, and yet it can be taught to adults in the process of health promotion and holistic medicine therapy [56]. This sense can be "measured" by a questionnaire, composed by the author (sense of coherence; hereinafter, SOC) or its mastered versions, composed by the advocates of holistic medicine (SOC II, SOCE) [57,58]. Utilization of these questionnaires before and after interventions for the sake of better health turned out to be very useful. For example, in the field of work, the version of this questionnaire which measures workers' organizational engagement is used among others; Organizational Engagement (OE) is applicable in the processes of assessment and choosing adequate profile of workers for different job positions in work organizations- companies for the sake of more efficient business doing. Work organizing largely determines the quality of life (health) of the employed. Therefore, this is important, but not the only instrument in the process of health promotion at workplace and realization of the anti-stress management program [59]. Also, it can be useful for professional selection, orientation, re-orientation and direction of older workers for their age of work to be prolonged [60].

Describing here the details of Salutogenesis, or holistic medicine for that matter, is necessary for better understanding of them, and it surpasses the topic of this paper within which they are mentioned. Such superficial review is, nonetheless, considered necessary. This is the case because Salutogenesis and holistic medicine are envisaged by the WHO's plan in the part that urges for the actions for health promotion at workplace, and because it is as an initiation of continual education regarding the mentioned topic within the profession in question.

Such holistic approach toward workers' health is possibly a unique opportunity of occupational health as vocation in Serbia to defend, survive, grow stronger and take initiative in the most important field, which besides the advantage of improving the condition of a population, may have the more important economic impact: decreasing of expenditure for more and more costly standard medical care and employing of considerable number of young people essential for a new (holistic) concept in medical care [61,62].

6. Holistic Medicine or Biomedicine

As natural science, especially chemistry, developed a long list of pharmaceutical drugs that became available to the physician in the 20th century, many medical schools accepted biomedicine as the dominant type of medicine, while other kinds of medicine was defined as "alternative" [63]. The cost-effectiveness of medicine has become an important issue as the prize of biomedicine in many countries has become an enormous economically burden. In countries with health social protection, biomedicine is often the dominating kind of medicine for a population, where half the citizens are being chronically ill. The national cost of the pharmaceutical drugs had been doubling every five years for two decades in many European countries, with a development that seems to continue. Also, there has been an increasing awareness of lack of efficiency and high incident of side effects and adverse events in pharmacological medicine, which has created a renewed interest in the classical non-

pharmacological medicine. Therefore less expensive holistic, complementary and alternative (CAM) treatments have become the focus of attention, as these treatments might be more cost-effective than biomedicine [64,65].

The western tradition of scientific medicine started in Greece 400 BCE, where the physician Hippocrates and his students had a hospital on the island of Cos. The original writings are preserved as the Corpus Hippocratic. The medicine of Hippocrates was holistic as it intervened on all aspects of man - body, mind and spirit - at the same time. For over 2000 years this medicine was practiced all over Europe almost completely without the use of drugs. Its fundamental idea was to induce salutogenesis – i.e. healing of the patient’s whole life and existence - by helping the patient to increased self-insight. This was done through the concept of talents and character. When the patient understood him or herself and was able to use all talents – bodily, mental and spiritual – to create value to self and others, he or she recovered the sense of coherence (SOC), and improved quality of life, health, and ability. This route of “quality of life as medicine” or personal development for health is the fundamental principle of CAM today. Also low working ability was efficiently solved with CAM [63].

In the future it will not be enough for a physician just to prescribe drugs. In the future patients will be better informed and they will want more from their doctor. They will want a medicine that is likely to cure them. For some clinical conditions like acute infections future medicine might still be an antibiotic drug, but for most clinical conditions the medicine that cures patients in the future is likely to be a non-drug medicine (CAM) [66]. In the history of medicine the commercial interests have often trumped science, and we need to learn from that so we can make medicine more rational in the future [67]. Money now used on inefficient biomedicine could be used to solve some of the true problems of the world. A more healthy population would also take better care of the planet and of each other making the world a better place. The final say about which kind of medicine we will have in this world will hopefully come from people who take care of the patients’ best interest, not the interests of the industry and its allies, and who unbiased will analyze which medicine is the most helpful for the patients. It basically boils down to the matter of cost efficacy: How much health and healing can I as a patient buy for one dollar, pound, or EURO? [64].

7. Conclusion

Each society has been facing not only a probable and possible future, but also the problem of desired future. Directing development means making an effort to transform that possible future from a desired one into a probable one. Whether the Occupational health will exist TOMORROW, or whether its development will be directed to holistic medicine, depends on each individual employee of the institutions connected with it. In a way, everybody may contribute to survival and development of the vocation, taking it to even better direction. Great responsibility is given to professors of Occupational health at all universities in the country, regarding implementation of scientifically-proven methods for realization of the vision of vocation, as well as new curricula within the course they can indisputably alter. Many segments of desirable vision deserve to be a topic of future interdisciplinary projects, term papers, doctoral, specialist and degree thesis. Without young professionals, educated and qualified in the said field, the vision “A healthy worker at a healthy workplace” may not go beyond a good motto.

When it comes to workers’ health in Serbia, the hardest issue to talk about is the responsibility of other subjects in the context of obligatory three-partite approach. We may only hope that it will not fail to take place.

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SESSION C2

SCIENCE AND SPIRITUALITY = OBJECTIVITY AND SUBJECTIVITY = RATIONAL AND REAL = KNOWLEDGE AND WISDOM

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Abstract. Both, science and spirituality are looking for the truth, but with completely different basic principles and methodologies. Science insists on objective descriptions of the world. This limits its scope to measurable, describable material world. Science deals with question “HOW universe operates” and develops various scientific theories that try to EXPLAIN. On the other hand, spirituality, stemming from various eastern and western traditions, deals with question: “WHY universe exists and what is the purpose of life”. It is necessarily subjective and relies on personal and intuitive sense. Its aim is the direct experience of reality in order to widen one’s consciousness. The spiritual seekers practice spiritual virtues like love, compassion, humility, faith, modesty, patience, courage, and sincerity. Mathematics defines strict boundaries for describable, rational (scientifically observable) world - corresponding to discrete world of natural numbers, while irrational world (subjectively observable) corresponds to the continuous world of real numbers. However, for the creative development in both material and spiritual world we need both: science and spirituality - they complement each other. In the words of Dalai Lama: mind and heart have to go together.

Keywords: *matter and consciousness, science confirms spirituality, the limits of science, teachers of wisdom, (in)direct experience, theory and practice*

1. Introduction

Science without faith is lame, religion without science is blind.
Albert Einstein

This paper outlines the relation between science, which tends to be objective and therefore limited to the rational (logical) mind, and spirituality, which tends to be subjective and primarily uses intuitive mind (heart). Both science and spirituality search for the truth, but use completely different tools and interpret their results on completely different grounds. We follow the above statement of Albert Einstein [1] and argue that science (objectivity) and spirituality (subjectivity) are complementary to each other and that we need both.

Science models empirical data: derives a model (hypothesis, theory) which describes measurements and, if the model describes the data accurately, reliably and repeatedly, it is eventually accepted to be a (natural) law. If new measurements (which can be more accurate or measured under different conditions) deviate from the current knowledge, the laws are changed / broadened in order to correspond to measurements. Therefore, science is based only on measurable, describable and repeatable phenomena. Subjective experiences and feelings are unacceptable and misleading. Any scientific theory has to be objectively verifiable and every experiment repeatable. Besides, there is an explicit requirement for the separation of the experiment from the experimentalist – from his/her *feelings and intentions*. Therefore, as subjective experiences are non-measurable and unreachable to science, they are also not interesting.

Science limits itself with objective principles and admits only the rational mind, which is limited, as described in the next section, with symbolic representation / computability / learnability (although, of course, scientists during creative research also use intuition which is most probably non-describable). Science is interested in HOW nature operates and is not concerned in WHY the universe exists and what the purpose of life is. Due to ignorance of the latter two questions many scientists (unfoundedly) assume that the universe and life appeared by chance and that there is no deeper purpose of existence.

On the other hand, spirituality is mainly concerned with the purpose of life. In all traditions, spiritual movements and religions, from the east and the west, we can find the same basic issues:

- the purpose of life goes beyond the materialistic world;
- everything that exists is one, originates from the same source and serves the same purpose - the separation is only an illusion of the rational mind, the true reality is always NOW;
- the truth is non-describable and unreachable to the logical mind, it is necessary that everyone tries to feel it by him or herself by direct subjective experience;
- the purpose of life is learning, the goal is to overcome the limitations of ego, to directly and subjectively recognize the truth and to attain wisdom;
- spiritual life is based on cultivation of spiritual virtues, such as unconditional love, compassion, faith, humility, patience, tolerance, simplicity, spontaneity, modesty, courage, sincerity, forgiveness etc.

Spirituality is necessarily subjective and uses intuitive mind, inner sense - heart. Various relaxation methods, meditation and spiritual ceremonials tend to calm down the rational mind, to eliminate thoughts, in order to enable the direct sense of reality and to widen one's consciousness. Spirituality is based on subjective experience and faith and the rational mind cannot neither confirm it nor reject it. Therefore, it cannot be made objective – it is non-measurable, and in an objective sense also unrepeatable.

Science and spirituality seem to be incompatible and have nothing to do with one another. However, the great philosophers as well as scientists are showing us that it is not so. Even Albert Einstein, a symbol of the nowadays western science, was very spiritual person (which is of course not written in the textbooks). The purpose of this article is to confirm his statement: *Science without faith is lame, religion without science is blind* [1]. By analyzing the relation between science and spirituality we can show, that science and spirituality are complementary and not contradictory – they direct, control and complement each other.

The next section discusses the mathematical constraints of symbolic describability which put the limits that cannot be overpassed by science. Section 3 describes the relation between science and spirituality in more detail. Section 4 briefly overviews some scientific studies of phenomena related to spirituality. Section 5 is devoted to the teachers of wisdom – sages, philosophers, enlightened masters from all traditions and cultures – whose message is consistently equal throughout the history of human kind. Finally, Section 6 concludes with the urgent need of our civilization – the harmony of heart and intellect which is also the harmony of science and spirituality.

2. Limits of Science are Limits of Symbolic Description

It is impossible to teach the truth.
Osho

Theory of computability [2] reveals that only a tiny (one could say a negligible) part of all problems, which can be formally described, can be algorithmically solved. The number of all different algorithms is countable infinity \aleph_0 which is equal to the cardinality of the set of all natural numbers: $|\mathbb{N}| = \aleph_0$. However, the number of all problems is uncountable infinity \aleph_1 which is equal to the power of the set of real numbers $|\mathbb{R}| = \aleph_1$ (in fact, the uncountable infinity corresponds to the power of the power-set of a countably infinite set: $2^{\aleph_0} = \aleph_1$). Therefore, the number of all problems is so huge that almost none of them are algorithmically solvable.

Nowadays, the science uses the following formal symbolic languages for describing (modeling) reality:

- mathematical logic,
- programming languages,
- recursive functions, and
- formal grammars.

All these formalisms have equivalent expressive power and they all have equivalent limitations [2,3]: they can partially describe the phenomena in the discrete world (discrete functions), and practically a negligible part of the continuous world (continuous functions).

Note that the number of all rational numbers (fractions) is the same as the number of all natural numbers: $|\mathbb{N}| = |\mathbb{Q}| = \aleph_0$ (we can assign to each rational number a unique natural number and vice versa). The set of rational

numbers corresponds to the *discrete world*, while the set of all real numbers corresponds to the *continuous world*. The names here are suggestive: rational numbers correspond to the world, reachable by our rational mind, while real numbers correspond to the reality which is much richer and is *in principle unreachable by rational mind!*

Therefore, if the world is indeed continuous, then most probably it is non-describable by any of the formalisms which we are able to use with our (rational) mind. This would implicate that any knowledge that can be reached by science, described in books or by teachers, cannot be ultimate, as it is always only an approximation of reality. This is a mathematical fact! Note that this does not imply that reality does not exist and that it cannot be subjectively experienced; it just states that the objective description of reality is impossible.

3. Relation between Science and Spirituality

*Intellect separates, locates and compares details by searching mutual contrasts;
Wisdom unites and joins apparent opposites into one uniform harmony.*
Sri Aurobindo

Table 1 presents the main contrasts between science and spirituality. *Scientists* use their intellect. They limit themselves to objectively measurable and describable phenomena. The aim of science is to describe reality and for that purpose it uses logical, rational mind. Science is interested in HOW the universe operates and wants to describe this operation. It studies the material, measurable part of the world.

On the other hand, *mystics* experience reality through their inner sense, heart. They aim to sense and to be aware of reality. Mystics use the intuitive mind for that purpose. They are interested in WHY the universe exists and they search for the purpose of life. They concentrate on subjective (non-measurable) consciousness.

Science models empirical data: hypothesizes a model (theory, hypothesis) that describes the measurements. With time, if the theory accurately describes the data, it is accepted as a natural law. Every hypothesis has to be *doubted* and verified. If in the course of time we get different (more accurate, under different circumstances etc.) measurements, which are not consistent with the current theory, the theory is modified/extended to cover also the new measurements. For describing the reality, science limits itself to *intellect*, which is in turn limited with symbolic representation/description. However, scientists themselves during the creative research also use (non-describable and subjective) intuition. Science is limited to describe only rational – discrete world – that corresponds to rational numbers (Q). The only usable experience is *indirect*, objective experience, obtained through measurements. The result of science is *knowledge*, which is intended for taking profit by active interventions for *subordination* and *control* of nature.

On the other hand, spirituality cultivates spiritual values, such as love and compassion, humility and tolerance, simplicity and modesty, acceptance and forgiveness, sincerity, faith and courage. Based on *faith* that surpasses all the fears and limitations of ego, the spiritual seeker uses the relaxation of mind, meditation and various rituals in order to achieve *direct* experience of the real world. During this experience the consciousness is widened to encompass everything that exists. The result of spirituality is *wisdom*, which is aware of reality, and is harmonious with the universe – it *cooperates* with nature.

Science does not even try to answer, why the universe exists and what is the purpose of life. Due to ignorance of these two questions many scientists *assume* as a basic principle that the universe and life appeared *by chance* and that there is no deeper meaning behind them. Of course this materialistic assumption has no scientific foundation, whatsoever.

From even higher perspective, one can speculate that true spirituality encompasses science – science is a tiny part of true spirituality. The analogy comes from mathematics. The rational numbers are a tiny subset of real numbers – this suggests that the rational world is a tiny part of the real world: we can speculate that the majority of the world is irrational. If we continue in this spirit, we may suggest the idea that *objectivity is a tiny part (a special case) of experiential subjectivity* and that intellect is a tiny part of consciousness.

The philosophy (in the original word-meaning) tries to answer both above questions, however, for that purpose it needs *mind and heart*. This is exactly the message of all great sages, spiritual teachers and philosophers of east and west, as described in Section 5. Nowadays, the philosophy is trying to imitate science

and excludes the heart (intuition, ethics). From the teachings of great sages it follows that for harmonious development of consciousness we need both – mind and heart, i.e. objective science and subjective spirituality.

Table 1. *Relation between science and spirituality*

SCIENCE	SPIRITUALITY
scientists	mystics
<i>intellect</i>	<i>inner sense, heart</i>
objectivity	subjectivity
measurable, describable	non-measurable, non-describable
describing reality	conscious sensing, awareness of reality
logical, rational mind	intuitive mind
HOW? describing	WHY? searching purpose
studies matter	studies consciousness
life appeared by chance	life is chance
doubt, verification	faith
logic, experiments, statistics	relaxation, meditation, ceremonials
analysis, differentiates	synthesis, joins
reductionistic, parts	holistic, whole
discrete, <i>rational world (Q)</i>	continuous, <i>real world (R)</i> , irrational, transcendental
objective, indirect experience	subjective, direct experience
theory, approximation of reality	practice, reality itself
active, violent free will	passive, harmonious free will
subordination, control	cooperation
taking, profit, ego	giving, sharing
separation, <i>space-time dimension</i>	all is one, <i>spectral dimension</i>
causality, thinking of past and future	no causality, now!
knowledge	wisdom
<i>scientific theories:</i> quantum physics relativity theory thermodynamics evolution theory ...	<i>spiritual virtues:</i> love, compassion patience, tolerance humility, modesty sincerity, spontaneity faith, courage ...
<i>scientific branches:</i> mathematics natural sciences (physics, chemistry, biology...) sociologic sciences, philosophy technical sciences ...	<i>spiritual movements:</i> yoga, tantra, tao, zen alchemy, cabbala, sufism theosophy, anthroposophy institutional religions new age ...

4. Science Confirms Spirituality

Bigotry tries to keep the truth safe in its hand with a grip that kills it.
Rabindranath Tagore

There are many phenomena, related to spirituality, that are not recognized by today's science, however, we can incorporate them into a wider (temporally nonscientific) model of the existence, that incorporates the matter (physical body) on its lowest level – this level is necessary for the completion of aims and goals of higher levels (energetic, emotional, mental and spiritual levels). Of course, science cannot make very big steps and tries to

model particular phenomena step by step. Nowadays, the (subtle) energetic level is very close to the point of recognition – the science is beginning to incorporate this level in its models of the world. More and more researchers are investigating the subtle energetic biofield [4], popularly called the aura [5].

On the other hand, some of the phenomena, related to spirituality, have already been noticed by scientists – science is able to measure the effects of these phenomena although there is no scientific explanation yet:

The effects of the intercessory (remote, distance) prayer on the patient's health. In past few years several scientific studies were published that prove the effect of intercessory prayer on the health of patients. These studies were performed by rigorous scientific standards – with double-blind experiments that exclude the influence of suggestion and the placebo effect [6-9]. In such studies the patients are randomly split into an experimental and a control group. The professional healers or »ordinary« religious people were praying for improvement of health of the people in the experimental group (and they never came into physical contact with these patients). For each patient the values of parameters, that describe the health status, were recorded before and after the prayer. In all reported studies the differences between the experimental and the control group were significant in favor of the effect of the prayer for improving the health of patients.

Near-death experiences. Near-death experiences are still considered by orthodox scientific communities as taboo [10-13]. However, more and more scientists investigate these phenomena and serious studies are already published. On International cognitive conference in Ljubljana [14] we analyzed several phenomena related to the near-death experiences and the final conclusion was basically the same as that of the well known scientific study by [15]: We need to take into account the possibility of the transcendence of consciousness – in the altered state of consciousness the identity, cognition and emotions function independently of the unconscious body and they keep the ability of non-sensorial perception.

Foreseeing of near future. Bierman and Radin [16,17] showed an interesting phenomenon. Their psychological experiments with measuring the conductivity of forefingers during emotional reactions to various pictures, which volunteers watch on a screen, show that the human body is able to foresee the future for few seconds in advance – the phenomenon that cannot be explained by any current scientific theory.

Telepathy and psycho-kinetics. Many people occasionally experience telepathy. The frequency of this phenomenon increases the confidence that it indeed exists and is not only the random event. Besides transferring of information (telepathy), there are also experiences where the mind influences the physical world (psycho-kinetics). The research of telepathy and psycho-kinetics confirm them [18-20].

Direct vision. In Russia a group of researchers study the effects of a mental training, developed by Bronnikov and Lognikova, that is intended to help the blind and weak-eyed children to be able to freely move in space without the use of ordinary physical eyes [21,22]. The intensive mental training lasts for several years and some children gain the ability of non-sensory perception – the so called direct vision without using the physical eyes. The group has great successes with rehabilitation of blind and weak-eyed children. They recorded coronas of fingertips of children during the direct vision phenomenon. The Kirlian photographs show a specific pattern of the corona of the ring finger that can be observed in an altered state of consciousness [23].

Besides the above mentioned five phenomena there are several other areas of research that confirm the borderline phenomena of consciousness: the effects of meditation, the memory of water (which is the basis of homeopathy), verifying the effectiveness of dowsing, verifying the claims of astrology, and the verification of effects of alternative medicine and complementary healing, such as acupuncture, homeopathy, reiki etc.

5. The Message of Teachers of Wisdom

If you understand others you are intelligent. If you understand yourself you are enlightened.
Lao Tse

In this section we aim to describe the common intersection of teachings from various traditions. We show that the ***teachers of wisdom from all traditions are telling us the same message***. For that purpose we provide a list of 79 teachers of wisdom and describe 21 most important common points that can be found in all teachings, as described in the book by Kononenko and Roglič-Kononenko [23].

5.1. Teachers of wisdom

If we are able to accept the fact that we are spiritual beings and that we walk on the path of spiritual evolution, then it is obvious that we will once, after numerous mistakes, experiences and trials, completely express our spiritual nature. Such people are self-realized, awakened, enlightened, blissful, saved, free, Masters of love and wisdom – because they completely express these two and other qualities of spiritual nature. They are beyond all attachments and illusions, freed of all wishes and desires, they discarded all prejudices, all fears and recognized all the games of egocentric self. Masters recognized their connection with the creation, the unity with divine in such a way, that they no longer feel any separation. They have individuality, however, they live as a whole, composed of an infinite variety of expressions.

The collection in Section 5.2 contains personalities for whom there exist historical documents about their lives, works and teachings. The only exception are four legendary masters from antique Near and Far East, for whom we do not have reliable historical documents, however, the oral tradition about their lives and teachings has had and still has a significant impact on sincere spiritual direction of millions of seekers. Besides notable enlightened masters we list also some unselfish advocates of the Truth – they felt It so deeply, that they were not able to betray It, even at the price of their lives.

All sages claim that the Truth is non-describable; therefore we should read, study and meditate about their teachings not only with our mind but also at the same time intuitively feel them with our hearts. In their teachings there is no place for final rules and dogmas.

The selection of sages is necessarily subjective as is subjective the experience of their wisdom. The collection of sages is not and cannot be ever complete. I tried to select the most important sages, however, I certainly omitted many sages that may be most honored by the reader.

5.2. Collection of teachers of wisdom

Legendary and Antique Near and Far East

- Sri Rama (cca. 45th century BC), legendary Indian enlightened master, king and sage.
- Sri Krishna (cca. 32nd century BC), legendary Indian enlightened master, prince and sage.
- Hermes Trismegistos (? 3rd millennium BC), legendary master and spiritual teacher.
- Zarathustra (Zoroaster) (? 2nd millennium BC), legendary Persian enlightened master and spiritual teacher, founder of Zoroastrian religion.
- Lord Mahavir (599?-527? BC), enlightened master and spiritual teacher, reformer of Jain religion
- Lao Tsu (570?-490? BC), Chinese sage, philosopher, founder of Taoism.
- Siddhartha Gautama Buddha (560?-480? BC), enlightened master and spiritual teacher.
- Zhuang Zi (369?-275? BC), Chinese sage, philosopher, writer of wisdom of Taoism.

Greek and Roman Antique

- Pythagoras (cca. 569-475 BC), Greek philosopher, mathematician, sage and spiritual teacher.
- Heraclitus (cca. 535-475 BC), Greek philosopher and sage.
- Socrates (470?-399? BC), Greek philosopher and sage.
- Jesus Christ (6?BC - 29?AD), enlightened master and spiritual teacher.
- Seneca (3?BC - 65AD), Roman philosopher and dramatist.
- Apollonius of Tyana (2?-98?), Greek philosopher and sage.
- Plotinus (cca. 205-270), Greek philosopher, sage and spiritual teacher, founder of Neoplatonism.

European Middle Ages

- St. Francis of Assisi (1182?-1226), blessed, master of humility, founder of the Franciscan order.
- Mechthild of Magdeburg (1209?-1282?), Christian mystic.
- Meister Eckhart (1260-1327?), Christian theologian, philosopher and mystic.
- Marguerite Porete (1255?-1310), mystic, sage, spiritual teacher.
- Nicholas of Cusa (1400?-1464), Christian philosopher, cardinal, diplomat, mathematician and metaphysicist.
- Paracelsus (1493-1541), physician, alchemist, mystic, laic theologian and philosopher.

- St. Teresa of Avila (1515-1582), Christian nun, saint, mystic, reformer of Carmelite order.
- St. John of the Cross (1542-1591), mystical theologian, saint, founder of Discalced Carmelites.

Sufism

- Omar Khayyam (cca. 1048-1131), Persian mathematician, astronomer, poet and teacher of sufism.
- El-Ghazali (1058-1128?), Islamic philosopher, theologian and sufi.
- Attar of Nishapur (1142?-1220?), Persian sufi-poet, teacher of sufism.
- Rumi, Jalal ad-Din (1207-1273), Persian poet and sufi, founder of Dancing dervishes.
- Hafis (1325?-1389?), Persian poet and sufi.
- Jami, Nur ad-Din Abd ar-Rahman (1414-1492), Persian sufi-poet, and mystic.

India and Far East

- Bodhidharma (470?-539?), enlightened master and spiritual teacher.
- Kanachi Sosan (510?-606?), enlightened master and spiritual teacher, 3rd patriarch of the Chinese *Zen*.
- Sri Adi Shankara (788?- 820?), enlightened master and spiritual teacher, philosopher, poet, religious reformer.
- Huang Po (1st half of 9th century), master of *Zen* and spiritual teacher.
- Rinzai (?-866), enlightened master of *Zen*, spiritual teacher.
- Naropa (1016-1100), enlightened master, spiritual teacher.
- Jetsun Milarepa (1052-1135), Tibetan yogi, poet, magician, enlightened master and spiritual teacher.
- Dogen Zenji (1200-1253), Japanese master of *Zen* and spiritual teacher, poet, founder of Soto-*Zen*.
- Kabir (1440?-1518?), mystical poet, Indian saint, enlightened master and spiritual teacher.
- Guru Nanak (1469-1539), enlightened master and spiritual teacher, founder of the Sikh religion.
- Mira Bai (1498-1547), Indian saint, sage, mystical poet.

19th Century

- Lahiri Mahasaya (1828-1895), enlightened master and spiritual teacher.
- Helena Petrovna Blavatsky (1831-1891), parapsychological medium and founder of the Theosophical society.
- Sri Ramakrishna Paramahansa (1833-1886), enlightened master and spiritual teacher.
- Shri Sai Baba of Shirdi (1840?-1918), enlightened master and spiritual teacher.
- Sri Yukteswar (1855-1936), enlightened master and spiritual teacher.
- Ohyesa, Charles Alexander Eastman (1858-1939), American Indian writer, physician, writer of Indian wisdom.
- Rudolf Steiner (1861-1925), Austrian philosopher and scientist, founder of the Anthroposophical movement.
- Swami Vivekananda (1863-1902), Indian philosopher, sage and spiritual teacher.

First half of 20th Century

- Rabindranath Tagore (1861-1941), Indian poet, philosopher, Nobel prizeman.
- Mahatma Gandhi (1869-1948), master of nonviolent fighting for the truth and human rights.
- Sri Aurobindo (1872-1950), enlightened master and spiritual teacher.
- Carl Gustav Jung (1875-1961), Swiss psychiatrist, psychologist and philosopher.
- George Gurdjieff (1877-1949), Greek-Armenian spiritual teacher and mystic.
- Bhagavan Sri Ramana Maharshi (1879-1950), enlightened master and spiritual teacher.
- Edward Bach (1886-1936), English physician, founder of the (Bach) flower essences, sage.
- Mikhail Naimy (1889-1988), Lebanese spiritual writer, poet, philosopher.
- don Juan Matus (1891?-1973?), American Indian shaman, seer and sage, spiritual teacher.
- Paramahansa Yogananda (1893-1952), master of Yoga and spiritual teacher.
- Meher Baba (1894-1969), enlightened master and spiritual teacher.

Second half of 20th Century

- Jiddu Krishnamurti (1895-1986), enlightened master and spiritual teacher.
- Sri Nisargadatta Maharaj (1897-1981), enlightened master and spiritual teacher.
- Omraam Mikhael Aivanhov (1900-1986), Bulgarian philosopher, mystic and spiritual teacher.

- Martin Kojc (1901-1978), Slovenian parapsychologist, philosopher, publicist, teacher of wisdom.
- Shunryu Suzuki (1904-1971), Japanese Zen master, founder of Soto-Zen community in USA.
- Peace Pilgrim (1908-1981), enlightened master, pilgrim and sage.
- Mother Teresa (1910-1977), Albanian Christian nun, blessed, personified love, founder of Missionaries of charity, Nobel peace prizewoman.
- Alan Watts (1915-1973), theologian, mystical philosopher and spiritual teacher.
- Idries Shah (1924-1996), sufi writer and teacher.
- Elisabeth Kübler-Ross (1926-2004), physician, psychiatrist, tanatologist, master of compassion.
- Martin Luther King jr. (1929-1968), master of nonviolent fighting for the human rights of Blacks, Nobel peace prizeman.
- Anthony de Mello (1931-1987), Indian Jesuit, mystic and spiritual writer.
- Osho - Bhagavan Sri Rajneesh (1931-1990), enlightened master and spiritual teacher.

Nowadays

- Bhagavan Sathya Sai Baba (born 1926), enlightened master and spiritual teacher.
- Sri Chinmoy (1931-2008), enlightened master and spiritual teacher, poet, writer, musician, painter, athlete.
- 14th Dalai Lama, Tenin Gyatso (born 1935), spiritual leader of Tibetan people, Nobel peace prizeman.
- Eckhart Tolle (born 1948?), enlightened master and spiritual teacher.
- Sri Sri Ravi Shankar (born 1956), enlightened master and spiritual teacher, founder of the Art of living foundation.
- Malidoma Patrice Some (born 1956), African shaman, writer and spiritual teacher.
- Mother Meera (born 1960), enlightened master and spiritual teacher.

The above list of 79 teachers of wisdom is a result of studying the extensive literature which due to space limitations cannot be completely referenced here. In the book by Kononenko and Roglič-Kononenko [23] we describe the biographies, teachings and wisdom of all the sages in detail. The most of sages are from India (29), and the majority are males (only 9 females) which is due to patriarchy of practically all cultures in the human history. However, we should not underrate the influence of women who are more intuitive and, although less intellectual and more silent, often more wise than intellectual and loud men.

5.3. Common points of all teachers of wisdom

Here are collected and briefly described the most important common points of all teachers of wisdom, listed in the previous subsection. Of course, the teachers of wisdom from various traditions use different terminology, which is adapted to the circumstances and the need of their age and culture. Our terminology tries to summarize the teachings of all teachers of wisdom. The word 'God' may be replaced with other terms that emphasize various qualities (Absolute, Unity, One, Unspeakable, Source, Creator, Primary (Universal) Consciousness, Supreme, Almighty, Cosmos, Non-describable, etc.). Instead of term 'God' various traditions use different words, such as Allah, Brahma, Hari, Ahura Mazda, Tao, Buddha, Wakan-Tanka (Great Secret), Great Spirit, etc.

There is no death. *Death of the physical body is merely a transition from one form of existence to a different reality, a step forward in the spiritual development. Due to attachment and ignorance we consider death to be tragic - in fact it is the most natural thing and, besides, it comes as a relief for the soul which in the physical body (voluntarily) suffered.*

There is no evil. *In the absolute sense there cannot be any evil, as in all things resides God and all things are God: all horrible faces of the universe are only His masks. Evil is merely a fiction, the result of ignorance, ignorance is a human illness. When a human being is cured, he or she becomes enlightened. As there is no death, the evil is merely an illusion and a part of the game. If there were no played deaths, the game would be over.*

There is no eternal cursedness. *Neither the next worlds nor the Earth are eternal. Everything comes into existence and vanishes and again arises in an infinite process of cosmic appearance. Eternal is only God in the sense of the infinite Absolute Being, primordial Source, the unspeakable and infinite Divinity. Therefore, the residence in some lower heaven or in some hellish world definitely cannot be eternal.*

All the paths lead towards god. The soul emerged from God and sooner or later it will for sure return to God. People always and on all the paths walk on His path, as all the paths lead to Him. Different religions are merely different paths which can all lead to the same final goal, although of course, not equally straight and not equally fast. There is no single saving religion, as any religion can lead towards salvation, if we truly and sincerely follow it and if we really long for God.

Unity of everything that exists. Everything is God; We are all God, only the levels of consciousness vary. When you realize the Truth, you find out, that you are one with all – in each being you see God, you see (your)Self, you realize, that the separation was merely an illusion in your mind.

Nothing needs to be changed, except yourself. Everything is perfect, as it is – we have to learn to accept it. The only true change is the change inside yourself; everything else is the Game, designed to help you to realize.

However, the path is not easy. It is full of traps and only few relatively quickly reach the Goal; the majority circles for a long time, tests various attractive short cuts, enters into dead-ends and only slowly returns on the Path and continues the search.

Truth is non-describable. As all masters claim, the Truth is non-describable, therefore, we have to read the teachings of masters not only with our minds, but at the same time have to verify them and feel them intuitively – with our hearts. In those teachings there is no room for the final rules and dogmas. All the regulations and dogmas are entirely insufficient to be able to express the real, the highest Truth, as the God is beyond all the human ideas, notions, conceptions and imaginations and beyond all intellectual patterns which can be created by the human mind about Him.

Mind is limited. It creates separation and untruth; although it can be a useful tool, it should not be the boss; the harmony of heart and mind is indispensable; ultimately, the mind must become silent, otherwise the realization (recognition, comprehension) of the Truth is not possible.

Dogmas come out of ignorance. In the teaching there is no room for final rules and dogmas. However, every conception, religious direction or religion may be useful and also necessary as long as it meets the level of development of a certain population, a group or a single man and helps him/them to live and make progress and also appropriately change his/their conception, religion.

Anybody can realize the truth only by himself or herself, directly. The true realization of God is possible only after we ascend beyond all conceptions and comprehensions into alive and direct mystical experience in silent and clear mind and pure heart.

Now. The only reality is this very moment, right now, and only now you can realize the Truth. Past and future do not exist - they are only a memory, the creation of mind. Any fear, any attachment, any prejudice is in the past or in the future. In NOW there is no fear, no judgment, only pure spontaneity.

In order to become one you have to annihilate yourself. Ego (personality) is an obstacle on the Path, however, without ego you cannot follow the Path. When you are ready, you sacrifice ego to gain **everything**.

True free will exists only in the state of enlightenment. Every other state is conditional and therefore unfree. An apparent paradox: while you are conditioned, you misuse the free will, when you are free, whatever you do is in accordance with the God will – there is no difference between you and God anymore.

A teacher is (almost) necessary. The level of a disciple determines the level of a teacher. Knowledge is useful only if it is adapted to the level of the disciple. However, a Teacher cannot do anything instead of a disciple – he or she has to walk his or her own path by himself or herself.

Suffering and trials are (almost) necessary for efficient learning. the world of duality is the world of pain, suffering and trials – in the long run, the ‘ideal’ life or ideal arrangement of life is impossible in this world. However, in order to attain the Realization, we have to live in the world of duality. Of course, suffering is a part of the game which is voluntarily accepted. While you resist, you suffer. When you accept and surrender yourself, suffering disappears as it is not necessary anymore.

Attachments and desires mislead us. They are moving us from the Truth. The most difficult but also necessary is to UNLEARN from everything that we have learnt and which prevents our direct realization of the Truth.

Life of the non-enlightened is sleeping - absence of consciousness. Only in enlightenment the man awakes from sleep and becomes conscious.

I am is the ultimate recognition. To realize that only God (Me alone) exists and that the separation was only fictitious – a part of the game.

The purpose of life is experience. The only purpose is life itself and by no means to attain anything. The purpose of washing the dishes is not the clean dishes but ‘washing the dishes’. What is important is the path and not the goal. In order to experience Himself, God is pretending (through us) that He is something else, forgets Himself - in order to be able to experience Himself. Life is a game.

The ultimate goal is enlightenment; realization; salvation; awakening; freedom; self-realization; merging with the Absolute, with God; becoming one; returning home (end of the game).

5.4. Conclusions about wisdom

Although the list of sages is not (and also cannot be) complete, it represents a significant sample. From the common points of listed teachers of wisdom we can deduce that they are all telling us the same message. As they were relatively unrelated and independent, we can conclude that they realized their knowledge directly by their own experience and not by rational acceptance of teachings of their own teachers or from reading the written documents. As they are consistent regardless of the time, location, culture or tradition it is obvious that they all declare the same Truth, although each of them uses its own terminology and uses its own style for describing the non-describable Truth.

Sages were appearing and are still appearing in all the ages on all the continents, most often when we need them the most. From their biographies it is evident that experiences that they brought with themselves in this world, are responsible for their (relatively) fast spiritual development – the environment, where they grew up, is not of much importance. They are all telling us the same, only styles of preaching, languages and deepness of messages differ and are adapted to a culture and a spiritual maturity of environment.

The above 21 common points are a (subjective) summary of the message of the teachers of wisdom. When studying and meditating on the wise sayings of sages one can feel much more common points. Wisdom is non-describable and any attempt to describe it or to arrange it is artificial and arbitrary. Of course, I am aware that this holds also for my writings in this Section. My (‘scientific’) mind was not calm until I have searched for and analyzed the common points. As I feel them to be useful, I wrote them down. I hope, however, that I did not create (too strong) prejudices and therefore restricted the reader when he or she shall study and meditate on wisdom. Our prejudices are forcing us to select a certain interpretation of the same Truth. Sooner or later, however, like all the sages are telling us, because there is no other possibility, everybody will throw away just all the prejudices and with direct experience in a clear mind and pure heart realize the Truth.

6. Conclusions

*Knowledge is important, however, much more important is its beneficial use.
This depends on human mind and heart.*

Dalai Lama

In Section 3 we described two polarities, which we use for searching the truth: objective science (which uses intellect) and subjective spirituality (which uses inner sense – heart). Both polarities, heart as well as intellect, are inevitably needed during the search for the truth.

About 50 years ago mathematics placed strict limits on what is describable by logical propositions, mathematical functions and computer algorithms. Actually, it confirmed, that the reality can only be described approximately and never completely. Any description in symbolic language, which is nowadays used by science (intellect), is necessarily only an approximation.

And this is exactly what sages have been telling us for millenniums, in the west as well as in the east. The truth is non-describable and has to be felt by heart, inner sense, intuition. Approximate, intellectual descriptions are of course inevitable on the path of comprehension of the truth and are useful instruments, however, they cannot provide the final answer. Everybody has to find the final answer by him/herself, inside. As Jung said:

“Learn well the rules, rituals and techniques and use them actively, however, at the right moment be prepared to discard them.”

Intellect is a necessary support on the spiritual path in order to help us follow our heart. Mere leaning on the intuition can heavily mislead us, the traps of ego are very attractive and soon we can find ourselves in a trap of self-satisfaction and self “truth”. Such “wise men” are not aware of limitations of the logical intellect. They accurately describe their “truth” and define it as the only “right” - in the extreme eagerness and enthusiasm they forget that for the same reality there can be an infinite number of different descriptions. This is of course the origin of many dogmatisms of world religions, as well as the dogmas supported by many scientists (and unfortunately also by physicians).

All great sages were aware of the limitations of the intellect and were pointing them out. Either enlightened masters avoid description of the truth or their description is intentionally contradictory: once, from one point of view, they give very consistent, attractive and inspirational description of the truth, but then, from the other point of view, they discredit the former with different description of the truth, of equal quality but non-consistent with the former description. Masters don't want that their sayings would become the only truth (dogma, religion).

Humanity needs the connection (union) of science and spirituality. On the spiritual path we need both, intellect as well as heart: they complement and direct each other. Without one or the other we cannot progress. As Albert Einstein said: ***“Science without faith is lame, religion without science is blind.”***

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ENTHEOGENIC SHAMANISM: ANTHROPOLOGY CATEGORY, TRANSPERSONAL DIMENSION OR PSYCHOTHERAPEUTIC MODEL

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Abstract. The most significant dimension of entheogenic shamanistic ritual, being an essence of therapeutic practice in isolated groups of Amazonia, is that dimension which touches universal themes, from person's identity to its place in cosmic scheme. This experience is described as transcending borders of empirical reality, coming out the framework of profane existence and entering into realm of cosmic existence and meeting with most supreme principle. In psychology literature it is frequently called transpersonal experience, as being denoted a mystical experience in religious terminology. The question arises on characteristics of this experience (if it exists) in the framework of shamanistic concept, as according to many experts on shamanism it does not have this (mystical) component being exclusively oriented to practical purposes of healing. According to shamanistic practice in observed groups, these categories are not excluded mutually. On the contrary, they are complementary, with mystical or transpersonal experience in direct function of healing, if this healing is comprehended in the context of shamanistic concept of disease. As in this mystical experience a person is continuously returning back to his mystical trans-subjective roots and beginnings, a shamanistic return into myth past with myth scenes and symbols achieving significant relationship between a person and universe is completely reasonable. This transition from "here and now" into "there and then" means experience of transcending space and time limitations, i.e. coming out from narrow profane human framework and entering into realm of transpersonal experiences. In this context a shamanistic "road" which basically is searching for absolute, undoubtedly does have elements of mystical. Mystical, however, does not exclude practical goals of this road. On the contrary, mystical or let us call it transpersonal or integrative experience, is *complementary* in respect to these goals. In other words, this experience is in direct function of shamanistic action, in first place of healing.

Keywords: *entheogenic shamanism, anthropology category, psychotherapeutic model, transpersonal dimension, transpersonal healing, mystical experience*

REFLECTION ON THERAPIES AND RESEARCH POINTING FOR A NEW PARADIGM

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Abstract. *We are living in a singular moment of the History of humanity. While the scientific and technological development increases quickly, the indicators of health of the world population are very bad and reach the worst rates in the contemporary history. Diseases like diabetes, cancer and cardiovascular diseases take dimensions of pandemics and the depression grows at alarming levels as well as Alzheimer, Parkinson, osteoporosis and many others that afflicts the modern world. We propose a reflection about therapies and scientific explorations that point for a new paradigm in which human beings are treated and fully covered in all their dimensions: (i) Investigation of Gabriel Cousen, with developed methods for healing diabetes in 21 days; (ii) Epigenetics of Bruce Lipton, proving that we are not hostages of genetics; (iii) Digital Biology developed by Jacques Benveniste, allowing to use information as a new aspect of vibrational medicine of the future; (iv) Discovery of neural plasticity, showing that we can, from enriched environments, increase the neuronal connections and influence the physical structure of the brain favorably; and (v) Discovery of biophotons by Fritz-Albert Popp, making possible to understand the language of cells and diseases such as cancer, and interpreted them in terms of vibrational medicine.*

Keywords: *diseases are taking pandemics dimensions, healing of diabetes, epigenetics, digital biology, neural plasticity, biophotons*

1. Introduction

We believe that the spiritual and scientific knowledge accumulated by humanity allows that in this new millennium we have a new science of health to include the whole human being. Until now the dominant biomedical model is still facing the cure of disease symptoms. The approach brought by the Relativistic and Quantum Physics reveals the energetic and informational aspects of existence. Hereby we propose a reflection about therapies and scientific explorations that point for a new paradigm in which human beings are treated and fully covered in all their dimensions [1-7].

The work of doctor Gabriel Cousens reveals the healing potential of foods. He has achieved remarkable results in curing diabetes and depression. Within this perspective we can encourage a diet that is geared to full health by preventing the manifestation of disease and promoting health, rather than having a diet that helps to increase the statistics of death worldwide.

On the other hand, a branch of medicine, psycho-neuro-immunology, establishes the relationship between the emotional brain, the immune system, endocrine system and central nervous system. The mind-body connection as revealed by the work of the scientist Candace Pert who discovered the molecules of emotion, is then clarified by recognizing the existence of this circuit psycho-neuro-endocrine-immunologic.

Therefore, the quality of our thoughts and emotions affect the body in order to stimulate a state of health or disease.

2. Science, Spirituality, and Beliefs

Recently we have learned that there are more than 7000 scientific papers in the world that combine spiritual practice with the effective cure of many diseases, as well as reduced use of chemical drugs achieving levels well above those obtained by allopathic medicine.

In UNIFESP (Federal University of São Paulo), a rigorous scientific study involving more than 1500 elderly with meditation practices, aimed extraordinary results.

Bruce Lipton's work shows that dietary changes as well as the quality of emotions, thoughts and beliefs enable the inhibition of pathological genetic patterns.

Meanwhile, neuroscientists say there is no limit to create new neural connections and that specific areas of our brains can take on new functions or enhance existing ones, including the changes in physical structure of the brain from practices such as meditation or playing a new instrument, for example.

Works such as the Japanese Masaru Emoto has demonstrated that the influence of words, songs and prayers on the crystallization of water molecules indicate how the matter is susceptible to vibrational energy field. As our body consists of approximately 70% water we understand how our health is completely linked to the quality of our emotions, thoughts and beliefs.

The work of Jacques Benveniste inaugurates the era of Digital Biology, recording frequencies associated with a given hormone, for example, and getting the same effects caused by their influence upon the physical body as those caused by the influence of natural hormone.

3. Conclusion

In Brasil, at the Second International Symposium on Quantum Health and Quality of Life, which runs from 15th to September 18th, 2011, we will be launching a quantum model of health care. Each patient in the end takes its vibrational medicine using the Sanjeevini technique, from induction into the water the quantum frequencies associated with disharmonies presented by the patient, to stimulate in him the natural state of health.

Our goal is to create an international network of scientists, researchers, doctors, therapists and professionals from other areas to cooperate in order to present a health model for humanity, in which we can have all the knowledge accumulated so far and the best results in each area, in order to ratify a new paradigm in which prevention and health promotion is the main focus instead of just treating the manifestations of disease.

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CONSCIOUSNESS - BASED HOLISTIC ORIENTED APPROACHES TO PSYCHOTHERAPY

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Abstract. Discussed here is creative challenge faced by the new profession of psychotherapy in a new millenium. Creation of consciousness-based holistic spiritual/transpersonal psychotherapy without ego is that challenge. It means basically the transformation of consciousness, of the inner feeling of one's own existence, as well as the release of the individual from all kinds of conditioning imposed upon one's by society. It's characterised by transformation, self-transcendence, and expanded consciousness in which treatment is targeted primarily to the spiritual/transpersonal dimension.

Keywords: *Integrative Art Psychotherapy, art, creativity, image, authenticity*

1. Introduction

Psychotherapy is a new scientific discipline, a new profession independent of psychiatry (medicine) as well as of psychology. It is the scientific application of defined methods in the treatment of psychic suffering and psychosomatic complaints as well as of life crises of various origins. The science of psyche (in the original sense of word, Greak word 'methodos' means a way of coming to a truth) discovers the truth about ourselves. It is 'detoxication of lies' as Szasz claimed.

The basis for psychotherapeutic treatment is the relationship of the psychotherapist to the patient, or in a non-clinical setting to the client. The target group for psychotherapy includes people with all kind of problems (emotional, cognitive and behavioral) but also people who would like to extend their possibilities for psycho-social and spiritual actions. Psychotherapy is thus in many cases preventive and generally speaking mind-oriented.

2. Consciousness-Based Holistic Spiritual/Transpersonal Psychotherapy

When we focus on psychotherapy as a new scientific discipline, we can conclude that it can be defined on different levels (Milenković, 1997; Milenković, 2002; Milenković, 2006; Milenković, 2010):

- Intrapersonally – in the sense of improving communication with oneself. This, above all, means making conscious all that was unconscious (in keeping with Freud's well known concept that where once was Id there should now be Ego). Nietzsche put it very nicely by saying that all progress can be found in the advance towards consciousness, and that all backwardness means return to the unconsciousness. Realization of ourselves that we reach through psychotherapy helps us free ourselves from the burden of the past, all that is hidden in the shadow – unknown, unwanted, disintegrated; it helps us integrate ourselves, become wholesome, which in fact is the objective of psychotherapy and the process of individuation of which Jung spoke. One of the first steps towards healing and remedy is self-realization. Without it we cannot go further, but shall be 'condemned' to repeat past in terms of present (repetitia compulsia).
- Interpersonally – in the sense of improving communication with the others, on both micro and macro plans, which means in relation to our friends, partners, business associates, and even further, with the world. Freud's psychoanalysis was 'insensitive' to social issues and, as Goldberg observed correctly when criticizing it, "psychoanalysis should turn toward crucial social and moral problems" (1999, p.

335). And even further “psychoanalysis must again become a psychology of hope, compassion and responsibility” (p. 335). In my opinion, this applies to psychotherapy in general.

- Transpersonally – in the sense of establishing communication with the transcendent (God) or through realization of the highest human values and aspirations – universal ones, having to do with being humane and moral. This is the spiritual level on which We-psychology is yet to become and on which the realization of the man as a human being can only be possible.

Psychotherapy in this case helps the general transformation not of the individual, but of the community, the world, and the entire universe. For, we are the world, as Krishnamurti says.

The man is a definite, but also an indefinite being, a being of necessity, but also a being of freedom. He is a universal being. As the famous Greek philosopher Heraclites says, we should live what is universal, and that is what makes the man true, authentic, what he has in common with all others. All people are similar in that they want to be happy and do not want to suffer (Dalai Lama, 2001).

It is only on this (spiritual) level that freedom is possible (as well as responsibility, as the other side of the same coin), and that also goes for morality, reciprocity, tolerance, compassion, solidarity and love.

Psychotherapy helps us learn how to live better, happier lives, how to abolish unnecessary, self-inflicted suffering; it teaches us how to avoid ruining our lives and the lives of our kin, the entire biosphere, endangered by the man’s will for power and government; it shows us how to save the planet which is our home. We could even say that psychotherapy deals with ‘ecology of psyche’, with health that does not come from the outside, but from the inside. Every true revolution begins inside, as Krishnamurti claimed.

We can create and mold our future. By correcting the wrong propositions (obstacles) in our attitudes that hamper us and prevent from moving forward, from building for ourselves We-psychology is yet to become and on which the realization of the man as a human being can only be possible.

Psychotherapy for the 21st century must balance efficiency with humanities. Psychotherapy is an art as well as a science. We need the best technology available, but we need to deliver it with compassion, empathy and patience.

Psychotherapy in this case helps the general transformation not of the individual, but of the community, the world, and the entire universe. For, we are the world, as Krishnamurti says, tailor-made future, we take responsibility for what we create, and the creation is personal and collective and is already underway.

3. Instead of Conclusion

What is our choice?

“We can change our lives by changing the way of thinking.” For, we become what we think! What we are TODAY is what we thought YESTERDAY, and what we shall become TOMORROW is what we think TODAY. Our thoughts create our world. The world is our construct.

Psychotherapy is also our construct! Let us ask ourselves: What kind of psychotherapy would we like? What are my most audacious fantasies about the future of psychotherapy? How do I see myself as a psychotherapist in this perspective? What exactly could I do, how could I contribute to make this come true?

My answer to this would be the following:

I wish psychotherapy that would connect both me and my clients with (1) personal resources (wisdom of the unconscious, intuition, and God who is in us); (2) interpersonal resources (people close to us, the community, all living creatures and world as a whole, the planet – our global home); (3) transpersonal resources (God and the highest, universal values – humanity, above all!).

I wish consciousness-based holistic oriented psychology and psychotherapy.

Our common task is to become human beings. The task has not been completed yet. As Nietzsche put it nicely, The commandment related to the love for your kin has never stretched so as to include our neighbour.

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SCIENCE AND BODY PSYNTESIS HOLISTIC APPROACHES

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with

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Abstract. In TePsyntesis Body Psychotherapy Training school there is lot of research with aim to *measure the effects*. Results show its applicability in dealing with psychological problems as well as with psychosomatic disorders. Finally, we strongly support *research in psychotherapy and personal growth* approaches, but at the same time we point out needs for their evaluations by scientific methods.

Keywords: *Consciousness-based holistic approaches & techniques, Body-Psychotherapy, TePsyntesis*

1. Introduction

In TePsyntesis Body Psychotherapy Training school [1] there is a lot of research with aim to *measure the effects*. Results show its applicability in dealing with psychological problems as well as with psychosomatic disorders.

In general, we strongly support *research in psychotherapy and personal growth* approaches. This usually opens a lot of interesting questions. Different factors influence attractiveness of any approach and we point out needs for their evaluations by scientific methods.

So, Body-Psychotherapy is also a *science*, having developed over the last seventy years from the results of research in biology, anthropology, proxemics, ethology, neuro-physiology, developmental psychology, neonatology, perinatal studies and many more disciplines.

It exists as a specific therapeutic approach with a rich *scientific basis* on an explicit theory. There are also a wide variety of techniques used within Body-Psychotherapy [2] and some of these are techniques used on the body involving touch, movement and breathing. There is therefore a link with some Body Therapies, Somatic techniques, and some complementary medical disciplines, but whilst these may also involve touch and movement, they are very distinct from Body-Psychotherapy. Psycho-dynamic is essential as well as body-dynamic.

Body-Psychotherapy recognizes the continuity and the deep connections in which all psycho-corporal processes contribute, in equal fashion, to the organization of the person. There is not a hierarchical relationship between mind and body, between psyche and soma. They are both functioning and interactive aspects of the whole. It is holistic approach.

2. Partial and Holistic Approach in TePsyntesis

In TePsyntesis Body Psychotherapy Training school [1], we recognize a huge difference when we only talk during psychotherapy (partial approach) and a much higher efficiency when we use a holistic approach in therapy- when we use in addition to conversation, work with the body and the flow of the life

force. This is our specialty. While in other types of psychotherapy taught by our experience some psychotherapists use small pieces of work on the body, the actual depth of the work with the body and psyche can be found only in body psychotherapy, here, in the school of TePsyntesis.

3. Research in TePsyntesis

3.1 Ljiljana Klisic, *The Evaluation of Psychotherapists' Education in Application of the Radix Psychotherapy Method*, PhD Research

Hypotheses:

- Success in education of psychotherapists applying Radix oriented methods is relatively objective measurable variable;
- Education of psychotherapists in application of Radix oriented psychotherapeutically methods are possible to do with success;
- Success in application of Radix oriented psychotherapeutically methods is not determined by personality traits but with objective value of methods itself;
- Personality traits of psychotherapists do not represent independent variable on standpoint of successful application of Radix oriented psychotherapeutically methods;
- Application of Radix oriented psychotherapeutically methods is causing reduction of anxiety in primary and secondary groups of subjects;
- It is possible to conceptualize methodology of evaluation.

Research plan:

- I was doing education of psychologists in Reichian Radix psychotherapy; they were experiencing Radix work on themselves and learning some Reichian Radix techniques (primary group);
- Psychologists were applying learned techniques on the clients and we were measuring their success in psychotherapy. Secondary group were clients. So, primary group was working Reichian Radix work with secondary group.

Sample:

The group of psychotherapists was made of 10 psychologists practicing clinical psychology for more than a few years. All of them wanted to be educated and work on their personal problems. They were between 25 and 40 years old.

Clients were taken from clinic for out-patients. They had actual problems (within the domain of neurosis or character disturbances), and for that reason wanted psychotherapy. They were between 18 and 45 years old. They belonged to middle class and lived in the city. Intelligence was average or above. In the experimental group were 9 men and 21 women. In the control group were 12 men and 18 women. Entirely there were 60 clients.

Summary of PhD Thesis:

At the beginning of this work we have presented theoretical basis of Radix method. We have analyzed psychoanalytic ideas from which Reich's work grew, evolution of Reich's ideas, Kelly's important contributions, approaches of other Neo-reichian, and our understandings, suggestions and critiques.

For our conditions, we have elaborated one effective and useful introductory program of education in Radix method. Our model was the first part of introduction to Radix education, which Kelly with colleagues has developed in Radix Institute. Our suggestion was to use 10 introductory techniques. This introductory program of education we have modified in coherence with our culture and scientific tradition. Finally, we got form which has satisfied criteria of evaluation. We have noticed some specifics and reactions to Radix method in our environment and adjusted the whole orientation to that.

We have set up conditions for entering ten clinical psychologists into our introductory program of education. All of them were already applying psychotherapy on their jobs. They all went through all of the phases of the investigation. In order to fulfill valid evaluation of our program and methodical model of education, we organized

work with groups of clients. Clients were working with our educated psychotherapists. None of them have been treated with some of the other methods of psychotherapy.

The program of education of the psychologists has been evaluated by success in criteria of activity-effects of the work with clients. Evaluation in the first part of investigation has been done measuring the success in the specially constructed exam- test of knowledge of the theoretical and demonstrational aspects of the Radix program of education. Tests of knowledge were given at the end of the program of education and before starting work with clients. Regarding two parts of the knowledge, results showed that theoretical knowledge less correlated with practical success in work with clients. Bigger and statistically significant correlation with criteria activity (success in psychotherapeutic work) had demonstrational (practical) part of the test. Comparisons of our results with results of one investigation in the field of Radix method (Glen.1988.) lead us to assumption of the existence of “bodily and whole being emphatic”. This gave us frame of reference for results. In any case, provocative result of this investigation was the fact that demonstrational test was in bigger correlation with success in practical work with clients than with theoretical. So, in future, we should pay bigger attention to this part of education.

The success in work with clients was measured with and confirmed with: the scale of evaluation effects of psychotherapy (SPEP), the score on test of anxiety before and after the treatment and by differences in Drawing of the human figure before and after the treatment.

Through measures of success in our criteria activity we evaluated that we had developed one promising and useful program of introductory education in Radix method.

From our 6 hypothesis, 4 were confirmed. Results have showed that the reduction of anxiety in the experimental group, treated by Radix, was bigger than in control group, not treated by Radix (H1). Changes in structural-formal aspects of the Drawing of the human figure, were bigger in the experimental than in control group (H2). Personal evaluation of subjects is more favorable in the experimental group (H3). Explicit practical demonstrative knowledge was in positive and significant correlation with success in criteria of activity (H5).

Two of our Hypothesis was not confirmed: That two kinds of knowledge were in significant positive correlation- theoretical and demonstrational (H4) and that theoretical knowledge was significant in success of the criteria of activity (H6)

Measurement of the effects justified positive mark of value and usefulness of Radix method in the conditions of our practice. In our out- patients population we got results that suggested positive changes in the next domains: better perception of feelings and to inside; growing of the value system and integration of purpose; more adequate behavior in the problem - situations in life; reduction of anxiety and further growth in maturity.

The extant to whom goals were realized during this investigation and the way of realizing them, suggested that we could claim to relevant theoretical and therapeutically importance. We do not claim to the same extent the finality of the results and implications of this investigation. We think that further, better organized investigation, on bigger samples, together with development of didactical model of education will give results with better reliability and scientific validity. In that way growing acceptability for out clinical parts of population – both clients and experts – is for today’s psychotherapy and growth methods from vital significance.

3.2 Ljiljana Klisic, *The Validation of the Intervening Tehniques*, MSc Research

It is an empirical research of exploratory nature and an evaluation study of the Body psychotherapy – Radix method (supplementary technique was the technique of the guided imaginaries). It is within the framework of methodological principles of intervening strategy.

Hypotheses:

- The application of the techniques has a positive therapeutic effect (H1 was confirmed).
- By applying Radix technique (complemented with the technique of guided images), we can overcome the stand-still that has occurred during preceding therapy (H2 was confirmed).
- The application of Radix technique does not impair the stand-still nor can it produce a negative psychotherapeutic effect (H3 was confirmed).

Research plan:

The control group was included and equalized with the experimental group by diagnosing neurosis, socio-economic status and intelligence. The only variable which varied was the application of Radix technique - this technique was not used in the control group.

Sample:

There were 15 patients in the experimental and 15 in the control group.

The techniques were composed of Radix method and the technique of guided images.

The procedure was as follows: since there was a stand-still in the primary psychotherapy (Psychoanalytic oriented, or Gestalt, or TA), the therapeutics sent the patient to a new therapeutics (intervener). The intervener organized sessions intermittently for 6-7 days for three hours. After the end of the intervention, the patient had to fill a scale for the appraisal of the effect. After that, the patient was sent back to the first therapeutics. After 5-6 sessions, first therapist had to establish what happened during intervention. He was asked then to fill the scale for the evaluation of the effect of intervention and overcoming the stand-still. As the statement of the intervene was taken the last into consideration, he had to evaluate the behavior and the feelings of the patient before sending them for intervention, and after the intervention.

Summary of MSc Thesis:

The intervening techniques Radix do not cause any of bad or exasperating effects which digress from the intention of all psychotherapies – to help men;

The Radix technique is effective: differences between the experimental and the control group were significant;

The Radix technique helps to overcome the stand-still in the course of psychodynamic oriented therapy, frequently used in Serbia;

The effect of this psychotherapy can be evaluated with the proposed scale; there is an agreement between the evaluations of the therapeutics, the interveners and the patients;

After releasing specific emotions, the therapist helps the client to understand how these emotions and defenses affected his life, and helps him to find a way to make positive changes, so the client can be free to feel love, pleasure and trust;

Of course, other kinds of research are also possible and they would all contribute to get more detailed view of the values of ideas on the cooperative treatment.

3.3 Ana Ristovic, Some Experiences in Application Of Body-Psychotherapy in Working With Women Suffering from Breast Cancer within “Jefimija” Programme - Uzice, Southwestern Serbia

Resume:

Our aim is, besides introducing you with “Jefimija” Program for women suffering from breast cancer, to reconsider the following issues through summary of four years application of body-psychotherapy in work with this vulnerable population:

- Factors of risk in getting breast cancer as reasons for body-psychotherapy treatment of women suffering from breast cancer;
- Development of constructive psychological strategies of acceptance of illness through application of body-psychotherapy;
- Aims of body-psychotherapy treatment in working with women suffering from breast cancer;
- Four years of application of body-psychotherapy in “Jefimija” – specific work;
- Possibilities for evaluation.

Breast Care Center ”Jefimija” of Women’s Center Uzice are organized groups for undergoing psychotherapy, health-educational workshops, and individual psychotherapy work, individual checkups by oncologist and surgeon and lectures.

Two factors of risk in liability to get cancer are very noticeable in our region: (1) Living under continuous stress, and (2) stressful situations of various kinds (bomb raids, drafting of civilians, deaths of close friends and

relatives, economic crisis, hyperinflation and total existential insecurity, the possibilities and frequency of PTSD in one hand, and higher level of present modified uranium in closest surrounding in the other).

Research made by Spiegel (1989) is supporting significance of psychotherapy for women suffering from breast cancer – claiming that women who have attended psychotherapy groups are living longer than those who have not. With precise knowledge of how body and mind respond to stress, body psychotherapists are able to help those suffering from trauma, curing their body and mind.

Method for de-blockage of blocked emotions used in “Jefimija” program is TePsyntesis, our own body-psychotherapy method founded by Dr Lj. Klisic. Our aim was that application of TePsyntesis in work with women suffering from breast cancer would enable development of primitive, blocked aggression into assertiveness and power, passiveness, restrain and fear into strength and trust. Finally, comparison of the recurrence of the illness of women who have undergone “Jefimija” program and those who have not is the best proof us that we are on the right way in doing so.

3.4 Nebojsa Milicevic, *An Attempt of Evaluation of the Influence of Body Psychotherapy on Actual Level of Anxiety and Mood*

The "manifest anxiety test" and the end of the "mood scale" (MS-E) (Raskin&Crook, 1988) were given to a sample consisted of 50 students of Psychology. After a month the same group of students took part in educational workshop of body psychotherapy. It was meant that students get information about this kind of psychotherapy. The workshop lasted for three hours and supervised by dr Lj. Klisic.

After the workshop the participants were retested by the same instruments mentioned above, and were asked to answer to the questionnaire related with their impressions and knowledge about this kind of psychotherapy. The analysis and evaluation of test results were done. The significant differences were found at the level of actual anxiety, as well as concerning different factors of the actual mood. The scores on dimensions "tension", "fatigue" and "depression" were reduced and the scores on dimensions "consideration" and "energy" were significantly higher ($p < 0.01$). The questionnaire analysis showed that the students had a very little information about this kind of psychotherapy, that they are very interested in it and that their expectations about the therapy were surpassed. The most of them expressed greater body consciousness, the feeling of relaxation, contentment and higher level of energy and optimism.

3.5 Sladjana Djordjevic, *The effects of TePsyntesis, Research abstract*

The aim of this research was to evaluate the effects of Te-Psynthesis which is a scientifically based Body Psychotherapy approach that combines systematic work with the body and the mind-psyche (and in some cases spirit) to help one in achieving integration on somatic, emotional and spiritual level. The word TePsyntesis means Body-Psychotherapy-Synthesis, and this is what it is aimed to.

This research focuses on the effects of TePsyntesis. The sample includes 30 clients who went through this type of psychotherapy, and control group which consists of 30 psychology students which were not in psychotherapy process. Each client filled a questionnaire on the beginning and on the end of psychotherapy process. These pre-test and post-test indicators are used in order to assess their statistical difference. According to sample and variable characteristics, nonparametric statistics is used. It was hypothesized that there is a statistical difference before and after therapy process in following indicators: centering, grounding, ego-strengths, self-concept, feelings, energy flow through body segments (ocular, oral, cervical, thoracic, diaphragmatic, abdominal and pelvic).

After performing statistic nonparametric methods (Wilcoxon signed rank test), all hypothesis are confirmed, but on the different level of significance. The control group didn't show any significant change during this period. Qualitative methods are used in order to obtain subjective features of client's improvement. It is shown that TePsyntesis improves centering and grounding, therefore one has deeper contact with oneself and others. After therapy process the ego is strengthen and self-concept is more mature. In this research three pairs of basic emotions were tested: fear – trust, anger – love, pain – pleasure. Feeling of these emotions is deeper, more

profound and focused. One is ready to recognize feelings, be aware of them and knows how to deal with them. Furthermore, energy flow through body segments is stronger and person learns how to deal with high energy level.

Such high improvement in almost each aspect of client's lives can be explained by the complex approach to one's problems. The psychotherapist works both with body and mind in order to create a once damaged unity in energy flow. Therefore, the experienced change is profound and has strong influence on person's entire being.

3.6 Jelisaveta Rogosic, *Revealing Dominant Pain, Fear and Anger Blockers by Technique ff Semantic Differential*

This research is about possibility to detect three functional character types by using technique of semantic differential. Three functional character types are anger, pain and fear blocker and hypothesis's are that every functional character type will show lower results on one of three dimensions of semantic differential: anger blockers on the cognitive, fear blockers on the conative, and pain blockers on the emotion-evaluative dimension. As concepts which are evaluated by scales of semantic differential, were taken self and body image. In addition research has task to explore potential existence of any differences in experiencing of self and body image for every dimension of semantic differential for all functional character types. Sample includes 72 body psychotherapists clients, who by diagnostic methods characteristic for this psychotherapeutic modality determinates which client belongs to which functional character type. Scale of semantic differential which is standardized on our population is used as an instrument for this research.

Hypotheses were not proven. There is no difference between anger, pain and fear blockers on expected dimensions of semantic differential. Anger blockers do not have statistically significant lower results on the cognitive dimension, fear blockers on the conative and pain blockers on emotion-evaluative dimension. It is possible that adjectives in used instrument cannot detect these differences. I do think that another research for construction of the instrument of semantic differential for these specific needs is recommended, although this research showed that it is impossible to diagnose functional character types on this instrument. Sample is small, so on a larger sample results close to statistical significance probably would be statistically significant.

Tasks of research are shown that in population exist some statistically significant differences in experiencing self and body image and it is for the cognitive dimension of semantic differential. But in groups of three functional character types there are no statistically significant differences. Anger blockers more evaluate their self, better know their body image and feel more potent over their body. Pain blockers more evaluate their self, better know their body image and feel more potent over their self. Fear blockers more evaluate their self, better know their body image and feel more potent over their self. In our culture it looks like it is more evaluated what is inside than what is outside, but it looks like it is better known what is seen than what should be experienced and introspectively found. Anger blockers are probably easy to feel strong and have more confidence in their own body performances than pain and fear blockers.

3.7 Biljana Jokic, *Researching the Effects of Body Psychotherapy Tepsyntesis in the Domain of Horizontal Connectedness and Purpose*

The subject of this research was chosen in keeping with the basic principles of working with body psychotherapy – i.e. horizontal connections (energetic connections between two persons when they meet) and work with the purpose (geared to increase the capacity to lead a *purposeful* life).

The survey included 81 participants from the therapy and control groups. The results obtained indicate a considerable difference between the two groups regarding most issues that were covered. The difference is particularly noticeable in the part of the questionnaire related to the purpose-oriented work. Besides, the clients with body psychotherapy experience indicate an increase in the quality of connectedness with others, as well as having more spontaneous and enjoyable communication. Considering the relatively small number of persons surveyed and the experimental nature of the instrument of research (self-assessment questionnaire), the results obtained in this survey cannot be generalized. They can be used as an illustration of the effects of TePsyntesis body psychotherapy work.

3.8 Maja Lekic, *Effects of Body Psychotherapy Tepsyntesis Concentrating on Vertical Connectedness, Work with Body and Emotions*

This research covered 81 persons, out of which 53 belonged to the therapy and 28 to the control group. This pilot research shows that body psychotherapy clients (within the TePsy modality) achieve higher positive results on most self-assessment scales in comparison with the control group. This relates to both the experience of bodily processes, as well as to the emotional functioning. Positive effects are particularly noticeable when it comes to an improved image of one's body, better relating to one's emotions, increase of pleasure in life and self-confidence. This all indicates that the control locus shifted from the "protection mode" towards the "risk mode". The results of this survey cannot be generalized – however they could serve as a base for a wider and more in-depth research regarding the effects of TePsyntesis body psychotherapy.

3.9 Saša Bogdanović and Jelisaveta Rogošić, *Efficiency of Tepsyntesis Body Psychotherapy Treatment in Work with Somatic Ego Functions*

Aim of this pilot research was to explore if persons who were in body psychotherapy treatment have more developed somatic ego functions than persons who weren't. Body psychotherapy as specific psychotherapy modality have access to somatic level of body functioning in much bigger degree, where we can see unity in work with somatic ego functions. Concept of ego function is related with early Freud's work, but only when modality of body psychotherapy was developed, it has been dedicated much more attention to somatic manifestations of ego functions, in other words to their sensory-motor representation.

Questionnaire is specifically made for this research, and based on assumption for somatic ego functions as it is formulated in Bodynamic theory. Sample are 100 persons, half of them are clients in body psychotherapy (psychotherapy group), and the other half never had any experience in body psychotherapy (control group). Ten somatic ego functions are examined: connecting, positioning, balancing, centering, grounding and reality testing, boundary forming, thinking, managing energy, self-expression, bringing close and distancing. For each somatic ego function are statistically significant differences between two psychotherapy and control group. Examinees from psychotherapy group have more developed all somatic ego functions than examinees in control group. Results show that all somatic ego functions are equally developed in each group of examinees. That points on connection of somatic ego functions and that they represent one functional totality. Highest scores are in both groups for somatic ego function positioning, and smallest for managing energy.

These results point on contribution of body psychotherapy to development of somatic ego functions. This field of research is not significantly represented, that gives us possibility that in future somatic ego functions can be examined from different aspects in context of body psychotherapy, with more precise psychological instruments with better measure characteristics, with testing and retesting group of examinees. Although it was not object of research, highest results are gained for somatic ego function positioning, and smallest for managing energy, that can point on general characteristic of persons from this area. In case that managing energy is most undeveloped somatic ego function in average, body psychotherapy can be very helpful, because managing energy is narrow specifically related with body processes, and vegetatively caused.

3.10 Nikola Djordjevic, *The Efficiency of Tepsyntesis in the Context of Development of Orgasm and Agrasm*

The main issue of this work was to verify the potentials of practical efficiency of TePsyntesis in the sphere of improving agrasm and orgasm of the clients, looking through the conceptual frame of theories of development of agrasm and orgasm (by Ljiljana Klisic). *Agrasm is a new term suggested by Dr Klisic.*

Although these theories are observing the development of agrasm and orgasm through continuums of energy and awareness, our first task was to present a detailed scientific development of the concept of energy in Body Psychotherapy, and conceptions of development and levels of consciousness in the theories of development of orgasm and agrasm.

In final chapters, we have presented the results of our explorative research on this subject. The research was conducted on an opposite sample of 30 examinees, our colleagues who have worked long enough on themselves through TePsyntesis-Body-Psychotherapy, at least 3 years. The task for them was to evaluate their level of

agrasm and orgasm before and after their own psychotherapy process. The data have been collected by means of two questionnaires which have been made for this purpose (one is for the development of agrasm and the other for development of orgasm). Both questionnaires have been shown as inappropriate for laymen, but adequate enough for people who are well educated in theories which are theoretical frame for this exploration. The data have been processed by methods of non-parametric statistics, and the aim was to verify if there exists (or does not exist) statistically significant difference in levels of agrasm and orgasm before and after serious TePsyntesis self-work.

The characteristics of the sample and of the instrument does not offer us the possibility for some delicate quantification, but the results of the research undoubtedly lead to a conclusion that self-work through TePsyntesis can help people to develop and make progress on the continuums of development of the agrasm and orgasm. So, through this research, both praxis and theories of TePsyntesis benefit some verification. But for detailed and more accurate conclusions some new and more precise researches are needed.

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SELF-REINTEGRATION, AN QUANTUM-BASED ENERGY (PSYCHO)THERAPY, FOR THE TRANSCENDENCE OF DUALITY

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Abstract. The author presents a new therapeutic technique, which fits in what are called Energy (Psycho)Therapies or Meridian (Psycho)Therapies. Based on scientific studies by various authors and her own clinical experience, author discusses the new paradigm of science, which accepts the consciousness as the creator of matter and its importance to a renewal in the way we think about health and illness, the various states of consciousness with which we are affecting and being affected constantly, and the duality of mind that is characteristic of all quantum objects and responsible for various fragmentations of the human psyche or mental creations.

Keywords: *energy (psycho)therapies, meridian (psycho)therapies, duality, paradigm, self, reintegration, fragmentation, mental creations*

1. Dual Paradigm X Unified Paradigm

The human imaginary has always searched for answers to the psychic events. Everything that exists in society today, from simple rules of living to a high technology, results from the expression of the human soul in mental, emotional and physical levels.

René Descartes [1] influenced Western thought by considering [1] the human being as a mind-body duality. This materialistic paradigm had and has a role in the construction of beliefs that are the building blocks of many diverse cultures and their productions.

At the same time that the materialistic paradigm resulted from beliefs of the past time, it was either the basis for the construction of new beliefs and so on, forming a sort of web, where it is not possible to affirm the beginning nor predict an end.

From the world of Descartes, people stayed for a long time, stuck to the idea that the psyche was nothing more than an epiphenomenon of the body, specifically of the brain, probably a subproduct of the synapses produced by neurons, that is, from the material interactions. Any other statement would be of a religious or mystical order, so disposable to the status of modern science. Science and Spirituality here did not mix.

The problem is that, scouring the history of humanity we find numerous reports of mystical experiences that shake the structures of materialistic thought, showing glimpses of other realities that individuals are able to reach and to interact with (as described in Castaneda's books [2,3]).

The fact that science has denied the realm of the spiritual and mystical, and the spiritual has denied the science, somewhat delayed human evolution. At a time, humanity was locked in a concrete reality with regard to the macro mechanical world. In other, it was locked in an exaggeration of mystical and religious dogmas, with no plausible explanation.

But, in the middle of this ballet of extremes, there have always been sensible and visionary people who left us their base of investigative and courageous thinking.

The physiologist Richet, Nobel Prizeman in physiology in 1913, has declared at that time (as quoted by Yogananda in [4]), that "(...) The science of today is a light matter; the revolutions and evolutions which it will experience in a hundred thousand years will far exceed the most daring anticipations. The truths – those surprising, amazing, unforeseen truths – which our descendants will discover, are even now all around us, staring us in the eyes, so to speak, and yet we do not see them. But it is not enough to say that we do not see them; we do not wish to see them; for as soon as an unexpected and unfamiliar fact appears, we try to fit it into the framework of the commonplaces of acquired knowledge, and we are indignant that anyone should dare to experiment

further." Interestingly, the posture of positivist science has not changed, remaining focused on a clear game of power by its "owners". Even with a large number of new tools, formulas, researches, unquestionable evidences and several renowned researchers from various areas have embraced the new paradigm, continues a process of discredit, which hasn't actually done any transforming purpose for humanity of planet Earth.

Today, with the advent of Quantum Physics, this is very clear! From one side, researchers who insist in embedding the new science only in the mechanistic world, on the other hand, researchers whose look bows to the greatness of the Laws of Nature that they still do not know and which implies a teenager reading for many of the laws already known. Quantum Physics allows to consider the world as from submicroscopic phenomena. That is, those that are not visible to the physical eye, and many are not even noticeable in supersensitive devices. From this science we can assume many things, because it states that the fact of not having experienced a certain phenomenon does not block its existence.

From this science we can assume many things because it says that the fact of not having experienced a phenomenon does not prevent it of existing. After all, "what would be if Nature depended on the human belief to move itself in its own laws?" (Sri Yukteswar, quoted by Yogananda in [4]).

This new science states that reality exists only from the interference of an observer (see, for instance, Wolf's book [5]), that is, nothing, no universe or nature, nor even people would exist if there had not a consciousness capable of causing the collapse of the wave and make the existence possible. This is so true that if someone tries to imagine the emptiness, thinking in a vacuum, with nothing manifesting in it, yet this someone will be watching it. The new science also allows that the dogmas of faith of the religions and the extrasensory experiences of mystics can be known, explained, demystified and experienced from theoretical and scientific concepts (as revealed in Rakovic's monograph [6]). So, everyone wins with this interaction. And that changes the way you perceive yourself, others and the world.

As previously mentioned, the beliefs form the basis of thought. An example is the individuals known as mediums, people who have psychic abilities beyond the ordinary. For the mechanistic, either these people would be fantasizing for unknown reasons, or suffering from a collective outbreak, with symptoms of schizophrenia and / or psychosis, for example. Just read in the DSM – Diagnostic and Statistical Manual of Mental Disorders [7], that the description of the symptoms of these diseases and others is very similar to certain psychic experiences that mediums use to report. An individual with symptoms of schizophrenia in Western culture would probably not be considered mentally ill by a shaman tribal (for example, see Overbye's transcultural study [8]).

It is interesting to have in mind, that through this web of beliefs, we create, maintain and destroy what we want. Fact is that many observable and compelling phenomena, especially psychic phenomena, if they cannot be embedded in materialist theories, they are given as unreal, false, fanciful, hallucinations, delusions, symptoms of mental illness, madness, and others.

2. States of Consciousness

Weil in his book [9] notes that there are "different levels of reality that can be lived in different states of consciousness, and possibly some of these are specific to certain levels of reality." For example, "in a state of wakefulness, the levels of reality are perceived as we know them; in the dream state, a dog's bark becomes a siren bombing and it is possible to receive direct messages about a disease that is affecting yourself, or a telepathic message from a friend who is thinking of us at this time. In a state of cosmic consciousness, we can see, simultaneously, the dog in its subatomic and dense structure, as well as its bark will be perceived by the ear at the same time we "see" sound waves of the same bark, all this along with the vibrancy of its affective relationship with its owner (and vice versa)."

Without a doubt, when a person allows to realize herself in a state of consciousness different from the watchfulness state, other realities come into being as they are now being realized. In fact, these realities have always been there, working all the time unconsciously, as part of the individual and collective whole from each of us and affecting our actions, reactions, decisions, health and disease. But they had to suffer the collapse in order to come out. In every state of consciousness we perceive the same reality in different ways.

The systemic theory of Weil [9] points out, at least seven states of consciousness: (1) State of consciousness of deep sleep, (2) State of dream consciousness, (3) State of consciousness of reverie, (4) State of waking consciousness, (5) State of awakening (6) State of transpersonal or cosmic consciousness and (7) Other states, which can be induced from outside (whether by drugs, by the direct action of another person, etc.). Studies have been conducted in this area, but it is not the focus of this article. In each of these states of consciousness we can experience different levels of reality, according to the state of consciousness we are experiencing.

According to Wolf and Toben [10] each construction of an individual universe contains equally an indefinite number of other universes with all the variations and all other possibilities. In patterns that vary constantly, each universe is connected with each other and with all others and the connection can occur at different levels. The connections that change continuously between the individual universes, and the configuration of all individual realities are a continuous process. There is no beginning and no end. Each reality is constantly forming and affecting all other realities beyond time.

In the technique that will be presented in this article, it is proved by experience that the ordinary reality we perceive is not a unique universe. We are affected by and also affect, an infinite number of universes constantly. The great mystics have always known this. And meditation is a practice that allows access and traffic to these universes. So, connecting to the I, becoming aware of unconscious contents presented in these universes, is approaching ourselves to the control of our destiny. In this destination health and disease are included.

3. The Beginning

I started my work, which I now call Self-Reintegration (SR), in 1998 when I met the Italian physiotherapist Giuseppe Chieppa. In his daily practice he developed his own method of work that took into account the emotional experience and life situation of each person, as well as the biomechanical and physiological aspects of various pathologies. Through a process of self-observation, patients increased their level of attention, giving priority to the vitality, integrating and unifying awareness to the body. This greatly improved the clinical picture with which the patient came to him.

I remember well that Chieppa told us during the course called Corpocoscienza that he knew that, what he was experiencing with his patients was just the beginning. And he wished that this technique could be improved with the participation of professionals of psychology, so that they could advance the field of the psyche, something he did not venture to do. I am very grateful, because this opened an immense field of work for me. At that time I was just Reiki therapist, and enchanted with the possibilities of working on the human psyche. And, as from Chieppa's technique, I decided to do a graduation in psychology.

The years passed and many were the experiences I have gained with patients who came to me, many recommended by doctors and psychologists who understand that the medication and the analysis worked with the patient only to some extent. I evolved my work, but always with the desire for scientific explanations of the phenomena I witnessed in my clinic.

In 2001, I knew the work of Amit Goswami, through his book "The Self-Aware Universe" [11] and became enchanted with Quantum Physics. I began to study it and make assumptions about my work, at the same time, I added practices which I found interesting to it. In 2009, knowing the work of Dejan Rakovic [12], I knew that this would be the best and safest time to write about this technique.

As knowledge does not belong to me, but to the universe, to the collective, at some point it becomes necessary for us to share our experiences. Then, in my country, psychology does not have much space to these issues in the academic world, much less scientific publications. So I was very adrift without papers that could support my ideas and experiences. And finally, we need to grasp from the universe some opportunities. And this was given to me by Dejan Rakovic, whose encounter with me made me realize the similarity between our approaches and brought forth the possibility of using well-known papers to give me a subsidy to the writing of this text.

4. The Technique

I am a clinical psychologist and my job is to assist the patient to find a cure in himself, scanning the various dimensions of the psyche. By psyche I understand the human soul, the "It" by Georg Groddeck [13,14], The "Nothing" of the Vedanta Wisdom [4], the Self by Carl Gustav Jung [15,16] and the Consciousness that affects quantum objects, from Amit Goswami [11]. To do this, I take the patient to contact his essence, through deep breathing, using an asana of Yoga called Savasana and positioning my hands on two chakras - the crown and solar plexus. As I am a channel Reiki, I remain myself always connected on that energy. Without contact with the Self is very difficult to get to what really is the cause of complaints and the person remains itself at the mercy of confusion.

The SR works first, with the reconnection of the subject with his energy center. In just a few breaths the person begins to perceive itself at a level beyond the physical. This "be aware" takes the individual to a reconnection with itself. Without that happens, you should not work to evolve the perception of other realities. It would not be safe for the patient. It could lead to further fragmentation of the psyche. Once the patient finds itself in deep relaxation, but conscious, I use simple and direct questions to get patient to realize its biofield.

Here, at this point, it is possible to read the mental state of that individual, and the interferences that are being carried out in the physical, mental and vital expression, based on the answers he provides. This practice makes the same effect as the grounding of Bioenergetics. It is absolutely necessary that the therapist is prepared to act from its own self, as therapist is interfering with patient's biofield. It is a process of non-local and simultaneous interference, between patient and therapist.

Yogananda, the famous guru, founder of the Self-Realization Fellowship, in his book "Autobiography of a Yogi" [4], citing Lahiri Mahasaya, his guru's guru, says that "health accompanies exactly the subconscious expectations." So, give the patient the opportunity to access the subconscious to extract the origins of evil and give a solution for him, should be the work of any psychologist. And also adding the restless investigation of the movements of the human soul and the psychic phenomena it produces.

Another exercise I use is to get people to take possession of an "imaginary" and self-sustaining substrate, an internal place in our subconscious where the essence resides and rests, even when all of our subjectivity, ego and consciousness collapse (as stated by Hillman [17]). Here in this place, I help them to absorb themselves and have special meetings with several buildings of the soul or "psychic entities", including the mind creations or thought-forms and other realities, and breaking barriers of time between past, present and possible future in holography.

The reports on the experience of individuals with SR show that they realize themselves in more than one reality without losing total contact with any of them. Only that the experience is actually stronger where the focus of attention is directed to at that time. From there, it is possible to dive inside many "wormholes" that the patient will pass through during treatment in order to achieve self knowledge and healing in a transcendental level. It is this reconnection that opens the possibility of a new choice, free from the conditionings of past experiences, as the individual goes traveling through himself. SR, above all, works the spiritual and transcendent awareness of being, and for this, seeks to take the patient to achieve a state of Cosmic Consciousness, where "the perceived reality is no longer a dual perception, but an experience of unity" [9]. Here, the person is constantly aware of what is happening.

I remember one of my clients, 22 years, who came to the clinic with a diagnosis of schizophrenia, given by the psychiatrist. Her situation was serious because she could not continue with any subject, no matter how simple it was. She passed from one idea to another in minutes, without any relationship between them. She also had a great fear of the "voices" which were chasing her all the time, and not even let her sleep, despite high doses of drugs. During psychotherapy she was taken to access the psychic reality of the voices which they belonged, and talking with "them", she could solve a matter of charging from a past life.

The other day she woke up lucid, speaking coherently, and never returned to freak out. We worked for two years on a weekly basis. Today she is married and has two children, works and lives her life according to what we call a normal way.

In another experiment, a nine year old boy started to have a psychotic disorder that affected his thinking, left him quite disordered, shook his affective responses and compromised his ability to perceive this reality. At

school, he stopped following the teaching and his colleagues distanced themselves from him, afraid of his unpredictable reactions, ranging from violent reactions to peaks of depression and isolation. During a work of SR, he got in touch with the internal reality where he was, psychologically speaking, and found himself in a cave, with four years of age. This place was damp and dark, and the feeling that something would violate him was imminent. He could not access the reasons why he was in the cave, but I worked in order to help him get stronger and have the courage to get out to a better place. The detail, is that, in this collective reality that we call “waking reality”, he was never in any cave. The cave and all the elements were part of the inner reality in which he was also inserted. When he left the cave, he saw a place of great nature and could experience the Divine Essence redemption, his I, his Self and re-connected with this waking reality, more dense. There were 13 sessions of 60 min each. Today he is a teenager of 17 years old, studying and singing in a choir, and did not have any more picture of the outbreak.

The nine year old patient perceived himself in the litter of my office and in the cave, where a fragment of him was manifesting as himself in his four years old. Although he had more awareness of the cave and what was around the cave at the time of experience, he heard my voice and was sure that he was at my office. The possibilities of the human psyche are unimaginable in its entirety, and I feel as if I was in the kindergarten.

5. Mental Creations and Fragmentations of the Soul

In SR the range of Mental Creations that we can access is unimaginable. According to Tibetan Buddhism, there are over 84,000 "psychic entities" or thoughts [18], or mental creations built from the fragmentation of the psyche, through conflicts of all kinds poorly solved: obsessions; destructive thoughts; compulsions; traumas; memories of past lives; memories from this life; spiritual implants placed by entities with a special purpose; known diseases; unknown diseases; personality of past lives; inner child of the individual; the inner wise man; adequate and inadequate entanglement with the ancestors; “boxes” with different contents; family curses; limiting beliefs, etc.

The fragmentation of the essence of Being is a phenomenon of the action of Maya, the power of illusion, according to the Vedic scriptures, or principle of relativity and duality of quantum objects, according to quantum physics. Maya puts us in the dance of polarity, for example, health and disease. Therefore, achieving a cure is to transcend Maya, rise above the duality of creation to perceive the unity of the Creator. According to Hawking [19] all of us and everything around us are quantum objects. And in the case of this particular feature, there is no distinction between waves and particles. Particles can behave as waves and vice versa. When one quantum object behaves as a wave, it is spread, moving, and exists in more than one place at the same time. You cannot specify exactly where it is located. When we stopped to observe it, it suffers the collapse of the wave, and starts to behave as a particle. And then, we can suppose the region of highest probability to find it. Thus, it is possible to do more checks in this quantum object in particular.

Quantum physics describes matter as waves of possibility [11]. And consciousness is the agent that turns the possibility in the act. The collapse of the wave is exactly the time when the possibility becomes action. Consciousness, which is transcendental in its own nature, chooses a superposition of waves of possibility, this superposition becomes the act and passes from act to experience. That is what we call perception. So Maya works. It is important to note that everything that occurs with a quantum object affects its internal and external universe. Therefore, we can say that quantum objects are singular and collective at the same time, but not individual. And that includes humans.

The Unit has always been the aim of science. Einstein, before his death, developed the Unified Field Theory, convinced that the laws of electromagnetism and gravity could be expressed in mathematical formula; with the theory of relativity to explore the possibilities of atomic nature expanded, reaching the demonstration that the atom is energy rather than matter (as quoted in Yogananda [4]). And renowned scientists of that time, as Sir Arthur Stanley Eddington, British astrophysicist, came to say that atomic energy is essentially mind-stuff [4]. Today, using the new paradigm, that consciousness creates matter, we can move forward in curing diseases of all kinds, just helping people to seek unity in themselves.

Over the centuries we have been fragmenting ourselves by focusing on the material phenomena as essence to existence, for what we call life. But in fact, we have reports all over the planet of mystical experiences that led to the cure of disease and spiritual elevation. This, in many different cultures, from different times, passed by people who learned to think about it, each in their specialty. Ancient wisdoms like Vedanta, Theosophy and Kabbalah, for example, have been rescued by scientists as the basis for an undeniable explanation of psychophysical phenomena. We have evidence of that in the writings of brilliant researchers and professionals, such as Carl Gustav Jung, Jagadis Chandra Bose, Paramahansa Yogananda, Wilhelm Reich, Deepak Chopra, Bert Hellinger, Rupert Sheldrake, Amit Goswami, Dejan Rakovic, Francisco Di Biasi, Fred Alan Wolf, Richard Amoroso, James Lovelock, Vladislav Lugovenko, and many others.

6. Energy (Psycho)Therapies, a New (Psycho)Medicine

The advent of Energy (Psycho)Therapies and the new paradigm, of a science within consciousness [11], has been leveraging our progress in this area.

According to Rakovic and Slavinski [18], the Energy (Psycho)Therapies and the Meridian (Psycho)Therapies are based on secular teachings about the energy field inside and around the human being, the meridians within that field and vital energy (chi, prana, etc) that flows through them and all this integrated with modern psychological knowledge. Their goals are the elimination of emotional, psychological and physical unwanted states. And some, like the PEAT (Primal Energy Activation and Transcendence, developed by Slavinski [20]) is also an expansion of consciousness, spiritual maturity and development.

Unfortunately, until now, there is no scientific validation that supports the material, but the results obtained on the day-to-day are the reason why these (Psycho)Therapies are increasingly attracting attention, so large and growing, thus opening new possibilities of healing and revolutionary paradigms for our understanding of human beings. Here the psychological problems can be understood as manifestations of energy interruptions of the configurations in the human energy field and the organic diseases, that are embodiments of these disruptions that manifest neurologically, biochemically, cognitively and behaviorally. In this therapeutic approach the psychological problems are resolved much faster. Just change the structure of the information contained in the elementary particles forming the energy fields, which is at the root of the problems to provide a cure or change in Spiritual Consciousness.

The nonlocal behavior of consciousness, including the potential of transferred data about quantum discontinuity, are the basis for the understanding what the SR makes possible to the client access, because it explains the various psychic phenomena that we are able to accomplish: telepathy, precognition, past life regression, future progression holography, conscious out of body travel, mental creations, etc. That is why yogis, in a state of meditation, can experience the ecstasy, remaining alert, awake to this reality.

In the SR, as well as in the PEAT [20], there is the current release of blocked energy in the aura of being, without the need for intense catharsis. The idea is that the person become aware of blockages and can decide for a new energy pattern. About catharsis, I believe we can modify the sick standards in a more elegant and subtilized way, without passing again through all the emotional and sensory charge presented in the experience that culminated in a trauma, for example. We can use the memory, because these contents are stored in it with all its nuances, such as files in a folder. We can access them without "revive" faithfully what happened. And, once accessed and (dis)integrated, the contents stop disturbing us. Catharsis by itself, as has been used by certain body approaches does not solve the problems. It is necessary to modify the basic pattern, or the energy will accumulate again. The practice of releasing is good, but not permanent. To change the pattern is necessary to face it, changing the internal mechanisms that create these energy blockages, which repress it and cause us to be angry, sad, depressed and neurotic. Release this energy is simple, but (dis)integration of the pattern is hard work. My experience of 12 years of work has proven this and my physical body thanks for not having to be weakened by this particular stress.

Through a deep breath, which directs the person's focus of attention to itself, we allow the unconscious content, which is in motion, behaving like a wave, to collapse and start to behave as a particle. Thus, we can work effectively upon this acting content, consciously and deeply, reorganizing the entire internal universe of the

individual. In fact, "there is no real unconsciousness; it is possible that consciousness sleeps or rests, but it can never be unconscious. During sleep, consciousness rests, that is, it is inactive. The soul is never unconscious." (Yogananda, quoted by Sri Daya Mata [21]).

Of course, everything that has been worked within this internal universe, in particular when the unconscious comes back to behave as a wave and spread itself, will undoubtedly modify it, and the environment around it. It will act, thereafter, in a new standard, making these changes almost immediately noticeable, as the remission of symptoms, for example.

7. Conclusion

With the SR I have learned that the human psyche creates numerous forms that act in a variety of ways to accomplish some larger purpose of the Universal Order. The SR is an Energy (Psycho)Therapy that does not work with guided imagery, like most of the work of active imagination. It makes the person actually find a "wormhole", cross it, step into the "other side" and transit by those other realities that are unique, at first, and go to see them, as well as all huge range of fragmentations that are manifested in them, understanding the interactions that are present between the singular and collective, finding a unification and assuming a greater power of choice in such called "unaware" actions of the ego.

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PEAT AND ENERGETIC AND SPIRITUAL (PSYCHO)THERAPIES

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Abstract. Energetic (Psycho)Therapies is a common term covering a group of new alternative (psycho) therapies created in the past two decades, which are also called Meridian (Psycho)Therapies. They are based on the common observation of majority of practitioners that psychological and emotional problems can be understood as manifestations of energy disruptions of energy configurations in the human energetic field. In essence, systems of Energy and Spiritual (Psycho)Therapies represent an application of the energy and Spiritual paradigm to the removal of psychological and emotional aberrations, diseases, and other maladies. The proponents of these therapies believe that the causes of these aberrations are disturbances in the energy field (or aura) of a human being, fundamentally manifested as energy structures, which naturally manifest themselves neurologically, biochemically, cognitively, behaviorally and spiritually. The introduction of the energy/spiritual paradigm into the fields of psychotherapy and represent a quantum leap in the understanding of these important areas, since it makes us look at them from an entirely different viewpoint. Psychological traumas, persistent phobias, allergies, post-traumatic stress and other psychosomatic disorders, are resolvable far faster if we approach them as if they were disturbances in energy and spiritual fields, than if we start searching for their historical causes – as was characteristically done in earlier times, beginning from the Freud psychoanalysis. Changing the structure of the energy and spiritual fields that are at the roots of problems is enough to create healing or a shift in the Spiritual Consciousness. In this paper we shall mention few main systems of Energy psychotherapy and our method of Primal Energy Activation and Transcendence (PEAT), an expansion of consciousness and spiritual maturity and development. The most important discovery, which we demonstrate in PEAT is that every human being has one pair of most fundamental polarities – his/her Primordial Polarities or his/her Personal Codes. Without their integration there can't be the true psychological, emotional and spiritual freedom.

Keywords: *energy (psycho)therapies, PEAT, spiritual psychotherapies, traumas, persistent phobias, allergies, post-traumatic stress, integration of Personal Codes, getting to void as the core of human being, raising up the levels of consciousness etc.*

1. Principles and Practice of Spiritual Technology

There are two fundamental possibilities for us as conscious human beings to experience this world and ourselves: dualistic and unified consciousness. Most human beings live predominantly on the dualistic plane, in which they see, perceive, and experience everything in opposites. It is always either/or, good or bad, destroying or creating, advancing or retreating, freedom or slavery, love or freedom, life or death, I or you... endlessly. These polarities, opposites or complementaries make our lives what they are, which means full of problems.

Connected with this dualistic consciousness is this strange fact: We all have numberless problems in our lives, but everybody has got one fundamental problem in one's life. Mystic masters say that if we do not resolve this problem we will have to return to work on it many times as long as we finally resolve it. Now, using the methods of Spiritual Technology it is possible to solve that fundamental problem almost permanently.

Eleven years ago (1999) I created PEAT [1], which is an abbreviation for Primordial Energy Activation and Transcendence, from various systems of energy psychology, touching of acupuncture points and mostly out of my own systems as Gnostic Intensive and Alternative Technique. PEAT as a system is alive – it has been developing all these 11 years, so it is very different then what it was in the beginning. Shortly after its creation I made an essential creative breakthrough which allows one to transcend dualistic consciousness and to effectively

solve hard-core problems – most importantly, one’s core fundamental life problem. I lead many PEAT Processors Training Workshops in USA, Canada, Russia, Ukraine, Bosnia, England, Italy, Slovenia, Hungary, Croatia, Germany, Macedonia and Turkey.

PEAT system has got 4 levels [1-4]: **Basic Peat**, **Deep PEAT**, **DP2** and **DP4**.

Its basic level, **Basic PEAT**, is a kind of energy psychology but is dissimilar to any and every other system. It involves touching only 3 points around an eye, concentration on the problem and dramatizing it (feeling it as strongly as possible) and **Alternative Technique**. It is quicker and more effective than any other energy psychology system.

In PEAT **Deep Processing** you start with a problem and you uncover deeper and quite different contents on the chain of contents leading to the highest cause of the problem you started with. An average session lasts from 10 minutes to 45 minutes. When you get to the deepest core of your being, the problem vanishes for good.

Most importantly, in one to three sessions of PEAT Deep Processing, you uncover, make conscious and integrate your **Primordial Polarities**, or **Primes**. They are also called your **Personal Codes**. It happens most often in the first session. At the moment when you discover your own Personal Codes there is a neutralization or integration of opposites. You see one Primordial Polarity in another and vice versa. They become ONE.

Neutralization of your Primes solves your most fundamental problem forever. If you follow the procedure correctly, you can’t avoid this resolution even if you want to. This process liberates a human being from the deadly grasp of fundamental forces of duality. Very few people, usually well advanced, know anything about this result.

Just before the moment of integration there is usually a short confusion. You may become a bit dizzy and disoriented. This is natural, of course, because the playground on which you played your fundamental game for the whole of your life vanishes. It is like a sudden vanishing of walls of the jail you have lived in for all your lifetime.

The Personal Codes are very simple and basic. Here are some examples: Creating and Destroying, Approaching and Retreating, Light and Darkness, Pain and Love, Potential and Actual, Active and Passive, I and Others, Small and Big, Power and Powerlessness, Material and Divine, Material World and Spiritual World etc.

What is the value of this experience? Exaltation doesn’t last long, it’s true. But the important part of your whole life becomes clear to you. You realize the game of life you used to play in many different variations **unconsciously and compulsively**. You are set free from your main compulsions. You could still play the same game, but now you can choose other games as well. You have **freedom to something...** and **freedom from something...**

Further, after uncovering and integrating your Primes you become more conscious of new and old problems, but all your problems are solved much more quickly. Their structure often follows your fundamental game of life in endless variations, which you will now be able to perceive.

Until recently, only a small number of selected people knew about the importance of integration of Primes. The reason for this is simple. Neutralization of one’s Primordial Polarities was a secret for many centuries, within systems such as Tarot, Middle Age alchemy and 19th century occultism. Taoism and Zen clearly appreciate this process. The whole of Kabbala is mainly about neutralization of opposites. You must neutralize all polarities and bring your own consciousness to the central point encompassing both sides, to the called Middle Pillar. In its quintessence, alchemy is about neutralization of polarities as well. This is the biggest secret of that middle age science. Advaita Vedanta, one of the most profound systems of practical philosophy, speaks only about getting to non-duality. "Advaita" means **non-dual**.

This is the reason that until recently only a few selected individuals knew about the possibility of solving their most fundamental problem in life. This is no longer the case.

Since I created PEAT more than 3000 people neutralized their Primes and freed themselves from the most fundamental, unconscious and compulsive problem of their whole life. Changes in their lives were profound and substantial.

Being’s Primes are the highest goals Being wants to attain again and again. They are Being’s most powerful attractors. Different human beings have different Primordial Polarities, though some have the same ones. A principal characteristic of being’s fundamental game of life is that it is unconscious and compulsive. Primordial

Polarities make his/her life seesaw. In endless situations of life being oscillates unconsciously and compulsively between Primordial Polarities. They are not fixed values, but are like alternative electric current. For a period of time, one polarity seems to be the positive goal (Being strives with all his/her power to attain it) and another is negative (and Being does his/her best to avoid it). But after some time their values change.

This is most important for Spiritual development and for everyday life as well: you can't solve your most fundamental problem in life until you attain neutralization or integration of Personal Codes. Practicing different psychological, psychotherapeutic and spiritual disciplines you can disengage from or de-energize that problem for a short time – truncate it, so to say – but sooner or latter it gets restimulated again. When you address it with PEAT Deep Processing, you become acutely aware of your earlier life as a series of compulsive and unconscious oscillations from one Personal Code to another. Of course, neutralization of Primes doesn't solve all your problems, just the most fundamental one. There are many others problems based on dualities, but they will be solved much more easily and quickly with the same Deep PEAT process.

Between the creators of certain Spiritual, therapeutic or self-developing systems and the systems themselves, there is a reciprocal relationship. Starting from the previous research on the human mind and perhaps owing to a touch of luck, a man (the creator) creates a system of development having therapeutic intentions. When applied, the system changes the consciousness of people. After some time spent applying that system, the people who were changed are able to observe the system from a new, higher standpoint, as less burdened beings, with a sharpened perception and better understanding of occurrences inside themselves. They are able to notice the limitations of the system and to correct some of its elements. This is the way the original system becomes advanced, perfected and more efficient. After it is changed and becomes more efficient, the system will influence people changing them again for better. Changed people are able to continue developing the system, transforming it in an even more efficient instrument of human consciousness. This process of mutual influence between the system and man will last until the system stop changing, coming to a stand-still and losing its ability of changing further.

While applying and improving my systems of Spiritual Technology I noticed the different operative principles they are based on. The principles are:

- *A Holistic Approach to the Phenomena (based on the insight that there are always whole, not separate polarities);*
- *The Alternating Technique;*
- *Solve et Coagula (dilute and condense);*
- *The Hologram Principle (the whole ocean exists in a drop of water);*
- *Immobility in Time (the reduction of the whole event to one shortest moment of it in which there is no movement)*
- *Duplication and Dramatization of Unwanted Experience (which we want to eliminate).*

You will probably have the impression that all these principles are different approaches to the overall holistic view of certain experiences. Such impression is true. All afore mentioned principles are just different paths to reach the same goal – to embrace all our experiences and all the phenomena of this world as undivided wholes, as they truly are.

2. A Holistic Approach to the Phenomena

In this world of ours we automatically and unconsciously direct our attention just to half of the entire experience! To that half, which attracts our attention. Whether that half of experience is pleasant or unpleasant it does not matter much. While in the experience, we forget the other half and believe that it does not exist and we behave as such. As long as we are healthy we do not think about sickness, when we are in the middle of disaster we are not able to think about the happy moments we had.

A holistic approach to life phenomena requires us to include all sides and all elements, which participate in our experience. It directs our attention to the other side of our experience, which was pushed into the shadow, and to the full and complete experience of ourselves as the undivided part of the whole world.

3. The Alternating Technique

The Alternating Technique is an extremely valuable contribution to the rapidity and success of therapeutic and Spiritual processing. In it we try to approach and solve every experience from all sides, holistically. In current methods such attempts are rare, but they are necessary if we want permanent results and to shorten the time of processing. The Alternating Technique directs our consciousness to the neglected, forgotten and suppressed parts of the experience. The weak point of many spiritual, psychological and emotional therapies, is the narrow and one-sided approach to phenomena, especially when related to the problems they try to resolve. In such attempts one always and exclusively wants to realize positive states, forgiving the other side of the coin.

When one applies Alternating Technique, in other words when one confronts with the positive as well as the negative polarity, mind masses are emptied much quicker and the desired goal is quickly attained. It is even more evident in the DP4 method. Instead of hours, process lasts minutes. Therefore, whenever it is possible one should apply Alternating approach.

4. Solve and Coagula (Dilute and Condense)

From the earliest times eminent thinkers tried to discover the fundamental model of occurrences in social phenomena. Efforts to explain everything with one and only element are too ambitious, because there is more than one key element. I will point out to one of them, which seem to be omnipresent, because we find it in middle age alchemy, spiritual development, psychotherapy and even in modern physics.

In quantum mechanics one of most fundamental phenomena is the duality of the wave and particle. Modern physicists say that light exists simultaneously as waves of light and the particles of light. Physics is able to see it, but is not able to explain it. A wave has no limits, it spreads to all directions at the same time and we are not able to measure it. In the moment we try to measure it, it dematerializes from the whole space and appears as a particle, which has got definite characteristics.

But long time before quantum physic, alchemy pointed out its most important operation: *Solve et Coagula*. Solve refers to the breaking down of elements and coagula refers to their coming together, in the process of transmuting base metals into gold or arriving at the Philosopher's stone. But it was a literal meaning. As a matter of fact, "solve" referred to the dissolution of hardened positions, negative states of mind and dissolution and disappearance of negative energetic charge. "Coagula" referred to the coagulation of dispersed elements into an integrated whole, representing the new synthesis on a higher organizational, psychological, emotional and Spiritual level.

Therefore, the real meaning of these three words ("Solve et Coagula") is a formula that the alchemists used to carry out this transformation. It could be described as a process in which something is broken down into its elements, which produces energy, and after that, its reconstitution in a more evolved form.

The same meaning is found in the well-known terms of science: analysis and synthesis. We first break something in its parts and then make a new, better or more acceptable whole. During this process, there is a release of energy.

What all this has to do with Spiritual technology, therapy etc.? Very much! We are not able to work with a wave; we must transform it into a particle. We can't work with some indefinite problem, for example a fear. We do it after observing it and "measuring it". We ask our client, what is the location of his fear? What kind of fear is it etc. Doing it, for example with certain types of fear, we will see that the endless and formless wave changes into quite concrete "particle", which is something we are able to operate with.

Asking for the details of our client's problem is coagula phase. After this phase, applying an adequate method, we disperse it freeing its energetic charge (solve) and again we come out of the process with a "particle", which is a state that is positive and desirable.

If you want to throw a stone far away, you must squeeze your hand, but the moment you want to throw the stone away you must open your hand.

Countless examples from literature and the biographies of many creators point out to the fact that such approach is well based. When, after long straining, they relax, they solve the problem. The old saying, *A morning is wiser than the evening*, points out to experiential observation that after making efforts relaxation is needed.

5. The Principles of Hologram

The Principles of Hologram are:

- ***Whole ocean exists in a drop of water, and***
- ***Immobility in time: The reduction of the whole event to one shortest moment of it in which there is no movement.***

These two principles are sub-elements of previously described ***holistic approach*** to experiences, problems and goals. Because they are tightly connected, I will describe them together. In the field of Spiritual Technology they are very important because their application caused a great shortening of time in my processes and to an exceptional success.

Simply said, this is what they mean. Instead of great number of processed experiences, which we find in the majority of other systems (which make ***the ocean of possibilities***), we do just one efficient process on one selected experience (which is just one ***drop of water***) in "***frozen***" moment of time and all similar experiences vanish at once!

In other words, not only we choose just one experience out of the many possible ones, but also we shrink the time of the experience in just one narrow moment, lasting just a second, without any movement or changes in it. So, in a way, it is "***frozen***" in time.

Second, ***immobility in time***: not only we choose just one of the many experiences, but we limit its time to minimum, to just one short moment. In other words, we coagulate the experience and stop the time of its existence.

The basis of this approach is the knowledge of the nature of human consciousness. ***As long as we make changes in certain experiences, and movement is the change, the experience will persist.*** Preventing the change of some experience gives us the optimal situation to eliminate it.

Therefore, whenever it is possible we try to reduce all unpleasant experiences (the ocean) to one, and then reduce it to one representative moment frozen in time (a drop of water). When we empty all the emotional charge from it, we have emptied all similar experiences.

6. Duplication Or Recreation Of Unwanted Experiences

We ask our Client not to resist negative experience. On the contrary, we ask him/her to duplicate it and to feel it as strong as possible. In advanced methods of psychotherapy it is cold ***paradoxal intention***. Viktor Frankl was first to use that term. I call it ***dramatization***. All these principles exactly applied make Spiritual Technology what it is and it is extremely efficient.

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QUANTUM TRANSFORMATION

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Abstract. Quantum Transformation is a practical application of the Two Points Method in the field of healing and life issues solving. Two Points Method has its roots in the ancient Hawaiian spiritual technique of Huna, rediscovered independently by Dr. Richard Bartlet (Matrix Energetics) and Dr. Frank Kinslow (Quantum Entrainment), with a great contribution of Andrew Blake (QCT-Quantum Consciousness Transformation). Not only because it is easy, simple to use, and at the same time very effective, but also because of the possibility of combining it with other therapeutic and healing techniques, Two Points Method is spreading through Europe very quickly. When two distinct points on the body or aura get connected, Quantum waves are produced, initiating huge changes on all levels and in all areas of life. Quantum Waves initiation makes changes on a deepest level, altering our Matrix. The Matrix contains our deepest beliefs, in other words, fixed attitudes originated from individual consciousness and different life stages (the childhood, the prenatal period, the birth process, conception or inheritance - karma) and fixed attitudes derived from group or collective consciousness. Those subconscious beliefs are often opposed to our conscious beliefs and they are the main cause of our psychological and physical suffering, as well as many diseases. Faster transformation of subconscious beliefs can be achieved using Quantum Waves, which leads toward change of our reality. The essence of Quantum Transformation is pure consciousness. Pure consciousness is actually pure love. Quantum Transformation is a method that uses love energy for healing purposes. Quantum Transformation workshops, using quantum waves, meditation, music, movement and body work “teach us” through experience how to use the energy of love in healing and combining this method with other healing and energy based methods.

Keywords: *quantum transformation, two points method, quantum waves, quantum matrix, the matrix, the field, individual consciousness, group consciousness, collective consciousness, love, energy*

1. Introduction

What is Quantum Transformation?

Quantum Transformation is a practical application of the Two Points Method in the field of healing and life issues solving.

Two Points Method has its roots in the ancient Hawaiian spiritual technique of Huna, rediscovered independently by Dr. Richard Bartlet (Matrix Energetics [1]) and Dr. Frank Kinslow (Quantum Entrainment [2]), with a great contribution of Andrew Blake (QCT-Quantum Consciousness Transformation [3]).

Easy and simple to use, and at the same time very effective, Two Points Method is spreading through Europe very quickly.

What are Quantum Waves?

It is one blink of the eye or a vibration felt when two distinct points on the body or aura get connected. This is the reason that receiving Quantum Wave [1,2,3] produces swinging or loosing balance in many people.

2. Energy of Love

The biological explanation behind this method is the following: in the moment of the receiving Quantum Waves, the nervous system is entering a state which provides destruction of the old and construction of new neural connections.

Quantum Waves can initiate huge changes on all levels and in all areas of life.

What is the Matrix?

Modern science or quantum physics encounters spirituality more and more, confirming what ancient cultures has known for thousands of years: the universe is one inseparable unity. Matter is actually energy and all the elements are integrated in this unity or energy. Our physical body, as well as our physical reality is energy, in other words – light and information.

The Quantum Matrix [1] is a biological information field that dictates our reality. Quantum physics speaks about “zero field” or just “field”. Albert Einstein has stated: “The field is our only reality.”

Quantum Matrix contains our thoughts, emotions and life scripts.

We always create our own lives, whether conscious or not. Fixed attitudes, in other words, our deepest beliefs and convictions, followed by our emotions, dictate our reality, producing programs which direct our life. Fixed attitudes can be created in early childhood as a result of traumatic experiences; in the prenatal period, during the birth process or in conception. Of course, there are also fixed attitudes on the soul level, that we carry as an inheritance from past lives; as a part of family inheritance, with origin from our ancestors; and fixed attitudes derived from group or collective consciousness. Every human has its own personal karma (Karma is a Sanskrit word meaning “action”), and so does every state, city or village, and this karma is influencing the development of group consciousness.

Those subconscious beliefs are often opposed to our conscious beliefs and they are the main cause of our psychological and physical suffering, as well as many diseases. Maybe we are not successful because we have the subconscious attitude, saying: „Flying high, falling low“; or we have low quality relationships because of the subconscious attitude, saying: „Love hurts“; or we are not satisfied with our financial situation because of the subconscious attitude, saying: „Money is dirty“; or we have a disease because of the subconscious attitude, saying: „Disease is love“.

Faster transformation of subconscious beliefs can be achieved using Quantum Waves, which leads toward change of our reality.

All these fixed attitudes initiate certain emotions. We communicate with the universe with the language of the heart, the language of emotions, so every emotion we radiate in the universe is coming back in the shape of our life script.

Why is it so?

Electromagnetic field of the heart is the most powerful in the human body. It is 5000 times more powerful than the field of the brain. We communicate with the language of the heart, the language of emotions.

When we feel gratitude, peace and love in our heart, we produce strong signals that not only have positive influence on our physical body, changing our genetic code, but also are emitted in the universe and as a response universe are returning joy, happiness and abundance to our life.

How to use the energy of love?

For a start it's necessary to increase the love that we carry/feel inside. Quantum Transformation workshops, using quantum waves, music, dance and body work “teach us” through experiences how to use the energy of love in healing.

The essence of Quantum Transformation is pure consciousness. Pure consciousness is actually pure love. Quantum Transformation is a method that uses love energy for healing purposes [4].

Case studies using Two Points Method [5,6]

Case No. 1: B.M, 35 years old, married with two children 4 and 6 years old. Symptoms: stomach pain, back pain, medical test normal, but often feeling vomiting urge and pain, insomnia, and disturbing dreams. She had problematic relationship with her 4 year old son, who is also hyperactive. Goals: to bring more peace in life, to increase health level, to increase the quality of her relationship with her husband and her son and to find professional fulfillment. Therapy: ten sessions, 120 minutes long, Two Points Method applied. Results after the last session: vomiting urge and pain almost gone, no insomnia, relationship with her husband and son improved, feeling more joy in life. Quote: “I feel happy, I am singing in the house and I enjoy life. It is certainly not some kind of euphoria; it is a quiet, fulfilling joy.”

Case No. 2: J.D. 25 years old, student, suffering from depression and panic attacks for 2 years, under psychiatric control for 1 year, taking prescribed medicament Asentra. Medical treatment has decreased the intensity of the panic attacks, and she rarely has them. But, on the other hand, she notices that she is not feeling anymore as before, no sexual wish, no orgasms, and she often feels indifferent. Relationships with her parents and her partner with whom she is living for the last 3 years are far from satisfaction. She has a wish to share with them her innermost values, but also has a feeling of not having strength to do so. Goals: Life without Asentra or any other antidepressant medicaments, because she has a feeling of numbness, and life without panic attacks. She wants to increase the quality of the relationship with her parents and her partner. Therapy: she attended one 4-hour Quantum transformation workshop and two sessions of Integrative breathing [7] with an example of Two Points Methods, 120 minutes long. Her statement from the last session: “My breathing is easy, as my lungs are open, I feel free and after a long time happy. I had a phone conversation with my mother and it was very pleasant. I am finally ready to communicate with my parents. I am ready for communication with my partner too. I feel like some huge burden has come out. Very soon I will ask my psychiatrist to decrease the dose of Asentra and to slowly drop it. I feel strong and free. I am happy!”

Case No. 3: N.D. 44 years old, divorced with two children of 15 and 18 years old, suffering from migraine since she was 18. She has made all medical test, psychotherapy, physiotherapy, massage. On the short term she feels better, but very soon she experiences recurrence of the symptoms. Goal: Healing the migraine headaches. Therapy: she attended one Integrative breathing [7] workshop with Quantum waves, after one month she had one session of Quantum transformation 120 minutes long. After three months she called me and informed me that during that three months period she only once had a headache in a very stressful situation, in a “lighter” form than before. Such a long period without headache she did not have for years.

Quantum Transformation workshop

Quantum Transformation [5,6,7,8] workshops offer less theory and much practice. Two Points Method can be learnt in a few minutes. But precisely because of this simplicity and yet great effectiveness, our logical mind tends to resist and reject it, due to our belief that we should study hard, work and sweat to learn something that has such huge effects. So, it is very useful to attend Quantum Transformation workshop, as a chance to have this experience. The Workshops “teach” non-logical learning, how to use other resources than mental to learn and apply this method.

The main future of this method is *simplicity*: no initiation from the teacher/master, no working patterns that should or must be followed, no specific schedule or thinking.

Quantum Transformation workshops also offer instruction about combining Two Points Method with other healing and therapeutic techniques.

Workshops attendants comments [5]

“I feel forever carefree, hurtles, I feel that whatever happened in the past was with a reason, to bring me in this situation and to make me love myself. Now I have the magic wand in my hands, which I have imagined and wished for all my life. I wish to give one big THANK YOU to Sonja for this experience of joy and happiness that I feel in this moment.” [M.N. psychologist]

“Even more love, relaxation, life joy. Great insights, letting go. Thank you!” [A.K. professor]

“The most important insight for me was that when we are thinking and feeling we are just sending the copy of us, the original stays in us. The feeling of being connected with the Universe, the whole, is beautiful. Enormous presence. Feeling of unity.” [E.B. student]

Already in therapeutic field?

Huge number of therapists through Europe includes Quantum Waves in their work, due to the fact that this method can be applied independently, but also combines well with other forms of therapeutic and healing practices.

Quantum Waves are increasing and deepening the processes initiated by any therapeutic method.

The learning of the method is easy and quickly and allows working with clients, with or without their physical presence, in other words distant healing is possible.

3. Conclusion

What can be achieved with Quantum Transformation?

- Releasing of destructive life scripts
- Self-healing activation
- Releasing of the influences of traumatic experiences from the childhood, the prenatal period or past lives
- Releasing family and collective karma
- Aura scanning & cleansing
- Overcoming addiction
- Increased vitality
- Increased life joy
- Relationship improvement
- Professional fulfillment
- Increased energy for self realization
- Increased creativity
- Success & Abundance

Some examples of methods that combine very well with Quantum Waves:

- Family and systemic constellations by Bert Hellinger
- Massage
- Physiotherapy
- All form of energy practices
- Coaching
- Psychotherapy
- Rebirthing [7]
- Integrative breathing [7]
- Clearing [6]
- Astrology
- Homeopathy

and many more.

Quantum Waves initiation makes changes on a deepest level, altering our Matrix, which provides discovery of our true nature, our essence. Our true nature is living in joy, love and abundance.

At this point of time the field of healing and therapeutic methods is in permanent evolution. Quantum Waves practice increases the creativity of the therapist and enables deepening of the existing methods and the developing of new therapy and healing methods.

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**INTEGRATIVE MEDICINE, ENERGY MEDICINE
IN DAILY LIFE AND WORK OF HEALTH PROFESSIONALS:
SUPER HEALTH PROGRAM & ACUPUNCTURE WITHOUT NEEDLES**

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Abstract. Our program is designed with the goal to enhance the quality of life and work for health professionals: by getting awareness, quality knowledge and skills for daily use in professional and private life in order to *prevent* potential harmful energy influence on the physical, mental, emotional body; and hence maintaining *natural health and vitality* with increased *potentials and skills*, better quality work, efficiency, cost reduction, thanks to usage of the *new knowledge, demystification of different „phenomena“ and abilities to see & feel & control our own energy being & environment – establishing etheric hygiene*. Life skill building Dr. Saxer – *WHO Geneva, Uni Heidelberg, Quality life and health* for all from 0-100, with contribution of modernized scientific knowledge and art – *Pranic Healing (PH), Master Choa Kok Sui (MCKS), External Chi Gong, Internal & External Health factors, Educators Education, Healthy & More Powerful Therapists*. PH therapy is a *scientific knowledge and art*, based on ancient 5000 years old secrets, originally modernized over 40 years, by scientist, MCKS, with published 30 books with unique original detailed knowledge and skills, 30 seminars, with wide range of topics and issues covered from top level quality therapy work seminars, with original protocol for every health condition, over 100 protocols, then highest level spiritual uplifting techniques, area of health and quality life for people, animals, farming, nature, climate, Planet, business, feng shui. All courses were patented and present in 100 countries. Explained *Levels in Chinese medical art*: from bottom to top, 1st acupressure, 2nd manual massage + aroma therapy, 3rd acupuncture, 4th electro-acupuncture & 5th Pranic Healing – moving energy art with no touch. Technique is legally allowed by our efforts in Serbian Ministry of health. *Man is energy being with its inner energy*, immersed in ocean of *outer energy*, affecting all. *Quality and quantity of those energies, molds our life and health*. Today, even with an ordinary digital camera, without any additional filters, we can record and show the existence of those energy fields. There are also special cameras for picturing energy in various colors. Usage of this relatively new *unique modern scientific knowledge and skills* can create *foundation & gate* towards *better health quality life, promotion & work practice*. Knowledge Federation is a great opportunity for that good start.

Keywords: *usage of energy medicine in daily life and work by health professionals, new foundation of truth with use of rather new scientific knowledge and skills for better health quality life & work*

“Between heaven and earth, there are many things unknown to man.”
Shakespeare

1. Introduction

Health care quality is still, as many can agree, not as needed [1]: “Comparative clinical and experimental studies have revealed the advantages of traditional medical treatment in many diseases or conditions. In many instances, traditional treatment is more effective and has fewer side-effects. In the last two years when there is an outburst of the new incurable essential illnesses, it can be a great asset to treat at least those kinds of patients. It is also more affordable than modern medicine. Acupuncture analgesia is a good example”. While working in the best University Clinic of SE Asia in Bangkok, I could witness patients undergoing natural acupuncture analgesia during delivery, and the other synthetic one. The first were smiling being pain free while aware of entire delivery

process and the second were often screaming after waking up apparently in a big shock and stress, additional to the loss of the entire moment of life importance. So the first keeps great life quality, while having no side effects and costing less.

How far did we truly go from old 1950s, when f ex. Chinese president urged more Western trained doctors to devote themselves to the integration of the traditional and modern medicine. Up to present, there are in China app. 15,000 high ranking “integrated” medical doctors [1]. So, it is clear that implementation requires policies and long continuous process involving all stake holders of society. Only like that process of mutual learning, so that each can benefit the other, and combining the best elements of the two therapy systems can lead towards creation of a new integrated medicine in everyday medical practice.

Many factors are influencing our health, internal and external ones, so no one should be excluded from that process. However, it seems is easier to take care of internal factors, as they are part of our own attitudes - all that we eat, drink or breathe- rather than of the external: outside environment and other outside health hazard influences - antennas, radiations, nanotechnology, mobile etc... more difficult to control. How many know the true value and influence of those factors? How much every change in nature around us matters? How big consequences can quality status of water, air, food have [2]? Quality of simple or healthy breathing determines whether body would be cleansed from stagnating vibrations/frequencies/resonances and produce healthy body. How many have active role in establishing and maintaining health and vitality?

The most striking statement, from the Paris convention, heard was: “We are all in one big prison – this Planet, from which we cannot escape – go out!”.

What we can do is to build individual skills and immunity/vitality using superb natural health educational system which is mix of science and spirituality. This program can make people knowledgeable, open minded, able to recognize and differentiate: quality from fraud, science from fashion, global benefits from hidden agendas.

We will elaborate traditional medicine versus modern views. We will also give some basic *WHO viewpoints* on problems the world is facing, and the strategies we can take to combat many issues.

How many people think about it or have awareness that we are all part of one? We are all immersed in the ocean of energy from air, sun, earth. How little value has each single life or individual agenda? How big is importance of not knowing anything about that once “invisible” world of energy? How big impact and danger is on medical people dealing daily with different energies of their numerous patients? How pity is lack of knowledge and skills to deal with energy world that affects each and every of us. How little efforts and time is required to improve the quality of life/health and also medical service, as sacred modernized scientific knowledge is finally after 5040 years, available for all of us. The name of that Original therapy system is *Pranic Healing*, by Master Choa Kok Sui, having methodology and skills to objectively analyze and measure energy, during the entire diagnostic and therapy process. The entire program as stated above, is designed with goal to enhance the quality of life and work for health professionals, then it can be extended to the general population, as it is highly comprehensive and covering all issues of life. Awareness and quality knowledge/skills for daily use in professional and private life can PREVENT potentially harmful energy influence on physical, mental, emotional body and enhance all our abilities and skills while improving our human development (MCKS, from Basic to Top Professional Books and Spiritual Sutras, Soul Realization) [3-10].

Hence maintaining *natural health and vitality* with increased *potentials and skills*, better quality work, efficiency, cost reduction, thanks to use of the *new knowledge and abilities to see & feel & control our own energy being & environment*.

Prevention and self-help of each and every therapist can make them live longer and perform better quality work. Knowledge and practical skills create understanding from the basics to the high level details enabling a therapist to have an active role in every second of the therapy process he/she is performing.

Phantom pain of extremities is just of one the different „phenomena“ which can be demystified when we learn and start in objective way to feel and see our body & control our own energy being & environment. Through the shorter or longer process of sensitizing tactile and other senses, practicing objective feeling, seeing of our physical/energy body and world of energy around us, we get a new awareness of our energy being and the world around us. Also, establishing a special new terminology and state of space free from any germs, so called Etheric hygiene of space, we create a new quality life and work, where the possibility of infection or

contamination from space to person and person to person is largely reduced. The secret knowledge and skills we develop in each participant of our seminar given by myself and other professional and experienced MDs, give ability to take care of therapist, patient and the working/living space in a special unique quality way creating a new much higher level quality life of reduced risk from ill factors for therapists and patients.

In Fig. 1 are presented two photos taken in September 2011: the left one by digital camera of 12 mpc with use of special filter and strong source of light 500 W, with dark background, and the right one by digital camera of 3 mpc. The same filter was used and under the same conditions, with same person, on the both photos, just the quality of camera differs. Everyone can repeat and make this kind of photo using the same filter that will be available on the market when the producer is chosen and easy to use glasses with that filter would be available worldwide. So, everybody will be able to see their own physical/energy body and the physical/energy body of others.

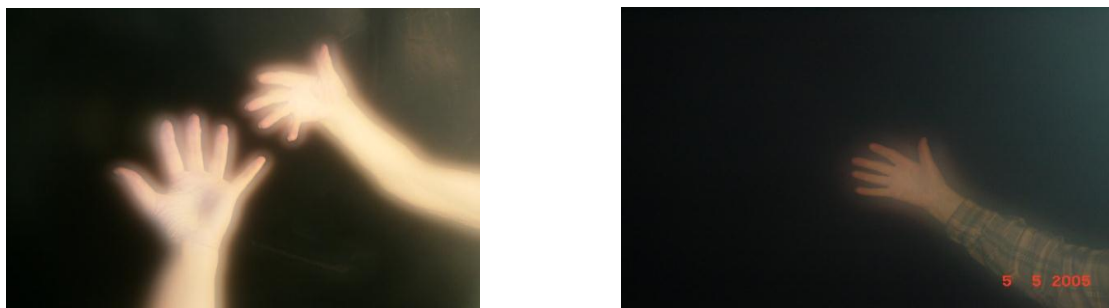


Figure 1. Two photos of physical/energy body, taken by digital camera of 12 mpc and 3 mpc respectively, with use of special filter and strong source of light 500 W, with dark background.

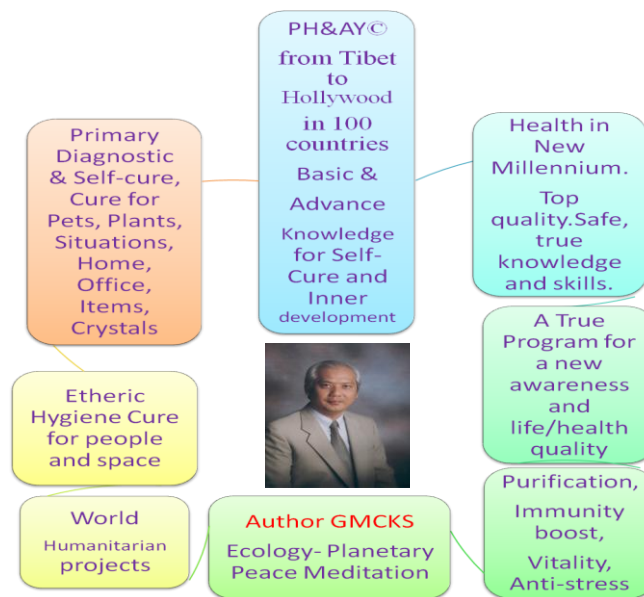
However, even with an ordinary digital camera, even without any additional filters, we can record and show the existence of those energy fields. We will present that kind of photo below. There are also special cameras for picturing energy in various colors.

That would be a new Life skill building – the standard Life skills are highly recommended and promoted by WHO Geneva. We offer a new updated Life skills building program for health, wealth and better quality life. We have started with that program in Uni Heidelberg: Quality life and health for all from 0-100, and in this new updated version of Life skills, we add modernized scientific knowledge and art – Pranic Healing (PH), Master Choa Kok Sui (MCKS), a secret school of External Chi Gong. Usage of this relatively new unique modern scientific knowledge and skills can create foundation & gate towards better health quality life, promotion & work practice.

That technique we use the most in our daily work is that secret school of external chi gong, modernized and updated through 40 years of scientific experimental studies, by author, a scientist, Philippine of Chinese origin, MCKS. His life work consist of 30 books, 30 seminars, 20 visual therapy-relax techniques and updated form of Yoga-Arhatia Yoga, that, in words of author, highly speeds spiritual evolution, 10 times faster than any other Yoga modality. That kind of knowledge and skills are the most comprehensive publically available method for self-therapy and therapy of humans, other living beings, plants, relations, space, crystals and ecology/Planet. It is efficient, economic, safe, natural, non-invasive, easy to learn, high quality theory and practical skills system. Every health problem has its own-unique therapy protocol in basic knowledge/skill level and the advanced levels. The methods cover all health issues including psychological, emotional, dependency-addiction, mental and other problems, also having unique protocols for all most common health problems. In the same time it is also the most cost-effective education available from this field, or precisely 4-5 times less, as the Author wanted to be inclusive and not exclusive. It covers also farming, nature, climate, Planet, business, Feng Shui, wellness, beauty and energetic face-lifting. The amount of knowledge in this school is huge, covers everything ever known to mankind and many secrets never revealed. Almost all theory is immediately backed up with practical use and possibility for self check of given theories. That is very special and unique. So is the Super Brain program that produces,

after just 10 minutes of daily practice, better vitality, immunity, less stress and great brain power, as makes both side of brain work even, in matter of weeks, with no side effects or contraindications. There is also a big part and focus of human development towards better human being and higher level of spiritual understanding and development.

Everything can be dynamically experienced using just our own tactile senses. Person can learn proper diagnostic/therapy method to objectively see/feel own body field without any machine. One can continue self-care and follow up of its own condition and development with a great sense of freedom and accuracy correcting characteristics of body/organs speeding body's self-healing.



This method is legally allowed in Serbian Ministry of health, due to our efforts and engagement over 3 years. Knowledge is patented and present in 100 countries, with numerous international schools registered worldwide. We have been the first professional and national instructors and therapists for the Region since 2000 and invested lot of efforts to legislation, registration, quality control, media work, creation of teaching materials – translating, writing and publishing books and other promoting materials that we personally published in our language. In Fig. 2 are presented photos showing efficacy of some visual modalities of the Pranic Healing visual meditative technique, Twin hearts. Everyone is welcome to repeat the test using the same technique.

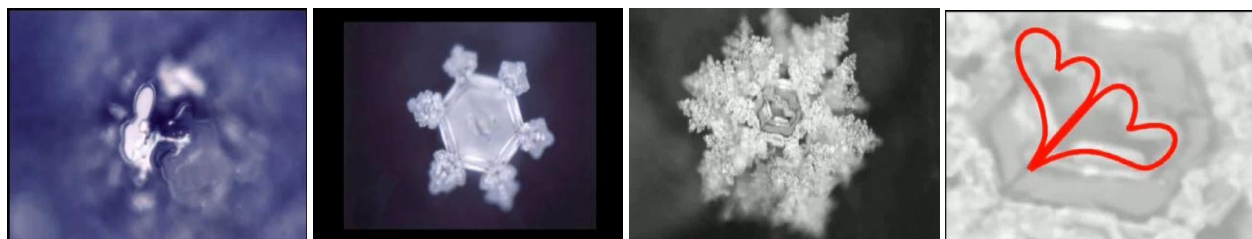


Figure 2. Photos of: (i) Molecule of normal water; (ii) Molecule of water after simple energizing, love words; (iii) Water molecule after technique of Twin hearts is applied; and (iv) Magnified central part.

Author of PH, MCKS did also explain the *Levels in Chinese medical art* (from bottom to top): *In Ancient China, medical doctor's art was divided into 5 levels from lower to higher:*

1. *Tuina massage or acupressure*
2. *Phytotherapy or homeopathy*
3. *Acupuncture with needles or moksa*
4. *Acupuncture with energizing/conducting chi or electricity via needles into meridians, chakras or organs*
5. *The highest level, conducting chi directly into patients with no direct physical contact or use of needles. That was previously a secret school of external chi gong.*

Man is energy being with its inner energy, immersed in ocean of outer energy, affecting all. Quality and quantity of those energies, molds our life and health. Every single contact with energy depending on its quality can create change in our physical body (cf. Figs. 3 and 4 for photos of some phenomena; all photos available in our Archive).

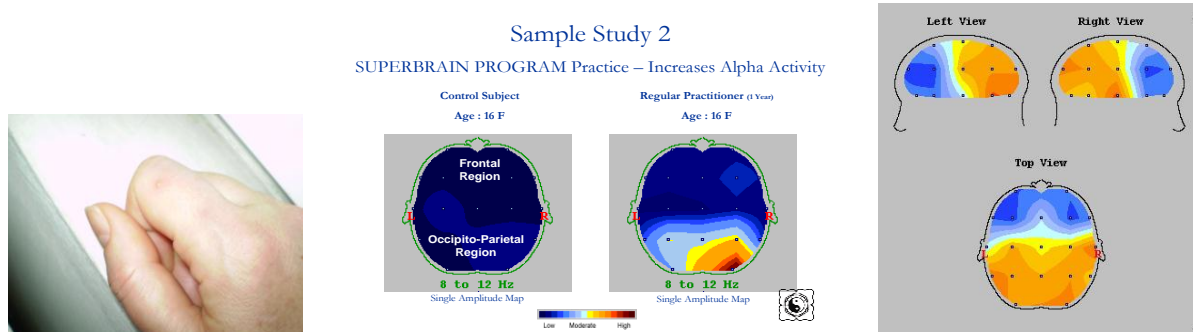


Figure 3. (i) The photo taken seconds after scanning a patient with serious health problems: photo showing blemish and redness of the skin; (ii) Super brain program case report, control and practitioner; (iii) In one year regular practitioner gets complete synchronization, left and right side of brain symmetrical.



Figure 4. (i) The Tesla museum in Belgrade, showing his Urn made of brass and the round sharp edges light balls behind. It is present on every photo made there. In Esoteric school it is called light energy being; (ii) Also visible with eyes while taking photo was a burst of light in the room; (iii) The aromatic space box, our patented product, can see aura of light energy around the box (We encourage and invite all to make similar photos of same or other objects. The new knowledge and skills make easy to see angelic beings and get to know one self better.)

2. Discussion

All health systems from ancient times until modern medicine, believe that body is composed of different elements, just the terminology differs. Also there is a general agreement that illness is due to imbalance between body elements; and all believe in significance of stress-mind-emotion-influence over physical body. Sum the above: *all systems share similar holism* [1, p.119]. Those who wish to get updated knowledge and terminology can read our books, available also in our language, Fig. 5.

Process of integration: There is nothing to be afraid of. The process of change and integration can just bring benefits to all: better quality life, health and health service. In the West, people spend natural vs. synthetic medication in ratio 60:40 %. In U.S.A. 20% of population are using natural therapies and integrative health care.

So, public demand is clear: scientists should work together and more publicly while explaining so called phenomena, once the sacred knowledge and skills enter into our everyday life. Hence, the consequence that *unexplained phenomena* cannot be understood in terms of the old/present scientific paradigm *requires* urgent *change of scientific attitude* towards research of less known and less visible. Like that we would be able to better understand the past, the present and the future: The Biblical events, Jesus saying, the power went out of my body, someone has touched me and a woman yelled, I did and got healed. With the knowledge and skills of Pranic Healing, some of the interesting unexplained phenomena related to health issues and quality of life in general (out of body perception; psycho-kinesis – mind power over matter; distance seeing; out-of-body-experience astral travel; spirits-energy bodies) can be mostly explained and understood [11].

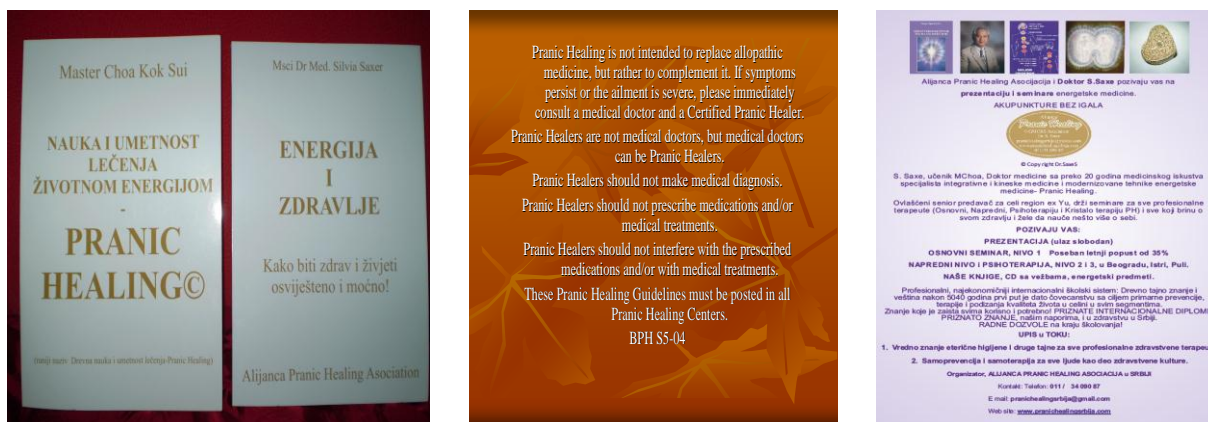


Figure 5. Photos of: (i) Pranic Healing book; (ii) Pranic Healing Guidelines; (iii) The seminars

Dangers: As stated above, dangers for medical professionals are mostly due to total lack of awareness about energy existence and basic laws, among majority of people working in the medical fields. Most do not know even basic facts that the whole body runs on energy and is full of energy fields and major and minor centers. Most do not know that there is highly advanced scientific energy therapy system providing technique for measuring energy in objective, standardized way, quantitatively and qualitatively. Further, basic and updated energy anatomy is mostly not taught in medical schools. Therapists mostly know nothing about energy centers, so to learn that they can be even measured in terms of size, quantity and quality of energy. Energy can be also pictured by different cameras and instruments. Energy is moving in the body fields and also between different fields: body-body, body-surroundings, space, body-items, etc. [2-10,12].

There should be implementation of *Continuous Health Education* policy for all medical staff, about *energy medicine basics*, especially energy anatomy with 11 main energy centers and not only 7 chakras system and objective scanning of energy [3-10].

Quality improvement: Health protection of medical personnel and patients while providing more efficient and quality service are needed, starting with self/care, self/prevention of ill-energy transmission to all directions and subjects. So to become able to differentiate in objective way the status of the physical body and perform the true primary prevention: detect change in energy body field before it affects the physical body part [3].

WHO Listed problems: *World Health Organization*, WHO, HQ Geneva, in its Annual World Health Report declares listed problems: still ancient problems with health coverage, finance, economic downturn, efficiency is required, as 20-40% is currently wasted due to inefficiency, improvement of quality, motivating people for changes, chronic disease increase, drug resistance, Dr. Margaret Chan, WHO, Secretary General [13].

WHO Recommendations and Strategies: Universal health coverage, improving efficiency and not first cut costs against health care; More taxes on harmful products, Priority to adjust programs towards national, local needs.

Further problems to combat, towards better efficiency: misuse, underuse, over use of drugs, health care services, facilities, inadequacy, staff & intervention, poor staff mix, low motivation, medical errors, leakages (waste, corruption & fraud) [13, p.66].

Better health education and information for health hazard habits including tobacco control: labels on tobacco product packaging and anti-tobacco mass media campaigns. WHO Report on Tobacco Control [14].

United Nations Millennium Development Goals: Goals that all 191 UN member states have agreed to try to achieve by the year 2015. The United Nations Millennium Declaration, signed in September 2000 commits world leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women and other three health-specific goals, child, mother care and HIV [15].

Learning from experience is needed. Universal and better quality health is country perception of social solidarity, so requires official policies to be implemented [13].

WHO, HQ, Geneva, Department of Traditional Medicine: Traditional medicine has been used for thousands of years with great contributions made by practitioners to human health, particularly as primary health care providers at the community level. TM/CAM has maintained its popularity worldwide. Since the 1990s its use has surged in many developed and developing countries [16].

In 2002, WHO launched a strategy on traditional medicine to help countries explore its potential for people's health and well-being, while minimizing the risks of unproven or misused remedies? The main aim of the strategy is to encourage further research [17].

There is some evidence that seems to support the use of traditional and complementary medicine – for example, acupuncture in relieving pain, yoga to reduce asthma attacks, and tai chi techniques to help elderly people reduce their fear of falls. WHO is working with countries to promote an evidence-based approach to addressing safety, efficacy and quality issues. There are several WHO, Collaborating centers in Europe, doing research on this new medicine approach [18].

We did teach our program & train basics of Acupuncture without needles - Pranic Healing, in some of those official institutions. They were highly impressed with both: (1) Efficiency of therapy performed, of the staff members in health need; (2) Unique and original standardized analysis for objective measurement of energy, in quantity and quality; (3) Super quality program for body and mind/emotions. We are hoping to have more joint research projects with some of those institutions and also others [2, p.66].

WHO, SE Asia, 2000, *General Guidelines for methodologies on Research and Evaluation of Traditional medicine* is giving all necessary details for everyone doing professional work or scientific research in the field of traditional/alternative or complementary medicine [19].

WHO/Europe provides direct technical support to the newly independent states, the countries in south-eastern Europe, FYU region and many of the new European Union Member States. This support focuses, for example, on strengthening regulatory systems and improving access to medicines through reinforcing supply, reimbursement systems and pricing regulations. This has primary focus on synthetic medications, but some other agencies promote also GMO farming [18].

Health promotion is defined by WHO as a process enabling people to exert control over & to improve their health. A planning model to implement new health programs as given by Oxford hand book of Public Health practice, consist of: problem definition, solution generation, capacity building, Health promotion actions, Monitoring and recording of program implementation, health promotion outcomes [20].

Dr. Reiner Krell, from WFP, did *research experimental study on farming using Pranic Healing* method and proved efficiency of it. The treated part of the same land divided in left/right half, random choice, right was treated and left not. The size of plants, treated with PH method, were 1 m higher than the not treated plants. He presented it in Bellaria, Italy, PH Conference in 2005 [21].

Dr. Joie P. Jones, researcher in the Radiological Science Department at the University of California at Irvine, discovered that *every acupuncture point consist of 2 parts*, upper and lower part, that are constantly moving but in opposite directions, when the upper moves clockwise the down part moves anticlockwise & vice versa. Dr. Jones calls it, "twisting motion" [21].

Dr. Jones' research validates what MCKS had previously described in his book, published in 1987, *Miracles with Pranic Healing*, as the clockwise and anticlockwise motion of the energy centers (also called chakras or

mini acupuncture points, that body has hundreds of them). MCKS has also provided us with the comparative names for each major acupuncture points, or chakras and its Chinese name and location, for all 11. This lesson is given on Seminars. Whoever wishes to learn more can read the books in our language and take the seminar, then with more knowledge, open mind and skills – can judge.

3. Conclusion

The World regions can differ in their needs and relevant local problems but there are issues related to health and quality of life of *even* significance for each and every of us: Universal is Health for all, need for safe and clean Air, Water, Food, Shelter; need for Education; for Primary Prevention; for available and improved health care. So adding new integrated knowledge to conventional medicine can bring early, rather fast, cost effective and more precise diagnostic and therapy and can result in reducing present health burdens. So since Alma Ata conference *Health for all*, is viewed as the significant for better quality life and global peace/ security. Still 3 As, Accessibility, Affordability, Availability are not universally implemented. Integrative medicine approach can greatly contribute to that goal [13, p.20], by recommendations, analysis, strategies, finance, constraints, implementation, monitoring and evaluation while fine tuning program changes. If Thailand with 136 USD/capita, or 3.6 % of GDP, could arrange universal health coverage for all Thai people, then countries giving 4000 USD/capita should at least arrange the same [13, p.25]. WHO describes fundamental right of every human being is “to enjoy the highest attainable standard of health” and universal coverage would be the best way to achieve that [13, p.35].

What can be more affordable than integrative medicine in every day of present/future medical care? Would dare to say, after 25 years of daily experience with traditional/integrative medicine approach, that one of the therapies that should be included into everyday life for everybody should be *energy medicine*, of every skill level, with must to know basic skills of objective energy scanning, as it would protect the therapist while increasing his professional quality and performance [2].

Chinese medical art levels described by Chinese MCKS, Scientist, chemical engineer: from bottom to top, 1st acupressure, 2nd manual massage + aroma therapy, 3rd acupuncture, 4th electro-acupuncture & 5th Pranic Healing - moving energy art with no touch, sacred external chi gong or Acupuncture without needles, terminology given by Dr. Eric Robins, USA, Urologist & Senior Pranic Healer.

Transparency and honesty is needed in all levels from the international WHO level to the national levels while executing policies and implementation in health care. Nice to read these words from WHO Secretary General, Dr. Margaret Chan: “At no time, not for one second, did commercial interests enter my decision-making”, statement given to BMJ [22].

To conclude with words, the ancient traditional, until recently secret medical system, now in modern form, can complement everything we do and know in both professional and private life and nicely improve quality of everyday life and health.

We wish that these new ideas, knowledge and conclusions find their place and spread throughout the globe making this Planet a better place for all of us.

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HOLISTIC APPROACH TO SUSTANABILITY

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Abstract. The ongoing global crisis is quite different in comparison with the Great Depression in the 20th Century. It is of far greater magnitude because huge imbalances have been created not only in the economic and social spheres, but also in the global environment, which is the condition for survival of humans and the other species of the planet. These imbalances have been created by human activities. Today, most scholars would agree that our behavior has been unsustainable, and that the problem of sustainability and sustainable development is the major task facing our civilization. When it comes to dealing with economic, social and environmental issues there are three basic approaches. The first approach is based on a belief that solutions are to be found within the system by introducing more comprehensive rules and regulations, standards of behaviour and development of new technologies. The second approach questions the system itself and proposes its change. The third approach is most radical. From that perspective, even the changes of the system are not sufficient. What is needed is the paradigm shift in all human activities: from reductionism in thought and behaviour, towards holism. In our discussion of the holistic approach we shall stress out that there two basic perspectives on holism, and that both of them address the relationship between unity and plurality. The central question is: what is meant by holism? Do we understand holism as unity based on a fundamental plurality, or plurality founded on an underlying unity? We shall argue that searching for the answers to these questions is not only of academic interest and importance but also the key for understanding the issues of sustainability and therefore, for our very survival and wellbeing.

Keywords: *global crisis, sustainability, sustainable development, reductionism, holism*

1. Introduction

We are in the midst of another global crisis. It appears that in comparison with the Great Depression in the 20th Century, this crisis is of far greater magnitude. This time it is not destabilizing the economic and social spheres only. The whole global environment is in jeopardy, which means that the very survival of humans and the other species is under threat. What is worst, these global imbalances have been created by human activities which still continue nowadays.

In this paper, we shall present different approaches to sustainability, and argue that only a particular holistic approach may provide a sound base for sustainability and sustainable development.

2. Global Crisis

For decades scientists and various organizations have been warning about the issues which we are facing on the global level. One of the organizations which is notable in this respect is *The Club of Rome*, founded in 1968 as an independent non-profit organization with international membership.

The Club of Rome has commissioned *The Limits to Growth*, a study published in 1972 by Donella Meadows, Jorgen Randers, Dennis Meadows and their team from MIT. Using the World 3 computer model, the research team has analyzed five variables: world population, industrialization, pollution, food production and resource depletion. Based on assumptions that these variables grow exponentially, whereas technology and availability of resources have linear growth, they produced computer simulations with alternative scenarios. The study has shown that if human demands on Earth's ecosystems continue growing at the same rate as in the period from 1900 – 1972, we would overshoot the carrying capacity of our planet which would cause a major forced decline or even collapse. However, the authors pointed out that overshoot could be avoided if smart global policies were applied without delay.

Another major warning came twenty years later. It was issued in 1992, in form of a statement titled *World's Scientists Warning to Humanity*. The statement was signed by about 1700 top world's scientists including most of the Nobel laureates in the sciences. An extract from that statement is quoted down below [1]:

Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent if we are to avoid the collision our present course will bring about... We the undersigned, senior members of the world's scientific community, hereby warn all humanity of what lies ahead. A great change in our stewardship of the earth and the life on it is required, if vast human misery is to be avoided and our global home on this planet is not to be irretrievably mutilated.

Unfortunately, it seems that the global society is likely to overshoot, as the further researches done by Donella Meadows, Jorgen Randers, Dennis Meadows show. They published the revised edition of *The Limits to Growth* titled *Beyond the Limits* in 1992, and *The Limits to Growth – The 30 Years Update* in 2004. The global economy and institutions have failed to act in time. There is growing evidence obtained by numerous researches which supports this thesis.

3. In Search for Sustainable Solutions

Today, most scholars would agree that our behavior has been unsustainable, and that the problem of sustainability and sustainable development is the major task facing our civilization. The question arises: what is causing the crisis? What are the causes of unsustainable behavior?

It is obvious that most imbalances are created within the economic system and then spread out to the other social spheres and the environment. What is problematic with the economic system? In dealing with this question, there are three general approaches:

- Unsustainable behavior of government and/or some actors,
- Unsustainable system,
- Unsustainable paradigm on which the system is founded.

The first position is still dominant. It is based on the premise that free market economy is most efficient, and that the law of supply and demand automatically regulates the allocation of capital, labor and resources in an optimal way. From this perspective, no other system could be nearly as efficient, and therefore, not sustainable. It is not the market system that should be blamed for the ills in the world. On the contrary: it is the suppression of the market forces through government interventions in economy, as well as the inadequate behavior of some actors, who do not play by the rules. Therefore, the formula for sustainability and sustainable development would be: further liberalization of the markets and control of the fairness of trade through more comprehensive rules, regulations and standards of behavior. From this point of view, the free market system is the solution for most social problems by providing jobs and increasing standard of living. It is also capable of solving the environmental issues through provision of new, clean technologies.

The second approach perceives the economic system based on the free market as unsustainable, because it favors the individual interests to the interests of society. For that reason, market forces alone cannot be the solution, but are rather the cause of social and environmental problems. Therefore, such a system needs to be changed. As to the direction of the system change, there are two positions: the proponents of the first position argue that a sustainable system would be the one where social interests are above the individual, whereas the advocates of the second position seek to achieve balance between the individual and social interests through the restitution of the welfare state, or/and, establishment of moral capitalism through moral development.

The third view is most comprehensive. From that perspective, even the changes of the system are not sufficient. What is needed is the paradigm shift: from reductionism in thought and behavior, towards understanding dynamics of the complex systems dynamics and holism. Our further discussion will be directed towards elaboration of this third approach in more detail. Although many individuals, organizations and institutes

have directed their research in this direction, we shall limit our presentation of this perspective to just two of such organizations and their approaches: the previously mentioned *The Club of Rome* and *The International Institute for Field-Being*.

4. Approach of The Club of Rome

The Club of Rome was the first and most influential think-tank organization focused on resolution of the global issues. From its inception, *The Club of Rome* has adopted three guidelines [2]:

1. Adopting a global approach to the vast and complex problems of a world, in which interdependence between nations within a single planetary system is constantly growing;
2. Focusing on issues, policies and options in a longer-term perspective than is possible for governments, which respond to the immediate concerns of an insufficiently informed constituency;
3. Seeking a deeper understanding of the interactions within the tangle of contemporary problems – political, economic, social, cultural, psychological and environmental – for which *The Club of Rome* adopted the term „the world problematique“.

The world problematique has been defined as „massive and untidy mix of interrelated difficulties and problems that form the predicament in which humanity finds itself“. An illustrative list of some 50 continuous groups of problems was listed in the Club's first publication titled *The Predicament of the Mankind*. Some of the listed problems are: explosive population growth, widespread poverty, increase in the production, destructive capacity, and accessibility of weapons, uncontrolled urban spread, malnutrition, illiteracy, expanding mechanization and bureaucratization of almost all human activity, growing inequalities in the distribution of wealth throughout the world, insufficient and irrationally organized medical care, generalized environmental deterioration etc. With the passage of time, the additional problems have been added to the list [3].

The main idea in creating such a list was to show that these large problem-areas are: system-wide, interdependent, interactive and inter-sensitive. Being so, they transcend national or regional boundaries and cannot be resolved by traditional linear and sequential methods. These clusters of problems overlap, and thus create new problem-areas. Seen from that perspective the problematique is global in scope, whereas our social-political institutions are organizationally and methodologically capable of acting only partially and locally, within their jurisdiction. With passage of time, problems build up and become more complex.

A further issue is that some of the problems may only be solved within certain time-spans (“decision effectivity time”). Studies show that “in many instances these time-spans are narrowed to minimum” [3].

The Club of Rome acknowledges the efforts that governments and the international organizations are making in facing the dangers of the situation that we are in. However, it points out the difference between the approaches of these other organizations and their own.

From the perspective of *The Club of Rome*, the approach of the other organizations and the governments are “directed toward single or parallel problems and do not attempt any consistent and comprehensive study of the totality of the problematic events that add up to our world system; nor do they address to the areas of dynamic interaction or the overall consequences of these events; nor, for that matter, are explicitly concerned with questions of institutional change, development, and invention which might be necessary to cope with what is confronting us” [3].

The approach of the Club of Rome is founded on threefold hypothesis [3]:

- that the predicament we seek to understand is systemic in character; and that the boundaries of the system encompass the entire planet;
- that the real problematique which inheres in the situation has now transcended discrete categories of events – overpopulation, malnutrition, poverty, pollution, etc., and arises from obscure consequence – patterns generated by the interactions of such categories of events;
- that any desirable, or even acceptable, resolution of the problematique will in all probability entail, at least as outcomes to be seriously considered, fundamental changes in our current social and institutional

structures, for the simple reason that these structures were not established to operate in so complex and dynamic situation as the one in which we find ourselves.

Based on these hypotheses, the problem-solving approach of *The Club of Rome* is directed toward creating one or more *situational models* which might reveal – with reference to, but almost independently from, the problem clusters [3]:

- the identity of the most critical and sensitive components of the situation;
- the main or major interactions that exist among the various variables contained in the situation;
- the behavior of the main variables in relation to within the situation;
- the time-dependent ordering of the chief possible outcomes and of their present consequences for action
- the presently invisible critical connections that operate systemically within the present situation and that situation's future configuration;
- the positive and negative synergies that must exist among various alternative consequences and options.

From the perspective of *The Club of Rome*, by correct modeling of the situation, it becomes feasible [3]:

- to penetrate the areas of interdependence among problems and clusters of problems;
- to manipulate the models artificially – so as to observe the behavior of the situation's components under differently structured configurations. After the modeling work has been completed it should be possible to elaborate suggestions for curative or corrective action that might prove helpful in developing policies.

The ground upon which the models should be based is what is referred to as “value-base”, which explicitly stipulates certain assumptions about what is “good” and what “bad”. The value-based, or “good” in this approach is defined as “the re-establishment of the many dimensional dynamic balance that seems to have been lost in the modern world” [3].

5. The Approach of The International Institute for Field-Being

The International Institute for Field-Being (IIFB) is a non-profit research-oriented international educational association of scholars, professionals, organizations and interested individuals in any field or discipline who study and promote the Field-Being and non-substantial modes of thought. The activities of the IIFB are directed towards achieving the Field-Being objectives and values in the following areas [4]:

- Integration of physical and social sciences and the humanities;
- Interface orientations of spirituality and interfaith dialogue;
- Resolution of civilizational conflicts towards creativity and peace; and
- Trans-cultural and interdisciplinary approach to intellectual and humanistic issues.

Most of the ideas and concepts, which we shall present here, are derived from the Field-Being conceptual scheme as formulated by Lik Kuen Tong, the president of the IIFB [5].

From the perspective of Field-Being philosophy, in order to find solutions for the crises and reach the path of sustainable development, it is not enough to observe the outer dynamics of the systems and their interactions, but we must also make an effort to understand their inner dynamics. This is because the outer forms of crises always have their counterparts at the mental and spiritual levels.

The approach of the IIFB is holistic. However, from the standpoint of the IIFB, there are two basic perspectives on holism, and both of them address the relationship between unity and plurality. The point of differentiation is the question of the basic meaning of holism. Do we understand holism as unity based on a fundamental plurality, or plurality founded on an underlying unity? We believe that searching for the answers to these questions is not only of academic interest and importance but also the key for understanding the issues of sustainability and therefore, for our very survival and wellbeing.

From the Field-Being standpoint, the universe is not a collection of substantial (isolated, separable, and rigidly distinct) entities, but a unified field of activity. There are no things, there are no entities. There is only activity! The “things” or “objects” that we ordinary experience are just the surface phenomena of the activity of the field.

The “quintessential unity of Being” is asserted in the Field-Principle, which professor Tong formulates as [6]:
That the unity of Being has its ultimate source in the One Being and that all unity of plurality is founded on an undivided wholeness, an underlying unity derived from the One Being is what we call the Field Principle.

Diversification of the One Being to many surface forms and phenomena is resulting from the Ego Principle, the principle of self-preservation and individuation. However, the activity of diversification is never done at the expense of the oneness of Being. Diversity is never achieved through the loss of unity.

There are two centers of activity inherent in human beings, which are the incarnations of both of these principles: the Ego center, which is the incarnation of the principle of self-preservation and individuation, and the “Ontic” or Holistic self, which is sensitive of the wholeness of Being. The over-inflation of the Ego center results in blockage of the holistic self, thus causing rigidity of soul.

Rigidity may be understood as the lack of fluency. A rigid state of existence is full of strains, that is, factors or elements that are responsible for the obstructions and discontinuities that impede or terminate the free flow of energy and activity. From the perspective of Field-Being philosophy, we rely on the Ego for any conscious striving, but the Ego is also the greatest hindrance to our creativity. It is the source of seams and strains, hence unnecessary conflicts and wastes.

Thought which arises from rigid heart, mind and spirit creates a “profiling delusion” or the “idolatry of rigid identity” – a vision or conception of Reality that is shaped or dominated more or less by the notion of “substantial entities” or mirage of logical absolutes. Beings, things and other phenomena are perceived as separated and isolated entities. Such truncated worldviews which are infested with all kinds of rigid, false or arbitrary dichotomies, represent not only the “quintessential falsification of reality”², but also have existential and practical implications for the integrity of life and the advancement of civilized humanity. Rigidity of soul and thought is the causal factor of “rigidization” of human relations, culture and society, and therefore the root cause of the Global crises.

Seen from this perspective, even the approach of *The Club of Rome*, as the most comprehensive of the previously mentioned approaches, is not sufficient to deal successfully with the current problematique. Our efforts to resolve the crises and achieve the optimal creativity of values must not be directed solely toward finding the best logical solutions through computer modeling and simulations. They must also, or rather primarily be directed towards transcending the limitations of the Ego and opening ourselves to the greater powers that lie dormant in the field (the centrality of the Field Principle). That is, we cannot exist merely as an Ego-center, but must elevate ourselves to the status of transfinite subjects by becoming keenly aware of our Ego-procured limitations. The main challenge is to overcome rigidity, which makes the free flow of energy and activity impossible. The ultimate aim is to attain the rounded perfection of character and personality, both in ourselves and in our relationship to others.

From the perspective of Field-Being philosophy, the state of strainless freedom and seamless perfection is the ultimate ideal of valuation. This state of pure energy, pure experience, and pure meaning is the sublime reality that lies at the essence of the world. The intimation and aspiration to the sublime reality of absolute fluency is called “Zen.” The practice of Field-Being Zen is, however, not a matter of sitting meditation. Every activity is Zen in so far as it is quintessentially *in touch with* the sublime reality of absolute fluency. Field-Being Zen and Field-Being Management are thus inseparable [7].

² The words “quintessence” and its cognate “quintessential” are Greek in origin. Quintessence, from Latin *quinta* (fifth) + *essentia* (essence), is a translation of Greek *pempte ousia*, which in ancient and medieval philosophy names the fifth and highest essence (above the four elements of fire, air, water, and earth) that permeates all things in nature, and is the substance composing the celestial bodies. (Lik Kuen Tong)

6. Conclusions

(a) The ongoing Global crises cannot be resolved by reductionist approaches and fragmented institutions.

(b) The policies and measures based on computer models and their simulations, no matter how comprehensive they might seem, can neither be the sole or the primary means for achieving sustainability.

(c) Our efforts to resolve the crises and achieve the optimal creativity of values must also, or rather primarily be directed towards transcending the limitations of the Ego and opening ourselves to the greater powers that lie dormant in the field.

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SESSION C3

INTEGRATIVE MEDICINE

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Abstract. Integrative Medicine (IM) is healing oriented and emphasizes the centrality of the doctor-patient relationship. It focuses on the least invasive, least toxic, and least costly methods to help facilitate health by integrating both allopathic and complementary therapies. These are recommended based on an understanding of the physical, emotional, psychological, and spiritual aspects of the individual. It is important to see the benefits and limitation of our current allopathic system and realize that science alone will not meet all the complex needs of our patients. The scientific method has and will continue to be our primary source of knowledge. We will improve our understanding if we integrate other sources of knowledge into learning process. IM involves using the best possible treatments from both CAM (Complementary and Alternative Medicine) and allopathic medicine, based on patient's individual needs and conditions. CAM is not synonymous with IM. In the USA and Europe and Asia over the last few years, numerous conferences are held in IM. Also in the USA and Europe, many medical schools have organized various clinical and educational programs of IM. In USA made Consortium of Academic Health Centers for IM consists of leaders from a group of medical schools who meet annually to discuss ideas on how to foster the rational introduction of IM into medical education and practice. The delegations of 47 School of Medicine, very soon will organize to call for fundamental changes in the way physicians of the future are being trained. In particular, we mention *Educational Initiative in CAM* at Georgetown School of Medicine: (i) *Examples of Basic Science Integration* (Anatomy: anatomy of acupuncture, massage; Human Physiology: biofeedback, neuromuscular manipulation; Human Endocrinology: stress reduction via imagery, meditation, breathing; Neuroscience: mechanisms of acupuncture action; Immunology: psychoneuroimmunology; Pharmacology: botanicals, dietary supplements, herb-drug interactions); (ii) *Curricular Topics in Integrative Medicine* (Systems of medicine such as TCM, Ayurveda and homeopathy; Nutritional medicine including dietary supplements; Manipulative medicine such as osteopathic and chiropractic; Energy medicine; Botanical medicine; Mind-body therapies such as hypnosis, guided imagery and meditation; Physical activity-movement therapy; Functional medicine). Serbia created the legal basis for the development of IM, but there is a need to create institutions starting with the Ministry of Health, and Institutes for Integrative Medicine at the Medical Schools and serious training programs and also research programs. Also required is the implementation of such programs in primary care.

Keywords: *Integrative Medicine (IM), Complementary and Alternative Medicine (CAM), education, primary care*

DECOLONIZATION OF ALTERNATIVE MEDICINE

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Abstract. The relation of official and alternative medicine was changing according to the changes of socio-economic conditions. These changes, actually, have led the official medicine to colonize the alternative medicine. Nowadays, however, socio-economic conditions are enabling the process of decolonization. The decolonization of alternative medicine should be both professional and personal. Only merged those two aspects of decolonization could lead alternative medicine to quit the position of a minor, and official medicine to quit the position of an oppressive tutor.

Keywords: *official and alternative medicine: relations*

Discussion about decolonization of alternative medicine includes analysis of its former colonization, colonization established by official medicine. In this study, the colonization of alternative medicine is not analyzed from the point of values. It is discussed as a part of the developmental process, i.e. as the part of the process which had evolved in accordance with relevant socio-economic conditions. That is why, as the starting point, instead of a political, the cultural definition of colonization was adopted: colonization is the rule of people/institutions belonging to another culture [1].

As such, colonization is based on two fundamental elements:

- Rebuttal: within domineering culture all values of a colonized culture are negated,
- Repressive infiltration: a system of values, logic and philosophy of a domineering culture are forced on a colonized culture.

In countries of Atlantic civilization, official medicine took over the role and the power of a colonizer by acquiring monopoly over disease, including very narrowly defined human suffering. That monopoly was not acquired *per virtutem*, i.e. owing to better results of treatment comparing to other methods of healing [2]. (There are quite a few data indicating advantages of treatment by alternative methods, especially by homeopathy, even before official medicine took over monopoly.) It was acquired *per servitudinem*. Namely, at the time when official medicine started its expansion it suited very well to the ruling class, class of industrial capitalists who decided to support it legally and financially [3].

Which assets have brought the advantage to the official medicine?

First of all, it was a method of work, very similar to the industrial production with a hospital analogous to the plant, and patients as a raw material which is at the end of a production line discharged as a finished product (functional and ready for use), or as a waste (nonfunctional, or unusable).

The second advantage was the specific attitude of official medicine, the attitude which made it open only for outer causes of diseases. Namely, the official medicine did not consider living conditions of people asking for medical help. As main culprits microorganisms, defined almost as entities coming from another world, were proclaimed.

The third advantage which brought the privileged position to the official medicine were its logic and technology. Both were internalizing, not only in a medical context, the psychosocial pattern of manipulation and control.

In this first phase, the phase of achieving and maintaining the monopoly, official medicine denied any effectiveness to the alternative medicine. In accordance with that it placed a ban on practicing of alternative medicine as well.

On the other side, alternative medicine practitioners were trying to overcome this denial mostly by trying to expose and to discuss results of their work.

The balance of power led to the development and application of the three known methods of repression: criminalization, marginalization and medicalization.

However, during seventies of the last century there were global changes of socio-economical conditions.

At first, within societies of Atlantic Civilization, after the widespread student revolt at the end of sixties, a substantial interest emerged for both thematization of industrial capitalism and opening for other cultures, especially those of the Far East.

The second important fact was the significant political emancipation of the Third World countries, and the strengthening of their role in international institutions.

Consequently, the first and the second group of socio-economic changes led to the Alma Ata declaration "Health for all" in which the World Health Organization, in 1978, recommended to the member states to include in their health care systems traditional practitioners, i.e. practitioners of alternative medicine [4].

The overall result was the heightening of interest for alternative treatments.

What did the official medicine do in the new circumstances?

Rebuttal of alternative medicine was maintained, but it was joined by the repressive infiltration.

The repressive infiltration was imposed on through the three controlling directives:

- There is only One Medicine,
- Alternative medicine cannot be practiced without institutionally verified knowledge of official medicine,
- Efficacy of alternative medicine has to be proved by methodology of official medicine.

The first directive, "There is only One Medicine" opened the entrance of alternative methods of treatment into space of One Medicine but all power position in that space were occupied by representatives of official medicine, and both the value system and behavior were prearranged according to their interests and logic.

The second directive, by imposing that alternative medicine can be practiced by practitioners of official medicine only, is securing direct repressive infiltration and control through practitioners who are checked during their medical education and practice, and consequently indoctrinated.

The third directive, demanding application of official medical research methodology, is putting alternative medicine on the Procrustean bed with inevitable maiming, because its idiographic nature is forced into a nomothetic procedure [5].

The overall result of this repressive infiltration is specific repressive tolerance [6]. Namely, alternative medicine was allowed to "enter" so called One Medicine but only after official medicine "entered" deeply into it:

- By the way of physicians who started to practice alternative medicine,
- By the way of official terminology,
- By using official medical diagnostic nomenclature,
- By applying official medical code: patient as the object of manipulation.

In that way, instead of authentic alternative medicine, we have got the hybrid one.

Socio-economic conditions, however, kept changing. Much faster than before. So, at the end of 1990ies, the relation between official and alternative medicine came into a new context.

The significant determinant of that new context was the growing official medicine dependence from pharmaceutical companies. That dependence led, directly, to the increased incidence of iatrogenic diseases, and it was the key factor in the process of de-professionalization. Namely, owing to the corrupt members of official medicine elite, interests of pharmaceutical companies were significantly influencing the formulation of the "principles of as good practice" which themselves deprived official medicine practitioners of both independence and responsibility, basic prerogatives of each profession, the medical one included [7].

The position of alternative medicine has changed as well. Three factors played the important role:

- Institutionalization of alternative medicine which led to the professionalization and to the development of education independent of educational system of official medicine,
- Satisfactory results of treatment by various methods of alternative medicine,

- The fact that the first large social group which turned to alternative methods of treatment was influential. Namely these were predominantly middle-aged people with high education and higher than average economic status [8].

The general context was important also, with advancing Postmodern values like human rights (including patient rights), and especially concept of pluralism promoting medical pluralism, analogously to the political, cultural and religious pluralism.

These new socio-economic conditions, after long period of time, were enabling the change of relation between official and alternative medicine. Namely, they were enabling the overcoming of the repression and control of official medicine, and much stronger position of alternative medicine.

However, the overcoming of the subordinate position of alternative medicine would not be possible without open and persistent engagement of alternative medicine, i.e., its practitioners in decolonization. That engagement in decolonization should have two sides: the professional, and the personal one.

The professional decolonization should deal at first with three controlling directives of repressive infiltration: “There is only One Medicine”, “Alternative medicine cannot be practiced without institutionally verified knowledge of official medicine” and “The efficacy of alternative medicine has to be proved by methodology of official medicine”.

The overcoming of the first directive might be the simplest one. Namely, in developed societies the totalitarian mind stepped back in front of the idea of pluralism. In addition, there are clear indications that the directive “There is only One Medicine” is forcing the merger of two completely different therapeutic systems:

- Official medicine which is the system of Modernity, and alternative medicine which is system of Post-modernity,
- Official medicine which is based on the Cartesian paradigm, and alternative medicine which is based on the holographic paradigm,
- Official medicine whose basic orientation is control, so it is treating human beings as the closed systems whose (re)actions are predictable, and alternative medicine whose basic orientation is support, so it is treating human beings as open systems whose reactions are unpredictable.

Overcoming of the second directive which is based on a presumption of a higher position of official medicine, and on the principle of so called levels of competence is somewhat more complex. However, if we accept the principle of pluralism, i.e., the position that official and alternative medicine have no intrinsic similarities then the logical conclusion is that levels of competence which are valid within official medicine cannot be valid within alternative medicine. The next conclusion would be that the competence within alternative medicine is based on the knowledge of the specific expertise in alternative medicine, and acceptance of its logic, philosophy and system of values. Additional condition is overcoming of a widespread medical narcissism which is the basis of a deep conviction of many physicians that the knowledge of official medicine is giving them a special advantage in practicing alternative methods of treatment. In fact, this is a serious mistake because the strong indoctrination by official medical story makes physicians less accessible for alternative medicine. They need more time, more work, and more of personal transformation in order to open themselves to the alternative story.

Regarding the third directive, it is necessary to turn to the principle of pluralism again. This time we are dealing with scientific pluralism. Namely, the scientific method used to prove the efficiency of official medical treatment cannot demonstrate validly the efficiency of alternative treatments. The point is that the method used for checking of the results of official medicine belongs to the science of sensory experience. That is a monological science within which the researcher is not communicating with the object of research. He/she is only observing and registering results.

The method of checking results of alternative medical treatment, however, belongs to the science of mental experience. The approach of a researcher is dialogical, he/she is establishing an inter-subjective space with the subject of research, and the key element is interpretation.

Of course, invaluable is the role of the personal decolonization. The personal decolonization is closely connected with the personal development and as such it is the responsibility of each alternative medical

practitioner him/herself. Still, it rests in the domain of professional organizations. The personal decolonization is the *condition sine qua non*. Without it, alternative medicine is stuck in the position of a minor, and the official medicine is continuing its control as an oppressive tutor.

That is why, for us here the basic question is “Are we ready to tackle decolonization?”

This question, though, might be overly optimistic so that the more realistic question would be: “Do we want to engage in the decolonization at all, especially in the personal one?”

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CRITICAL REVIEW ON THE POSITION OF TRADITIONAL MEDICINE IN SERBIA

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Abstract. Although the beginnings of the 20th and 21st century were characterized by two seemingly opposed kinds of medical sciences (the conventional medicine–CM and traditional medicine-TM), it is notable that CM, irrespective to its undoubtedly positive contribution, has had the tendency to look on the nature of illness only partially, thus ignoring the holistically oriented TM. However, numerous studies have shown that the majority of population surveyed had used some kind of TM, which means that there had been an integration of these two kinds of healing. The World Health Organization (WHO), by means of its policy "Health For Everyone Till 2000" as well as the resolutions adopted by the WHO and the regional committees' assemblies in Alma-Ata in 1978, sets as its primary task the program of TM's integration into conventional trends. So, WHO advises its members to formulate their national policy on TM, including evaluation of its practice and scientific audit of its efficiency and safety as well as enhancing of TM knowledge and skills; to educate and inform their communities about the proven TM methods. "2008 Beijing Declaration" was significant for promoting a safe and efficient application of TM. In accordance with the WHO recommendations, as well as the Serbian 2005 Law on Health Care and the 2007 Regulations, the area of TM has been defined. The Committee for TM, within the Serbian Ministry of Health, discusses and decides on the key issues regarding TM in Serbia. The emphasis is on associations, in terms of their responsibility for the good knowledge of their own members and for the respect they have to pay to the ethical and principles of good practice. Educational programs have been aligned with the licensed programs from the countries of their origin. They are carried out by the licensed lecturers or the copyright owners. Only the programs accredited by the Health Council of Serbia are run. Judging by the number of TM branches' school classes, TM education is nearing the specialist studies. In addition, there is an increasing need for the post doctorate education within medical and pharmaceutical studies, specialist studies as well as for the foundation of TM University. What also occurred as a big problem is the lack of the integration of the TM diagnosis and treatment into the CM protocols, as well as the problem of health insurance policy on refunding TM treatment expenses. The microwave resonance therapy (MRT), as a representative of the quantum medicine, despite of having a well formed educational basis, still does not have a firm position in an integrative health care system. In addition, it is still non-common neither in veterinary nor in the agricultural practice, although there are valid reasons for that (such as good effects in veterinarian therapy, biomass growth and plant germination).

Keywords: *integrative medicine, traditional medicine, holistic orientation, law regulations, microwave resonance therapy (MRT)*

Although the beginnings of the 20th and 21st centuries were characterized by seemingly two opposed kinds of medical sciences (the conventional and the traditional one-TM), numerous studies have shown that the integration of these two kinds of healing has been both evident and continual, as far as their users have been concerned, which is what basically matters the most. The conventional medicine, regardless of its doubtless contributions, has been oriented to looking on the nature of illness only partially, as well as to expensive diagnostic procedures and pharmacotherapeutics, thus ignoring TM methods of diagnosis and treatment which have sustained human civilization from the time immemorial till the present day. Numerous statistic data has

shown the increase of the public interest in some types of TM, both in some developing countries and the most developed countries of the world (Table 1) [1-5].

The World Health Organization (WHO) in its policy "Health for Everyone till 2000", sets, as one of its primary task, the program of integration of TM into conventional trends. WHO program for TM is based on a certain number of resolutions adopted on the assemblies of WHO and the regional committees in Alma-Ata in 1978. In that resolution it is pointed out that: the majority of world population depends on TM as their primary health care system; a great number of TM practitioners represent an important resource for providing medical care; healing herbs represent a special area of great importance for an individual's health as well as the health of the whole community [6,7].

WHO advises its members: to formulate their national policy on TM, including the evaluation of its practice and the scientific checking of its efficiency and safety as well as the enhancing of TM knowledge and skills; to educate and inform their communities about the proven TM methods. With "Beijing declaration" from 2008, the promotion of the safe and effective TM application has been continued, the countries which are WHO members and other influential parts have been called upon to take steps towards the integration of TM, complementary (CM) and alternative medicine (AM) into national health systems [7-9].

Table 1. Usage of TCAM in Developing and Developed Countries [1]

Developing Country	Usage of CAM
Uganda	60%
Tanzania	60 %
Rwanda	70%
India	70%
Benin	80%
Ethiopia	90%
Developed Country	Usage of CAM
Belgium	31%
The USA	42%
Australia	48%
France	49%
Canada	70%

Source: WHO Traditional Medicine Strategy 2002–2005, World Health Organization, Geneva

In the last decade, the interest in the traditional medicine has been on an increase. Since 1991 Swiss national foundation for scientific research has set a program NRP 34 - "Complementary Medicine", which deals with the complementary medicine issues. The aim of this program has been carrying out various projects which would thoroughly examine the influence of the non-conventional healing on the society thus making a contribution towards its understanding. The research has yielded several studies in medical, social and healthcare law, which led to passing a series of new laws. At the same time, a study about the inclusion of the nonconventional medicine into the legal processes within EU has been carried out. The first phase of this research meant the overview of the legal situation in 23 countries, including the EU members [10].

According to the date of the British Council for the Complementary Medicine, published in the International Journal of the Healthcare regulations from 1985, Vol 36, No 2, Traditional and alternative systems of medicine: a comparative legislation overview, J. Stephen differentiates between various systems of TM, AM and CM application within EU [11].

In the countries where statistic data is available, it has been found that the traditional kinds of healing have been used by 20 to 50% of the population. That figure is on constant increase (in 1981 in Holland, that figure was 6.4% of the whole population, while in 1990 it was 15.7%). Fiser's eight-year study, conducted in the period from 1985 to 1992 showed that the following nonconventional kinds of healing were most frequently used among the examinees, depending on the country chosen: homeopathy, phytotherapy, acupuncture and manual physical therapy, that include both osteopathy and chiropractics (Table 2) [1,12].

Various European countries have different perspectives of the nonconventional medicine's legislation.

Apart from dealing with some general issues by discussing them in a debate style, what is essential is the existence of national strategies, which include licensing and refunding from the social or private insurance funds.

Rome agreement (from the mid 80's), which represents a basic EU document in the field of medicine, provides main guidelines and suggestions about the healthcare system and the conventional medicine, as well as about the employment within the EU. However, through this document it was not possible to anticipate a future phenomenal increase of public interest in TM treatment's use, which at the time, was still at an early stage of development [1-5].

Table 2. The table of the traditional healing methods' use (P. Fiser, 1985-1993) [1,12]

	%	Acupuncture	Homeopathy	Manual therapy	Phytotherapy
Belgium	31	19	56	19	31
Denmark	23,2	12	27	22,5	Undefined
France	49	21	32	7	12
Germany	46	Undefined	Undefined	Undefined	Undefined
Holland	20	15,5	31	Undefined	Undefined
Sweden	25	12	15	48	Undefined
The UK	26	16	16	36	24
The USA	34	3	3	30	9

Through the Republic of Serbia's Healthcare Law, which was passed 10 December 2005 (RS Official Gazette No. 107/05), the TM area was defined for the first time in our country, while with the passing of the Book of Regulations of the operating conditions, ways and procedures of employing TM methods and procedures from 14 December 2007, the conditions for employing TM were more clearly defined (RS Official Gazette, No. 119/07). The patient's right to be timely given, by an healthcare official, the information on the possible conventional and TM methods for curing his/her illness in order for him/her to make a decision what suggested medical measures to approve of, was regulated by the Healthcare Law from 1 January 2007 according to articles 28 and 19 [13-15].

According to article 2 of the Book of Regulations of the operational conditions, ways and procedures of employing TM methods, it was stated that TM encompasses proven, expertly undeniable TM, CM and AM methods and procedures of diagnosis, treatment and rehabilitation that beneficially affect man's health or their health condition (Table 3) [14].

Table 3. The TM methods of diagnosis, treatment and rehabilitation in Serbia [14]

Diagnosis and Treatment Methods	Rehabilitation Methods
1. Ayurveda	1. Apitherapy
2. Acupuncture and i related technics	2. Aromatherapy
3. Traditioanl Chinese medicine	3. Qi gong
4. Homeopathy	4. Spiritual energetic medicine
5. Phytotherapy	5. Energetic therapies, Reiki
6. Quantum medicine and related techniques	6. The detection of negative radiation
7. Chiropractics i applied chinesisithrapy	7. Yoga practice
8. Makrobiotiika	8. Family order
9. Traditional ancient medicine	9. Tai Ći Ćuan practice

In 2005 the Ministry of Health decided to form an Special Committee for the traditional, complementary and alternative medicine (according to article 23 of the Law on the public administration- the Official Gazette No. 79/05 and article 22, the Act on the principles for internal organization and systematization of the job positions in the ministries, special organizations and state services-the Official Gazette No. 95/05), which has become the Board for TM, within the Ministry of Health which actually nominated it [13,14].

This board discusses and adopts attitudes on all important issues concerning TM in Serbia. In Serbia, around 200 work permits within certain areas of TM have been issued, which is just mildly encouraging, as this figure represents only 0.66% (compared with 30 000 licensed doctors in Serbia), so it is really a negligible proportion.

In establishing the criteria for TM practice, the emphasis was laid on the professional associations' responsibility for good knowledge of their members well and their members abiding by the principles of good practice.

Besides, the good educational foundation was laid, alongside with carrying out the programs accredited by the Health Council of Serbia, as the highest accrediting body in the continual medical education. Judging by the number of the TM's branches school classes, TM education is nearing the specialist studies. Educational programs have been aligned with the licensed programs from the countries where certain TM methods originate from and are carried out by the licensed, well-experienced lecturers or the copyright ant patents' owners.

The issue of the equality of the conventional and traditional healing methods has been defined and integrated into the domain of employing unique regulative and control methods and procedures, while as far as the integration of TM's form into the conventional medicine's therapy protocols is concerned, as well as the social refund of the treatment expenses, these issues have not yet been solved.

By the standardization of the service quality for the TM doctors-practitioners, a high quality TM's forms of treatment has been ensured, alongside with respecting ethical code of conduct and the principles of good practice. What needs to be nurtured is an encouraging politics of educating the therapists and raising their conscious about the possible implications of the holistic TM procedures, not only for the physical health of their patients, but also in a broader sense. Professional associations of TM practitioners have to make effort towards respecting these normative regulations, and in the case of their breach, have to take appropriate measures of caution and/or exclusion from their membership status. What is needed for dealing with these problems, within the Medical Chamber, is the introduction of the professionals who have in-depth knowledge of TM or, regular consulting the Board for TM within the ministry of Health, regarding various questions related to organization of this area.

All EU countries are well aquatinted with the system of social, and even some of them with the system of private insurance. In our country, TM treatment can be covered only from the private insurance system.

Table 4. TM in the existing insurance systems within EU (2006) [16]

System types and kinds of insurance	The countries where the system is employed and TM methods encompassed by the system
<i>1st category:</i> Includes the countries where TM is not evident neither through social nor private insurance	Island, Ukraine
<i>2nd category:</i> Public system where TM treatment is covered only by the social insurance system	Austria, Denmark,: Chiropractics, Acupuncture, Osteopathy; Ireland and Finland: Acupuncture, Chiropractics, Naturopathy, Osteopathy, Lymphotherapy; Lithuania: Acupuncture, Homeopathy, Electropuncture, Iridology, Bioresonance; Luxemburg and Malta: KTM as a whole; Norway, Sweden, Portugal: Homeopathy, Acupuncture, Chiropractics;
<i>3rd category:</i> The private insurance system where TM treatment is covered only by the system of private insurance	Belgium: Homeopathy, Osteopathy, Chiropractics, Acupuncture; Lichtenstein, Spain, the UK: Osteopathy, Chiropractics, Manipulative techniques
<i>4th category:</i> The double system of the social and private insurance (France)	France

The results shown in Table 4 are obtained by an overview of the types of insurance in EU countries (The only missing are the results from Greece and Hungary).

One of the most important issues is the one of the educating professionals in certain TM areas. For the time being, in our country, a continual medical education has been carried out, through various courses for doctors, dentists and pharmacists, according to licensed educational programs of various TM areas (quantum medicine, acupuncture and homeopathy), approved by the Healthcare Council of Serbia as the highest accrediting body for the programs of the continual medical education. What is also accepted is the college diplomas from countries where those colleges have a legal status. In the light of European trend of introducing post graduating TM education for doctors, the same issue has to be resolved in our country. Besides, the possibility of the specialist and academic specialization at medical, dentistry, pharmacy colleges, as well as at polytechnics should be considered. Another possibility is the establishing a TM college. These issues could be solved through mutual action and good cooperation of the Ministry of Health and the Ministry of Education.

The legal regulations of RS regarding the TM products and medical means are aligned with the European directives - Directive 92/73/EEC, now part of Directive 2001/83/EC.

Certain issues that have not yet been resolved by these regulations should, through suggestions for their supplementation and/or modification, be resolved as soon as possible.

Conclusions

In this paper there is information on TM's position in the world, in EU and Serbia, on certain TM methods' employment, as well as on the position of TM in various insurance systems. There is also an overview of TM methods in the Healthcare Law of Serbia, alongside with a short review on the educational criteria. The drawbacks of the existing Book of Regulations for the operational conditions, ways and procedures of employing TM methods have been pointed out; and the suggestion for overcoming these drawbacks have been put forward.

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TRADITIONAL MEDICINE IN SERBIA – EDUCATION

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Abstract. The National strategy on introduction of traditional medicine (TM) in the Serbian integrative health care is determined by the Law on Health Protection of the Republic of Serbia (2005), the Regulation on detailed conditions for the implementation of continuing education for health workers and co-workers (2007), and the Regulation on detailed conditions, mode and procedure for the performance of the methods and practices of traditional medicine (2007). The aim of the study is to show the legislation on educational development of traditional medicine and the possibilities of integration with Western (conventional) medicine. The overview of Integrative Medicine regarding education in Serbia was made by means of insight into the laws, sub-normative acts and regulations on TM and programs of various professional non-governmental associations and Serbian Medical Society. The provisions on education and performance methods and procedures of TM and new methodologies that rely on TM are governed by the Law and Regulations. The Health Council of the Ministry of Health of Serbia is regarded as the highest level Accreditation Board for accreditation process of the continuing postgraduate medical studies included in the medical staff education. The Education Regulation stipulates the schools establishment and organizing of expert meetings within the Association. The TM Commission of the Ministry of Health of the Republic of Serbia approved the educational plan that regulates the number of classes and programs for each method. The schools are organized in a form of basic courses, higher level courses, and authorized basic and higher level courses. The Commission on TM of the Ministry of Health of Serbia reviews the work permit applications. The work permit is signed by the Minister of Health. On the basis of this permission, a license that allows TM medical practice over the next seven years is issued by The Medical Chamber. The accredited schools are: Quantum medicine, Acupuncture, Homeopathy, Microwave resonance therapy, Bioresonance (IMEDIS, MORA), BETA analysis, Voll's diagnostics and therapy, Thermo-diagnostics, Lithotherapy.

Keywords: *traditional medicine, legislation, education, accredited schools, quantum medicine, acupuncture, homeopathy, work permits*

1. Terminology

Many terms in this domain of treatment and healing are used: traditional medicine (TM), alternative, complementary-alternative, integrative. The term Traditional medicine is not a comprehensive and is adopted because traditional medical teachings are the foundation of the holistic approaches and techniques of a new era. More popular name is *alternative medicine*.

2. Legislation

The National strategy for introduction of traditional medicine (TM) in the integrative health care is determined by:

- The Law on Health Protection of the Republic of Serbia (Official Gazette RS no. 107/05),
- The Regulation on detailed conditions for the implementation of continuing education for health workers and associates (Official Gazette RS , No. 119/07),
- The Regulation on detailed conditions, mode and procedure for the performance of the methods and practices of traditional medicine (Official Gazette RS, No. 119/07),
- The Regulation on education curriculum approved by the Commission on traditional medicine at the Ministry of Health of Serbia.

The Law equates the Traditional medicine with the so called Western medicine and entitles the patient to receive and the health workers to provide the information on alternative methods of treatment (The right to information, Article 28, The Law on Health Protection).

3. Methods and Procedures

The methods and procedures were adopted using the Regulations and the conditions for their implementation were defined. Division into two main groups was adopted:

- **Methods of diagnosis and treatment** Ayurveda, Acupuncture, **Quantum medicine**, Traditional Chinese medicine, Macrobiotics, Applied Kinesiology, Reflexology, Segment therapy, Su Jok, Traditional folk medicine, Tui-Na, Phytotherapy, Chiropractic, Homeopathy, Shiatsu.
- **Methods of rehabilitation (health improvement)** Apitherapy, Aromatherapy, Detection of harmful radiations, Spiritual energy medicine, Energy therapy, Yoga, Order of love , Reiki, Tai Chi Chuan, Chi Gong

Quantum medicine, as one method of diagnosis and treatment, includes a range of different methods, holistic approaches and techniques. The list is not final due to incredibly rapid development of technology, especially informative technology.

4. Organization of Education

According to the Regulation the continuing education process can be carried out by:

- Faculties, Health professional schools, Health care facilities, Private practice facilities, **Associations** and Institutions.

The regulation defines the forms of education:

- Congresses, **symposia**, **courses**, **seminars**, study visits, other forms of **professional meetings**, publishing articles in professional and scientific journals and publications, solving tests in paper or electronic form.

The Educational programs are based on methodologies of recognized European centers for education in this domain of medicine (Russia, Germany, Ukraine), China, India, etc.

The Health Council of the Ministry of Health of Serbia is regarded as the highest level Accreditation Board for accreditation process of the continuing postgraduate medical studies included in the medical staff education.

The Section of Acupuncture and the Active group of Quantum Medicine of Serbian Medical Society hold regular professional meetings once a month .During the year non-regular meetings, round tables and panel discussions are organized in which experts, both at home and abroad, exhibit their works in the field of TM and new technologies. All professional meetings within the Section of Acupuncture and the Active group of Quantum Medicine of Serbian Medical Society are accredited. The points allocated for the meetings attendance are included in the re-licensing system. Annually up to 20 meetings are held.

The schools are organized in a form of basic courses, higher- level courses, and authorized- basic and higher-level courses.

5. Example of the School of Quantum Medicine

The association for the promotion and development of quantum medicine **Quanttes** (member of Quantum medicine association since 2007) organizes the courses accredited by the Health Council. Education is organized into the following levels:

5.1 Basic courses

The basic course of quantum medicine requires 150 hours of theory. The course is organized under the Agreement on cooperation in the field of education and scientific research between Association Quanttes and the Scientific Research Center of Quantum Medicine VIDHUK, Ukraine (February 2007), with the approval signed by one of the founders of quantum medicine, Academician, physicist Sergei Panteleimonovich Sit'ko (November 2006).

The education in acupuncture (150 hours of theory and practice on determining the acupuncture points location and meridians, the principles of diagnosis and prescription) is organized on the basis of the program for the basic-level acupuncture course, which is implemented within the Continuing medical education in the Clinic for Rehabilitation, Medical Faculty, University of Belgrade, under the guidance of Assoc. Prof. dr Ljubica Konstantinović. After this level of education the student can engage in further improvement to acquire the title of a practitioner in the field of acupuncture.

The Basic course of homeopathy (150-hours of theory- introduction to homeopathy, introduction to the basic homeopathic substances) is organized on the basis of cooperation with the Section for Homeopathy of Serbian Medical Society, under the guidance of Prof. dr Miloš Popović. This basic-level course enables further education in the School of Homeopathy.

5.2 Higher-level courses

Microwave resonance therapy - MRT (110 hours of theory and practice) –_the method known as MRT Sit'ko, is organized on the basis of the Agreement on cooperation in the field of education and scientific research between the Association Quanttes and the Scientific Research Center of Quantum Medicine (February 2007) with the approval signed by the author of this method Academician Sit'ko (November 2006) and the Agreement with CEM -TECH - Technology, Russia (2010).

Bioresonance and vegetative resonance test – BRT, VRT, (150 hours of theory and practice)- on the basis of the Agreement on cooperation in the field of education and the scientific research among the Association Quanttes, the Center of Intellectual Medical Systems- IMEDIS (April 2010), Russia (Russian BRT school) and Med Tronik GmbH, Germany - method MORA (May 2010).

Electro-puncture diagnostics by R. Voll (30 hours of theory and practice): The Agreement on cooperation with the International Association „Quantum medicine”, Russia (2011).

5.3 Authorized courses

Cyto-biophysical diagnostics by Sahbazov; BETA-diagnostics; Thermo-diagnostics; Litho-therapy (Dr I. Kalinin); Vlok- intravenous-laser-therapy, ASTROMED and MSAD (M. Karen), Radical dissociation of consciousness (M. Jovanovic) (all of them 30 hours of theory and practice), are organized on the basis of the aforementioned Agreements.

The Agreement with the Russian Professional Medical Association of Specialists in Traditional and Folk medicine, concluded in June 2011, gives us the opportunity to organize the new education programs.

The basic level education is organized in a form of weekend-block-seminars.

The higher levels courses are organized in a form of daily- continuous theoretical and practical classes, with the compulsory participation of students in practical training (Stage I: observation; Stage II: involvement in a practical work with a mentor; Stage III: independent performance of diagnostic and therapeutic procedures).

After each level the student is obliged to take the writing test and the practical knowledge exam.

The certificate, which confirms successfully completed training, enables an entry in the Register of Practitioners of specific methods within the Serbian Medical Society and / or the Registry of a corresponding association. The Code of Ethics is signed upon the entry. The Code on competence is in preparation.

The Commission on TM of the Ministry of Health of Serbia reviews the work permit applications. The work permit is signed by the Minister of Health. On the basis of this permission, a license that allows the TM practice over the next seven years is issued by The Medical Chamber. Over 300 health practitioners had completed various levels of education.

6. Justification for Further Development

Well established base. We are proud because we managed to form a good basis (legislation, education system, programs accreditation and a system of obtaining a work permit) at the country level. For the education organizers the justification means: the programs based on scientific methodology, active collaboration with scientific research centers and a very professional teaching staff. Approximately forty educators from abroad and Serbia are regular participants of this education: academicians, more than twenty professors and scientific associates of various faculties (Medical, Mechanical Engineering, Electrical Engineering and Physics), physicians with long-term experience in medical practice and the educator license obtained from the authors of this program.

Economical justification. Introduction of TM methods (independent or integrative approach) leads (or should lead) to a cost reduction of a conventional treatment, significantly less money invested in a cabinet equipment, additional income opportunity for retired health-care providers, encouragement of a self-healing process, preventive effect, holistic approach...

7. Questions Rather than Conclusions

Adoption of laws, regulations and decisions and institutionalization of TM provide an answer (not final) to the question: **who may** engage in methods and procedures of TM.

We think the main issue is **WHO SHOULD**.

Anyone with an adequate education is entitled to be a practitioner of TM. It is a legal right in all domains of human activity and in this domain as well.

Is the legislation adequate for this domain?

Are the material standards of the current level of our civilization also valid parameters for the organization and functioning of the healing process?

We are entering, consciously or unconsciously, into a trap which conventional medicine had entered: procedures, techniques and methods for treatment of human civilization at the moment of projection in this intersection of time and space become unavailable for people at the present moment. Simply, these procedures become more expensive and only are available to the financially privileged group. The traditional (alternative) medicine becomes ELITIZED instead of being the ELITE MEDICINE.

If the Creator has given to man by birth a privileged right to LIFE and therefore a right to HEALTH, who can deny, or in the best case limit a RIGHT TO HEALING?

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SEMINARS IN PRIMARY HEALTHCARE CENTER "STARI GRAD" BELGRADE: CASE STUDY OF LARGE-SCALE INTEGRATIVE MEDICINE HEALTHCARE COMMUNICATION

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Abstract. Primary Healthcare Center "Stari Grad" Belgrade started with its regular open Seminars on Integrative medicine in the beginning of 2009 (<http://dzstarihrad.org/dom-zdravlja/index.php?s=44>), awarded the best non-profit Wellness program in Serbia 2009, with motto: „For quiet dreams on Belgrade’s river banks“. Lectures of numerous specialists from Serbia and abroad were dedicated to prevention and healthy life-styles, with numerous techniques and approaches of acupuncture-based and consciousness-based quantum-informational medicine included... We shall discuss wider social impacts of Seminars on Integrative medicine in Primary Healthcare Center "Stari Grad" Belgrade, as a case study of large scale healthcare communication...

Keywords: *Primary Healthcare Center "Stari Grad" Belgrade, case study, large-scale healthcare communication, integrative medicine*

HEALTH FESTIVAL BELGRADE: CASE STUDY OF LARGE-SCALE INTEGRATIVE MEDICINE HEALTHCARE COMMUNICATION

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Abstract. Health Festival Belgrade (www.festival-zdravlja.com) started in April 2010 and is organized twice a year, as spring and autumn manifestation, in organization of National Association for Improvement and Development of Regenerative Medicine (www.naurrm.org). Moto of Health Festival Belgrade is „Wake up! Think about your health“, and great part of contents and lectures is dedicated to prevention and healthy life-styles, with special attention to mental health. Festival has wide social and media support, and became recognized brand of Serbian capital, being visited by more than 10,000 people in a few days. In the framework of festival a numerous lectures of specialists from Serbia and abroad are organized. Many primary healthcare centers, private medical practices, hospitals, pharmacies, pharmaceutical producers, fitness, wellness and spa centers, ethno villages, everybody dealing with healthy nutrition, conventional and alternative medicine, are participating in the festival. We shall discuss wider social impacts of Health Festival Belgrade, as a case study of large scale healthcare communication...

Keywords: *Health Festival Belgrade, case study, large-scale healthcare communication, integrative medicine*

**TV SERIAL AGAPE: CASE STUDY
OF MEDIA COMMUNICATION ACROSS AND BEYOND DISCIPLINES**

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Abstract. TV serial Agape started in October 2005 on RTV Studio B in Belgrade, by exclusive interview with late Serbian patriarch Pavle, and then continued by permanent guest, academician Vladeta Jerotić. Global theme is „Contemporary society and religion“, while subthemes are meaning, faith, marriage, family, pedagogy, media, love, narcomania, suicide, faith and disease, faith and nation, woman and man, dreams, life and death, magic and mystics, creativity... It is our wish to show that Christianity is not old-fashioned, and that it can be very useful to modern man suffering of identity crisis, to find meaning and truth. This TV serial is not dedicated exclusively to high-educated persons but to everybody interested to raise basic philosophical, religious, and existential questions: who am I, what is the meaning of my life, where am I going to... We shall discuss wider social impacts of TV serial Agape, as a case study for media communication across and beyond disciplines...

Keywords: *TV serial Agape, case study, media communication, society and religion, across and beyond disciplines*

THE INTERFAITH DIALOGUE SERBIA – INDONESIA 2011, POSITIVE EXPERIENCE IN SERBIA’S STATE POLICY

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Abstract. In this paper are presented results of the First Interfaith Dialogue Serbia – Indonesia (Belgrade, 7–9 April 2011), the biggest ever interreligious meeting Serbia or Yugoslavia ever held on state level with foreign countries. The Republic of Serbia is a secular state, while The Republic of Indonesia is a “religious” state (but not a theocratic state). In the First Interfaith Dialogue Serbia – Indonesia participated: government and ministry officials, ambassadors, the highest religious leaders and theologians (Orthodox Christians, Roman Catholic Christians, Protestant Christians, Muslims, Hinduists and Judaists), university professors and other scholars. The First Interfaith Dialogue Serbia – Indonesia consisted from: interreligious conference, bilateral meetings, cooperation between universities and faculties of Serbia and Indonesia. The First Interfaith Dialogue Serbia – Indonesia gave the new, but very important level in Serbia’s state cooperation with foreign countries.

Keywords: *Serbia, Indonesia, interfaith dialogue, bilateral dialogue, theology, religion.*

1. Introduction

Diplomatic relations and wide bilateral cooperation between Yugoslavia and Indonesia, established and promoted during the fifties of the 20th century, were starting point of fruitful connections in the fields of politics, military and economics, as well as science and culture in several decades. Yugoslav and Indonesian foreign policy coincided in support of decolonization, pacifism, anti-hegemonism and neutral position towards ideological blocs. It was clear then why Yugoslavia and Indonesia were among founders of the Non-Aligned Movement (1961) and presidents Josip Broz Tito and Sukarno in close friendship.³ Nature of Yugoslav communist system didn’t enable two countries to establish interfaith connections.

Civil war in western parts of Socialist Federal Republic of Yugoslavia (1991-1995) led to creation of usual media stereotypes against Serbs even in friendly Indonesia. While Indonesian public had memory on Yugoslavia as ally and friend, picture of Serbia was different.⁴ Also, with break-up of SFR Yugoslavia (1991) its former republics, Serbia as well (Federal Republic of Yugoslavia), quit membership in the Non-Aligned Movement.

Where bilateral cooperation between Yugoslavia and Indonesia stopped, bilateral cooperation between Serbia and Indonesia started. Belgrade was a host of the First Interfaith Dialogue Serbia – Indonesia (7-9 April 2011) on the highest state, religious and university levels.

2. Religious Picture of Serbia and Indonesia

There are interesting similarities in religious pictures of Serbia and Indonesia, but also huge differences in secular or religious character of two states.

1. Republic of Serbia is the most western country in the world with Orthodox Christian majority and with Serbian people in whole (Republic of Serbia, Republic of Srpska, Montenegro and other parts of former SFR Yugoslavia) border of Serbian Orthodoxy goes to the shores of the Adriatic Sea.

³ Ljubodrag Dimić, Yugoslav view on Indonesia, speech at the Interfaith Conference Serbia – Indonesia, Belgrade 7 April 2011. Short version of speech is published in the book: *1st Indonesia-Serbia Bilateral Interfaith Dialogue*, Belgrade 2011, 32-34.

⁴ Why Interfaith Dialogue has been held in Serbia?, *1st Indonesia-Serbia Bilateral Interfaith Dialogue*, Belgrade 2011, ii.

Ethnic population of the Republic of Serbia (official census 2002)						
Serbs	Hungarians	Bosniaks	Roma	Yugoslavs	Croats	Total
82,86%	3,91%	1,81%%	1,44%	1,08%	0,94%	7.498.001

Religious population of the Republic of Serbia (official census 2002)						
Orthodox	Roman Catholic	Protestant	Muslim	Judaist	Atheist	Total
84,98%	5,48%	1,08%	3,20%	0,01%	0,53%	7.498.001

Republic of Indonesia is the most eastern state in the world with Muslim majority. Its islands and shores are stretched from the Indian Ocean to the Pacific Ocean.

Religious population of the Republic of Indonesia 2011. ⁵						
Muslim	Protestant	Roman Catholic	Hindu	Buddhist	Confucian/other	Total
86,39%	6,34%	3,36%	1,81%	0,93%	0,11%	237.566.363

2. According to the Constitution of the Republic of Serbia (2006), “Republic of Serbia is a secular state”, “churches and religious communities shall be separated from the state”, “no religion may be established as state or mandatory religion” (article 11), the state guarantees freedom of belief or religion (article 43).⁶

From 2006 Republic of Serbia has the Law on Churches and Religious Communities. This modern law recognizes traditional churches and religious communities “with centuries-long historic continuity in Serbia, having acquired legal subjectivity pursuant to separate legislation” in the Princedom of Serbia, Kingdom of Serbia, Kingdom of Serbs, Croats and Slovenes (SCS) and Kingdom of Yugoslavia. Those being: the Serbian Orthodox Church, the Roman Catholic Church, Slovakian Evangelist Church a.v., Christian Reformist Church and the Evangelist Christian Church a.v., the Islamic Community, the Jewish Community.⁷

According to the Constitution of the Republic of Indonesia (1945) this country is based on five inseparable and interrelated Pancasila principles, which are the official philosophical foundation of the Indonesian state: 1. Belief in one and only God, 2. Just and civic humanity, 3. Unity of Indonesia, 4. Democracy led by wisdom through deliberations amongst representatives of the people, 5. Social justice for all Indonesia citizens.⁸

As a state ideology, Pancasila connects numerous ethnic, tribal, religious and geographical differences in wide Indonesian archipelago (1.027 ethnic groups, more than 13.000 islands). Pancasila (through the Constitution of the Republic of Indonesia) guarantees “all persons the freedom of worship, each according to his/her own religion or belief” (article 29).⁹

Thus, in Serbia and Indonesia exists similar percentage of believers of the biggest religion: Orthodox Christians or Muslims. But, it is always wise to have in mind that Indonesia has 30 times bigger population than Serbia. The Republic of Serbia is a secular state, while the Republic of Indonesia is a “religious” state (but not a theocratic state).¹⁰ Both countries are democratic. These facts are important for better understanding of the First Interfaith Dialogue Serbia – Indonesia.

⁵ Bahrul Hayat, speech at the Interfaith Conference Serbia – Indonesia, Belgrade 7 April 2011. Published in: *1st Indonesia-Serbia Bilateral Interfaith Dialogue*, Belgrade 2011, 84-85.

⁶ The Constitution of the Republic of Serbia, *Official Gazette of the Republic of Serbia*, number 98/2006.

⁷ The Law on Churches and Religious Communities, *Official Gazette of the Republic of Serbia*, number 36/2006.

⁸ I Made Titib, speech at the Interfaith Conference Serbia – Indonesia, Belgrade 7 April 2011. Published in: *1st Indonesia-Serbia Bilateral Interfaith Dialogue*, Belgrade 2011, 37-42.

Also: <http://www.embassyofindonesia.org/about/pdf/IndonesianConstitution.pdf>

⁹ Ibid.

¹⁰ Bahrul Hayat, 84.

3. Path to the First Interfaith Dialogue Serbia – Indonesia

Interfaith dialogues (regional, bilateral, multilateral, inter-media) are “soft diplomacy” of the Republic of Indonesia from 2004. Aims of interfaith dialogues are: to strive against negative stereotyping of Islam versus West; to introduce the moderate strain of Islam in Indonesia; to manage religious diversity in ways that promote social cohesion, peace and sustainability; to promote both countries democratic respect for pluralism; to empower the moderates; to establish cooperation among civil societies in various aspects, particularly on global issues, such as education, good governance, poverty eradication, and social welfare.¹¹

So far, the Republic of Indonesia had bilateral interfaith dialogues with: Vatican (2005, 2007), the Netherlands (2006, 2008, 2010), Canada (2007, 2008), Austria (2009, twice in 2010), Lebanon (2008), Russia (2009), the United States of America (twice in 2010), Hungary (2010), the Czech Republic (2010), Bulgaria (2010), Germany (2010), Spain (2010), Serbia (2011) and Greece (2011), as well as the United Kingdom Islamic Advisory Group (2007).¹²

How it started with Serbia? Ministers of foreign affairs of Indonesia and Serbia, Marty M Natalegawa and Vuk Jeremić, agreed “on the importance of the interfaith dialogue” at the Non-Aligned Movement Ministerial Meeting on the Interfaith Dialogue and Cooperation for Peace (Manila, March 2010).¹³

Official Indonesian proposal for bilateral interfaith dialogue with Serbia came after foundation of the Interreligious Council of the Ministry of Religious Affairs of the Republic of Serbia (June 2010). With the Interreligious Council institutional cooperation of the Serbian state with traditional churches and religious communities was lifted on the highest level. Head of the Interreligious Council is a Minister of Religious Affairs and members are the leaders and most valuable eminencies of the traditional churches and religious communities in the Republic of Serbia. Aims of the Interreligious Council are: affirmation of religious freedom and religious culture, statements on most important social questions, organization of meetings on contemporary topics, contribution to legal aspects, consideration and interpretation of public life, consideration of importance of religious freedom and religious culture in European context.¹⁴

So, paths and aims of regional and global interfaith dialogue promoted by Indonesia and of local interfaith dialogue established in Serbia mainly coincided. It was also important for the Republic of Serbia to host our friends from the world’s biggest Muslim country also due to the fact that Republic of Indonesia recognizes Serbia’s full sovereignty in Kosovo and Metohija. Furthermore, it was important to equate (or try to equate) Indonesia’s special historical appreciation of Belgrade as the capital of non-aligned Yugoslavia and Belgrade as the capital of neutral Serbia.

Minister of Religious Affairs of the Republic of Serbia Prof. Dr Bogoljub Šijaković and Ambassador of the Republic of Indonesia in Belgrade Samuel Samson agreed in February 2011 that the First Interfaith Dialogue Serbia – Indonesia, on high state and religious level, should be held in April 2011 in Belgrade.¹⁵

Unfortunately, Ministry of Religious Affairs was cancelled in March 2011 and the Ministry of Diaspora was widened with the Sector for Religious Affairs to form new ministry – The Ministry of Religion and Diaspora.¹⁶ This change didn’t interrupt organization of the First Interfaith Dialogue Serbia – Indonesia.

¹¹ General Information Interfaith Dialogue, *1st Indonesia-Serbia Bilateral Interfaith Dialogue*, Belgrade 2011, 1.

¹² General Information Interfaith Dialogue, *1st Indonesia-Serbia Bilateral Interfaith Dialogue*, Belgrade 2011, 2.

¹³ Letter from the Embassy of Indonesia in Belgrade to Aleksandar Raković, 28 February 2011.

¹⁴ Minister of Religious Affairs Prof. Dr Bogoljub Šijaković established the Interreligious Council on 17 June 2010. With professor Šijaković, members of the Interreligious Council are: Bishop of Bačka of the Serbian Orthodox Church Prof. Dr Irinej Bulović, Archbishop of Belgrade of the Roman Catholic Church Stanislav Hočevar, Reis-Ul-Ulema of the Islamic Community of Serbia Adem Zilkić and Rabbi of the Jewish Community Isak Asiel. Coordinator of the Interreligious Council is Dr Aleksandar Raković, Senior Adviser at the Ministry of Religious Affairs.

¹⁵ Documentation of the Ministry of Religious Affairs, Report from the meeting of minister Šijaković and ambassador Samson from 10 February 2011 (with Report from the meeting of their collaborators from 14 February 2011), number 337-00-3/2011-01 from 17 February 2011. – Minister and ambassador named coordinators of the First Interfaith Dialogue Serbia – Indonesia: Dr Aleksandar Raković, Senior Adviser at the Ministry of Religious Affairs and Zamardi, Political Counsellor at the Embassy of Indonesia.

Both delegations consisted from: ministers, ambassadors, government and ministry officials, the highest religious leaders and theologians (Orthodox Christians, Roman Catholic Christians, Protestant Christians, Muslims, Hinduists and Judaists), university professors and other scholars (see footnote 15). Head of Serbian delegation was Prof. Dr Bogoljub Šijaković (State Secretary of Religious Affairs) and head of Indonesian Delegation was Andri Hadi (Director General of Information and Public Diplomacy at the Ministry of Foreign Affairs).¹⁷

Republic of Serbia never before formed joint delegation with the highest officials from state and churches and religious communities. Just that would be enough for record. But, the First Interfaith Dialogue Serbia – Indonesia was also a good chance for the Republic of Serbia to promote and underline the fact that interreligious relationships in Serbia are better than ever.

4. The First Interfaith Dialogue Serbia – Indonesia

The First Interfaith Dialogue Serbia – Indonesia (7–9 April 2011) consisted from three parts: **1.** The Interfaith Conference in the Palace of Serbia (7 April), **2.** University cooperation (8 April), **3.** Closing meeting at the Embassy of Indonesia (9 April).

First Day (7 April). After the bilateral meeting of two delegations in the Palace of Serbia, Minister of Religion and Diaspora Srđan Srećković opened the First Interfaith Dialogue and the Interfaith Conference Serbia – Indonesia. In the speech at the conference, Serbian Patriarch Irinej blessed the Interfaith Dialogue of two friendly countries.

At the Interfaith Conference Serbia – Indonesia there were more than 200 guests: domestic and foreign diplomats, university professors, scholars, theologians, media, members of the Association of Serbian-Indonesian Friendship Nusantara, and others. It is very important that the Interfaith Conference was held in the Hall of Yugoslavia (at the Palace of Serbia) which hosted the First Conference of Non-Aligned Movement in Belgrade (1961).

Participants at the Interfaith Conference gave speeches from the fields related to theme *Building Collaborative Communities: Strengthening Civil Society and Interreligious Cooperation for Development*, and

¹⁶ The Law on the ministries, *Official Gazette of the Republic of Serbia*, number 16/2011.

¹⁷ **1.** Members of the Serbian delegation: Prof. Dr Bogoljub Šijaković (head of delegation), Prof. Dr Irinej Bulović (Bishop of Bačka of the Serbian Orthodox Church, Dean of the Faculty of Orthodox Theology in Belgrade), Stanislav Hočevar (Archbishop of Belgrade of the Roman Catholic Church), Adem Zilkić (Reis-ul-ulema of the Islamic Community of Serbia), Isak Asiel (Rabbi of the Jewish Community), Samuel Vrbovsky (Bishop of the Slovak Evangelical Church), Árpád Dolinszky (Superintendent of the Christian Evangelical Church), Dr István Csete-Szemesi (Bishop of the Reformed Christian Church), Dr Porfirije Perić (Bishop of Jegar of the Serbian Orthodox Church), Muhamed Jusufspahić (Mufti of Belgrade of the Islamic Community of Serbia), Dr Aleksandar Raković (Coordinator of the Interreligious Council), Prof. Dr Ljubodrag Dimić (Faculty of Philosophy in Belgrade), ambassador Radomir Živković (Head of Department for South-East Asia in the Ministry of Foreign Affairs). Representative of the Serbian Orthodox Patriarch at the Interfaith Dialogue was Prof. Dr Radovan Bigović (Faculty of Orthodox Theology in Belgrade), while the Ministry of the Foreign Affairs named ambassador Vladislav Mladenović (Assistant Deputy Minister) to speak on the behalf of the Ministry of Foreign Affairs of the Republic of Serbia. **2.** Members of the Indonesian delegation: Andri Hadi (head of delegation), Dr Bahrul Hayat (Secretary General of the Ministry of Religious Affairs), ambassador Samuel Samson (Embassy of Indonesia in Belgrade), Prof. Dr Komaruddin Hidayat (Rector of the Islamic State University Syarif Hidayatullah in Jakarta), Prof. Dr I Made Titib (Rector of the Hindu Dharma Institute in Bali), Dr Margaretha Hendriks-Ririmase (Lecturer at the Moluccan Christian University of Indonesia in Ambon), Dr Heru Prakosa (Lecturer at the Sanata Dharma Institute of Philosophy in Yogyakarta), Adolfin Elizabeth Koamesakh (Orthodox Church of Indonesia), Zamardi (Political Counsellor at the Embassy of Indonesia in Belgrade), Abdul Fatah (Head of the Center for Interreligious Harmony at the Ministry of Religious Affairs), Trias Kuncahyono (Deputy Chief Editor of the Kompas Daily Newspapers), Dr Ferimeldi Muslim Kudi (Head of Division in the Center for Interreligious Harmony at the Ministry of Religious Affairs), Riaz Januar Putra Saehu (Deputy Director in the Directorate of Public Diplomacy at the Ministry of Foreign Affairs) and Elvis Napitupulu (Staff at the Directorate of Public Diplomacy at the Ministry of Foreign Affairs). – Names and further information from notes of Aleksandar Raković and book *1st Indonesia-Serbia Bilateral Interfaith Dialogue*, Belgrade 2011.

sub-themes: *Framing the Questions of Interfaith Dialogue: the Perspective of Serbia and Indonesia; The Role of Religious Communities in Promoting Mutual Respect, Understanding and Peace: Recognizing Common Concerns; Education: Establishing Civil Society and Interreligious Cooperation*. However, there were other topics of discussion: history of diplomatic relationships between Yugoslavia and Indonesia, economic and cultural cooperation of Yugoslavia and Indonesia and Serbia and Indonesia, the Non-Aligned Movement, the Sharia banking system in Indonesia.

First day of the Interfaith Dialogue was very successful. It showed that relationship of Belgrade and Jakarta still has emotional bond pulled from the time of fruitful Yugoslav-Indonesian cooperation.

Second Day (8 April). Before second part of the Interfaith Dialogue, the Indonesian delegation visited the National Assembly of the Republic of Serbia. Their hosts were Parliamentary group for Friendship with Indonesia led by MP Meho Omerović and the Deputy Chair of the National Assembly Gordana Čomić.¹⁸ During the meeting at the National Assembly, head of the Indonesian delegation Andri Hadi said that the Interfaith Dialogue with Serbia „was the best so far“ because „we had impression that we were speaking to entire Serbia“.¹⁹

The Interfaith Dialogue continued with official visit to the Islamic Community of Serbia. The Indonesian delegation and the Islamic Community of Serbia signed the Memorandum of Understanding between the Islamic State University Syarif Hidayatullah in Jakarta and the Faculty of Islamic Sciences in Belgrade. During this visit, Muslims in the Indonesian delegation and Muslims in the Serbian delegation held common prayer at the Bajrakli Mosque.

Furthermore, members of the Indonesian delegation were guests of Prof. Dr Branko Kovačević, Rector of the University of Belgrade. The Memorandum of Understanding between the Islamic State University Syarif Hidayatullah in Jakarta, the University of Belgrade and the Faculty of Orthodox Theology in Belgrade was signed at the Rectorate.

Finally, the Indonesian delegation visited the Faculty of Orthodox Theology, welcomed by Dean Prof. Dr Irinej Bulović. Members of the Indonesian delegation Prof. Dr Komaruddin Hidayat, Dr Margaretha Hendriks–Ririmase and Dr Heru Prakosa provided the lectures to professors and students of the Faculty of Orthodox Theology and students of the Faculty of Islamic Sciences. At the end, Apostolic Nuncio in Belgrade Orlando Antonini gave a speech at the very successful meeting hosted the Faculty of Orthodox Theology.²⁰

It is to be noticed that Yugoslav-Indonesian and Serbian-Indonesian friendship were underlined at all meetings during the second day of the Interfaith Dialogue.

Third Day (9 April). The Indonesian delegation were guests of Prince Aleksandar Karađorđević and Princess Katarina Karađorđević at the White Palace in Belgrade. After that, guests from Indonesia visited the House of Flowers (Mausoleum of Josip Broz Tito) and the Museum of Yugoslav History. It was a good chance for the Indonesian delegation to learn about Yugoslav history from creation of the Kingdom of Serbs, Croats and Slovenes (1918) to disintegration of the Socialist Federal Republic of Yugoslavia (1991).²¹

During the closing meeting at the Embassy of Indonesia, head of the Indonesian delegation Andri Hadi once more stressed that the Interfaith Dialogue Serbia – Indonesia was the best among all interfaith dialogues Indonesia had from 2004 to 2011.²² Two months later, President of the Republic of Serbia Boris Tadić said that Serbia “will cherish multicultural and interfaith dialogue”.²³

Success of the First Interfaith Dialogue Serbia – Indonesia gave basement for further interfaith cooperation between two countries. The Second Interfaith Dialogue Serbia – Indonesia (Indonesia – Serbia) is expected in spring of 2012.

¹⁸ Delegation of Indonesia in the National Assembly, Radio-Television of Serbia, 8 April 2011. – Present were also MPs Gabor Lodi and Zoran Antić.

¹⁹ Notes of Aleksandar Raković.

²⁰ Notes of Aleksandar Raković.

²¹ Notes of Aleksandar Raković.

²² Notes of Aleksandar Raković.

²³ *Politika* daily newspaper, 8 June 2011.

The First Interfaith Dialogue Serbia – Indonesia was a meeting of geographically distanced civilizations and cultures of two historically friendly countries. Both delegations highly evaluated the Interfaith Dialogue.

Indonesia has the fourth biggest population in the world and is a global leader in interfaith dialogues. Thus, Serbia cannot compare itself with Indonesia, but can see its leading regional role in interfaith dialogues.

Churches and religious communities in Serbia have constant, several decade long dialogues on religious and social topics. However, the Interfaith Dialogue with Indonesia first time gave possibility for creation of joint Serbian delegation composed by the most valuable persons from state and church and religious communities.

That fact the state, churches and religious communities can form joint interfaith delegation of the Republic of Serbia underlines that interreligious harmonization in Serbia was never stronger.

SESSION C4

FREE WILL IN A QUANTUM CONTEXT

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Abstract. Typically, *free will* is a philosophical and theological an issue. Modern cosmology also tempts to say its word in this regard. In this paper we point out that ‘free will’ is of interest for interpretation of quantum mechanics as a universally valid physical (nonrelativistic) theory. Our aim is not to quantify free will – this is an issue of modern quantum information theory. Our aim is to emphasize some consequences of the traditionally (perhaps somewhat superficially) understood free will in the context of a new, emerging interpretation of quantum mechanics.

Keywords: *free will, interpretation of quantum mechanics*

1. Introduction

Free will is an issue of philosophy and theology as well. Arguably, it is the very essence of the Christian religion and faith. Interestingly enough, in a couple of years it appeared as a physically describable and relevant an issue [1-6] (and the references therein). Not surprisingly, ‘free will’ can be physically *modeled* as a possibility for an experimenter to measure a quantum mechanical variable (observable) at his own *will* [1-3]. Furthermore, the opposite – i.e. inability freely to choose the measurement – compromises reproducibility of certain quantum-information protocols, such as the ‘quantum cryptography protocol’ [1-4]. In effect, the operationally defined free will (FW) can be quantified and thus placed in a purely physical context. In a somewhat different context, FW appears (arguably yet) as a foundational issue in modern cosmology [7,8] (and the references therein).

Of course, this does not mean that physics bears a lot (or anything) with the philosophy and theology of FW. Rather, modern quantum science aims at describing the human operational (experimental) *intentions* and the plans that can be realistically performed. Extrapolating this approach toward the more sophisticated philosophical/theological contexts is not an issue, yet (in our opinion) worth thinking.

In this paper we go in a specific direction. We do not quantify FW neither extrapolate the physical backgrounds of FW. We are particularly interested in the interpretation of quantum mechanics and we show the relevance of FW for a new, emerging interpretation of quantum mechanics [9,10]. Our considerations are speculative yet provocative.

2. Inadequacy of the Everett Interpretation of Quantum Mechanics

The above, quantum-mechanical model of FW is in agreement with the “traditional” wisdom: not only one is able to make a choice but also to acknowledge the consequences of the choice being made. In the physical context, this means that the experimenter is aware of the possible outcomes of the measurement and, on this basis, is able to plan the future actions – including the desired manipulations with the system.

This, however, does not seem to be quite in accordance with the Everett interpretation of quantum mechanics; that is with the so-called Many Worlds Interpretation (MWI) that introduces the ever-branching realistic parallel universes (the Everett worlds). Gisin emphasizes [1]:

“And there is a second, decisive, reason to reject the many-worlds view: it leaves no space for free will. I know that I enjoy free will much more than I know anything a-bout physics. Hence, physics will never be able to convince me that free will is an illusion. Quite the contrary, any physical hypothesis incompatible with free will is falsified by the most profound experience I have about free will.”

This positivistic psychological statement reveals a physical understanding of FW that will here be adopted. So, we adopt FW as a part of our positive experience that constitutes a part of our classical-physics world. Still, we will not enter any subtleties regarding the appearance or emergence of “classical world” from the quantum substrate.

Recently, a more severe, actually substantial objection on the validity of MWI has been raised [9]. Without entering any physical or technical details, we emphasize: *according to the universally valid quantum mechanics, the Everett worlds (the Everett “branches”) cannot split (or “branch”).* To be more specific: the Everett MWI may survive, as it seems, *only* if there is a privileged global (spatial) structure of the quantum Universe. In our opinion, however, a search for such a structure is not promising yet. For this reason we draw the following (a tentative?) conclusion: the Everett interpretation does not point out existence of the realistic semiclassical worlds (the “branches”) [9].

To this end, it is worth emphasizing: our argument (cf. Ref. [9] for more details) does not come from any of the standard objections (including the above Gisin’s objection) to MWI. The argument is quite simple and refers to the very basic (the original Everett’s) interpretational rule on the worlds splitting (or branching). The argument stems from the recently discovered “entanglement relativity”, which, in turn, is a corollary of the universally valid quantum mechanics. In effect, there are surprisingly non-numerous alternatives for saving MWI: (i) either (as emphasized above) there is a privileged (global) spatial structure of the Universe or (ii) the Everett worlds are not realistic; of course, the second alternative is not very interesting.

So, we dare to conclude [9]:

The universally valid quantum mechanics rejects the Everett interpretation of quantum mechanics.

3. Towards a New Interpretation

The problem with the above conclusion is a bit ironic. The Everett interpretation is widely accepted for *only one reason*: the Everett MWI seems to be the *simplest* possible interpretation of the *universally valid* quantum mechanics. This is the reason most of the people working in cosmology or in the foundations of the open quantum systems are inclined to adopt MWI, despite a number of the open problems such as the one exemplified by Gisin (cf. above).

Now, if the above conclusion is correct, one meets the following task: to answer or to design a new interpretation of the *universally valid* quantum mechanics. Certainly, this is a nontrivial task. To this end, the research is in progress. Nevertheless, some general notions are already at hand and we will briefly outline the basics.

Not surprisingly, our starting point is exactly where the Everett interpretation fails – the entanglement relativity. Entanglement relativity (ER) states [9]:

Every quantum state of the Universe can be differently written for the different spatial (global) structures of the Universe.

By “structure”, we assume the different formal degrees of freedom of the Universe. In descriptive terms: for the unique Universe, one can design the different sets of the “fundamental particles”. Every set of the “elementary particles” builds a corresponding structure of the Universe. [Designing a rule to choose or to distinguish only one set of the particles could lead to a choice of the preferred structure of the Universe and possibly to saving the Everett interpretation.]

The different structures are mutually linked by the proper so-called linear canonical transformations of the degrees of freedom providing the following simple rule:

All the alternative structures of the Universe are subject to one and only one physical time and are all subject to the same fundamental physical law-the Schrodinger law. All the structures share the same dynamics providing the unique quantum state of the universe in every instant of time, otherwise having nothing in common.

Then straightforwardly appears the following interpretation of quantum mechanics that is yet to be elaborated [10]:

Unless there is a privileged (global spatial) structure of the Universe, the universally valid quantum mechanics suggests simultaneous and mutually unconditioned quantum worlds (non-Everettian worlds) formally described by the different structures of the Universe. To the best of our knowledge, these worlds may be considered to be realistic and mutually equal, not yet necessarily equivalent.

4. The New (Non-Everettian) Parallel Quantum Worlds

The new interpretation is a natural “descendant” of the Everett MWI – both assume the universal validity of quantum mechanics. It is probably obvious: both interpretations call for the realistic, simultaneously existing and evolving in time quantum worlds. However, as distinct from the Everett MWI, the new-kind of the “parallel” quantum worlds are quite mutually incomparable. First, all the new (non-Everettian) worlds are just the facets of the one and the unique quantum Universe. Second, by their very definition, the new worlds are “composed” of the different “stuff” (the different elementary particles) yet sharing the same and the unique physical matter of the Universe. The new-worlds dynamics, albeit locally incomparable, are globally just the different facets of the one and the unique Schrodinger-law governing the quantum dynamics of the Universe. As a consequence, there are not the humans or the elementary particle as we know them in any of the alternative new worlds. Third, unless there is a privileged structure (a privileged “world”), the worlds are mutually equal – every world is a physical world such as the one we are hosted in. The local interactions induce the local consequences for every world – there is a quantum physics for every world. Fourth, these worlds are mutually unconditioned, in the following sense: any dynamical consequence in a world is fully unconditioned by any such a consequence in any other world – *except*, probably, if we take FW into account.

In the more descriptive terms: the new interpretation suggests the Universe *hosts* the simultaneously existing and causally (quantum-mechanically in parallel) evolving quantum worlds.

5. The ‘Ghostly’ Quantum Worlds

It is essential to note: dynamics of every (non-Everettian) world is uniquely determined by the Schrodinger law, i.e. by the Universe Hamiltonian. The different forms of the Hamiltonian for the different structures (i.e. for the different worlds) make the difference between the worlds. In an inanimate world, the whole dynamics would simply follow the local laws – the local interactions for that world; e.g., the Coulomb (bipartite) interaction for a pair of many-particle systems becomes a multi-particle interaction, not the Coulomb law as we know it – locally, in that world, our Coulomb law becomes an unexperienced-by-us a physical law. As the Schrodinger law is causal (unique quantum state for every instant of time, and reversible), there does not seem to be much room for any kind of “variety” for every world – the stochastic nature of the quantum evolution appears only on the local level, i.e. on the level of the subsystems (for every structure) of the Universe. To this end, the determinism equally refers to all the worlds (all the Universe structures) likewise for the classical-physics world.

However, if we take FW into account, the physical picture changes.

Here, we consider FW as emphasized above still with the following “constraint”: *the acts of FW can be distinguished from the “spontaneous” physical acts/dynamics and events.* While we do not dwell on proving this conjecture, we believe it appears (at least intuitively) quite acceptable, and we follow its consequences.

Let us consider a general experimental scheme in our world. An experimenter takes a piece of a material and prepares it e.g. as a source of atoms. He fires the atoms towards a target. Due to the universally valid quantum mechanics, the atomic beam inevitably quantum-mechanically entangles with the target particles. In effect, the

quantum state of our world is locally changed due to the appearance of a new entanglement in the Universe quantum state. Of course, the appearance of entanglement is *intentional* – it is a part of the experiment that changes virtually nothing else in our world.

However, from the other worlds' perspective, this act and the following state change is not spontaneous, nor planned or expected. Furthermore, for certain worlds, this may produce the global change in the quantum state for these worlds. And this change “comes from nowhere” – not governed by the local physical laws. It seems that the intelligent observers, if aware of this change, might be not only surprised but may also consider this change locally “nonphysical”, “ghostly”.

As the worlds are considered mutually equal, everything told equally applies to the inverse direction – the acts of free will of the experimenters in an alternative world might seem physically un-explainable for us – the effects bearing seemingly a ‘non-physical’ origin.

It is important to notice: it seems that nothing in these considerations leads to a contradiction either with physics or with our everyday experience. So, we are not reporting on a new “paradox” or a “problem”. We just speculate on one possible consequence of “free will” in the new interpretational context. As it is probably obvious, the difference is brought by the nonspontaneous acts of free will, that seem worth of further speculation.

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**QUANTUM INFORMATION SELF-ORGANIZATION AND CONSCIOUSNESS:
A HOLOINFORMATIONAL MODEL OF CONSCIOUSNESS
Homage to Sir John Eccles, Nobel Prize in Medicine**

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Abstract. The author proposes a holoinformational view of consciousness based on the holonomic theory of brain function and quantum brain dynamics developed by Karl Pribram, Sir John Eccles, Hameroff, Jibu and Yasue, and on the quantum-holographic and holomovement theory of David Bohm. This conceptual framework is integrated into the non-local information property of the Quantum Field Theory of Umesawa, to the concept of negentropy, order, and organization developed by Shannon, Wiener, Szilard and Brillouin, and to the theories of self-organization and complexity of Prigogine, Atlan, Jantsch and Kauffman. Wheeler's "it from bit" concept of a *participatory* universe, and the developments of the physics of information made by Zurek and others with the concepts of statistical entropy and algorithmic entropy, related to the number of bits being processed in the mind of the observer, are also considered. This new synthesis gives a self-organizing quantum non-local informational basis for a new model of consciousness in a participatory universe. In this synthesis, consciousness is conceived as a meaningful quantum non-local information interconnecting the brain and the cosmos, by a holoinformational field (a field at the same time non-local holistic (quantum) and local (Newtonian)). We propose that we are this very non-local quantum-holographic cosmos that manifests itself through our consciousness, interconnecting in a participatory holistic and indivisible way the human brain to all levels of the self-organizing holographic multiverse.

Keywords: *holoinformational model of consciousness, quantum information, non-locality, self-organization, medicine, transpersonal psychology*

1. Introduction

*"The Tao obscures when we only see small
fragments of the existence"*

Chuang-Tzu

Models that try to explain the nature of consciousness, generally share the Cartesian-Newtonian paradigm by insisting on an approach exclusively reductionist. This reductionism has been impairing the grasp of the true essence of what consciousness is since the seventeenth century. Hameroff [1] believes that such dispute "*may potentially be resolved by views which contend that consciousness has a distinct quality, but one which emerges from brain processes which can be accounted for by natural science*". As a solution he proposes a consciousness model based upon the emergence of quantum coherence in neural microtubules, which he developed with Penrose [2]. These models use a traditional interpretation of quantum mechanics, and as Clarke [3] shows, "*start from a basically quantum-mechanical position but then impose modifications of the quantum formalism so as to ensure that the net result is basically Newtonian ... Strong emphasis is placed on the wave function as the fundamental object of quantum theory and a "collapse" is invoked to pass to a Newtonian picture. As a result, they are very firmly bound to a spatial picture.*" By transforming the quantum logic into a Newtonian logic, they leave aside the non-locality function that is quantum logic's essence, and the universe's fundamental property -

and, as we shall see, also consciousness fundamental property that links us to the Universe. Wilber [4] considers that an integral theory of consciousness should embody all the essential characteristics of the main schools that study consciousness, *“not as an eclecticism but rather a tightly integrated approach that follows intrinsically from the holonic nature of the Cosmos”*. Such holonic nature of the Cosmos is based upon the self-organizing holoarchy described by Jantsch [5] that correlates the co-evolutionary interactions amongst the microevolution of the holons described by Koestler [6], to the macroevolution of its collective/social forms. Wilber’s theory, however, leaves open what we consider the key point in the understanding of consciousness, that is, the way by which information, order, negentropy, are transmitted amongst the infinite levels of organization of the cosmic-brain holoarchy, giving meaning to them. This common ground capable of integrating consciousness and Cosmos in an ordered and indivisible whole, can only be fulfilled by a holoinformational (Newtonian local information + quantum non-local information), model of consciousness that connects the universe’s non-local quantum-holographic informational structure with the brain’s non-local informational quantum-holographic fields and also with the classic local neural networks of the brain, I have already described elsewhere [7-10]. Also this holoinformational model to operate in a deterministic Cosmos has to be compatible with Einstein’s theory of relativity.

Wheeler [11] realized how important information is in such context. With his genius, Wheeler describes an elegant information-participatory Universe that is the most brilliant and fundamental model of interaction brain-mind and Cosmos ever described in the science of consciousness. With his famous “the it from bit” concept he unite quantum information theory to consciousness and physics: *“...every it - every particle, every field of force, even the space-time continuum itself - derives its function, its very existence, entirely - even if in some contexts, indirectly - from the apparatus-elicited answers to yes-or-no questions, binary choices, bits”*. *“It from bit symbolizes the idea that every item of the physical world has at bottom – at a very deep bottom, in most instances – an immaterial source and explanation; that which we call reality arises in the last analysis from the posing of yes-no question and the registering of equipment-evoked responses; in short, that all things physical are information-theoretic in origin and this is a participatory universe”*. In the same paper Wheeler [11] gives the example of a photon being detected by a photodetector under watch, when we ask the yes-or-no question: *“Did the counter register a click during the specified second?”*. *If yes, we often say “a photon did it”*. *We know perfectly well that the photon existed neither before the emission nor after the detection. However, we also have to recognize that any talk of the photon “existing” during the intermediate period is only a blown-up version of the raw fact, a count. The yes or no that is recorded constitutes an unsplitable bit of information”*.

2. Order Information Self-Organization and Negentropy

A more wide conception of order, organization, information and negentropy that goes beyond the classical works of Wiener [12], Shannon [13], Szilard and Brillouin [14] is essential for the development of our holoinformational model capable of integrating consciousness to nature. Leon Brillouin, in his famous theorem, showed the equivalence between information and negentropy. Norbert Wiener put this identity on the very conceptual basis of cybernetics stating that *“information represents negative entropy”*, and prophetically for the first time in the history of science emphasizing that *“information is information, not matter or energy”*. Chalmers [15] states that information is an essential property of reality, as matter and energy, and that *“conscious experience must be considered a fundamental feature, irreducible to anything more basic”*. Bateson [16] defines information as *“the difference that makes a difference”*, a conception that Chalmers [17] retakes stating that this is *“the natural way to make the connection between physical systems and informational states”*. The equivalence/identity between order, negentropy and information, is the way that allows us to build upon and understand the whole irreducible and natural flow of order transmission in the universe, organized in a meaningful and intelligent informational mode. In the classical thermodynamic theory, the definition of order is probabilistic and dependent on the entropy concept, which measures the degree of disorder of a system, reducing to uncertainty the immense dimension of natural meanings. For Atlan [18,19], as well as for Di Biase [20-22], *“entropy shouldn’t be understood as a disorder measure, but much more as a measure of complexity”*. In order to do this, it is necessary to consider that the notion of information implies a certain ambiguity, meaning the bit

capacity of a physical system as Shannon put it, or the semantic content (meaning) conducted by the bits during a communication. In the information theory, the organization, the order expressed by the amount of information in the system (Shannon's H function) is the information measure that is missing to us, the uncertainty about the system. Relating this uncertainty, this ambiguity to the variety and the non-homogeneity of the system, Atlan could solve certain logical paradoxes of self-organization and complexity, widening Shannon's theory and defining organization in a quantitatively formal mode. Atlan showed that the system's order corresponds to a commitment between the maximum informational content (i.e. the maximum variety) and the maximum redundancy, and showed also that the ambiguity can be described as a noise function, or even a time one, if we consider the time effects as related to the random factors accumulated by the environment's action. Such ambiguity, peculiar to self-organizing systems, can be manifested in a negative way ("*destructive ambiguity*") with the classical meaning of disorganizing effect, or in a positive way ("*autonomy producer ambiguity*") that acts by increasing the relative autonomy of a part of the system in relation to the others, that is reducing the system's natural redundancy and increasing its informational content. Atlan developed this self-organizing theory of complexity for biological systems. Jantsch [5] studying the evolution of the universe, showed that cosmological evolution is also a self-organizing process, with the microevolution of the individual systems (holons) co-evolving towards macrosystemic collective structures better organized, with a big reduction in the amount of these collective systems. This whole self-organizing process represents, actually, universal expression of a bigger acquisition of variety or informational content that, as Atlan demonstrated, is a consequence of a reduction of redundancy in the totality of the system.

3. Information and Dissipative Structures

Ilya Prigogine [23,24] Nobel Prize winner, developed an extension of thermodynamics that shows how the second law can also allow the emergence of novel structures, and indicates the ways in which order can emerge from chaos. This type of self-organization generates dissipative structures that are created and maintained through the energy's exchanges with the environment in non-equilibrium conditions. These dissipative structures are dependent upon a new order, called by Prigogine "*order from fluctuations*", which corresponds to a "*giant fluctuation*" stabilized by the exchanges with the environment. In these self-organizing processes the structure is maintained through an energy-information dissipation that displaces itself, simultaneously generating (*informating*) the structure through a continuous process. The more complex the dissipative structure, the more information is needed to keep its interconnections, making it consequently more vulnerable to the internal fluctuations, which means a higher instability potential and higher reorganization possibilities. If fluctuations are small, the system accommodates them and does not change its organizational structure. If the fluctuations reach a critical size, however, they cause disequilibrium in the system, generating new intra-systemic interactions and reorganization. "*The old patterns interact between themselves in new ways, and establish new connections. The parts reorganize themselves in a new whole. The system reaches a higher order*" [24].

4. Consciousness Self-Organization and Information

Seager [25] states that consciousness, self-organization and information are connected at the level of semantic significance, not at the level of "bit capacity", and that "*as the classical theory of information is situated at the level of "bit capacity" it would seem unable to provide the proper connection to consciousness*"...and "*we can begin to move towards a more radical view of the fundamental nature of consciousness with a move towards a more radical view of information*". Seager still reminds us that in the famous two-slit experiment, and in the quantum eraser experiment, what is at stake is not the bit capacity, but the semantically significant correlation of *information laden* distinct physical systems, in a non-causal mode.

Chalmers [15] argues that each informational state has two different aspects, one as conscious experience, and the other as a physical process in the brain, that is, one internal/intentional and the other external/physical. This view finds support in the present developments of the so-called "information physics", developed by the physician Wojciech Zurek [26] and others, that propose that the physical entropy would be a combination of two

magnitudes that compensate each other: the observer's ignorance, measured by Shannon's statistical entropy, and the disorder degree of the observed system, measured by the algorithmic entropy which is the smallest number of bits needed to register it in the memory. During the measurement, the observer's ignorance is reduced, as a result of the increase in bit numbers in its memory, remaining, however, constant the sum of these two magnitudes, that is, the physical entropy.

In this informational view of the universe, the observer remains included as part of the system, and the quantum universe changes because the observer's mind unleashed a transfer of information at a subatomic level. From this all results a *Law of Conservation of Information*, as well as or more fundamental than the law of conservation of energy.

Also Stonier [27,28] identifies information with the structure and organization of the universe, arguing that information is the *cosmic organizational principle* with a "status" equal to matter and energy.

In this holoinformational view I propose that what self-organizes significantly the cosmic evolution is the relationship between the physical entropy and the universe's quantum-holographic informational content, through a process in which the complexity using the pre-existing informational content reaches each time higher organizational levels and variety. In this way, complexity in the universe grows gradually, from gravity and nuclear powers, intensifies with the emergence of the self-organizing macromolecular systems of the biosphere, and reaches an almost infinite antientropic state of complexity, variety and informational content with the emergence of the noosphere with its quantum-holographic neural networks conscience. As we shall see soon ahead, there is a quantum holographic physical theory of the universe that has implicit in its conceptual framework, besides the mechanistic local interactions, a non-local quantum informational unfolding, that self-organizes matter, life and consciousness in a meaningful way.

5. Transpersonal Consciousness

Consciousness' as non-local information and something essential, primary and irreducible as we are proposing, is also found in the consciousness maps obtained from thousands of very consistent and converging psychotherapeutics experiences reports, observed by several researchers of the medical and psychological areas like Di Biase [22,29-31], Jung [32], Grof [33], Moody Jr. [34], Ring [35], Sabom [36], Kubler-Ross [37], Weiss [38]. These researches with persons submitted to altered states of consciousness, through various methods, like hypnosis, relaxation, meditation, holotropic breathing, near-to-death experiences, etc. Surprisingly, such maps reveal "*an ontology and a cosmology in which consciousness cannot originate from, or be explained in terms of any other thing. It is a primordial factor of existence and from it emerges everything that exist*" as states Grof, in Capra [39]. The replication of these numerous clinical observations by researchers of notorious scientific reputation are extremely important data, many times despised. It consistently prove an irreducibility of consciousness, being one of the few non-philosophical, non-religious and non-physical ways that allow us to investigate and understand directly, *in totum*, the consciousness phenomenon, in a controlled clinical scientific way. Presently, there are available a series of psychotechnologies that are usually ignored and/or marginalized by the academic community, which allow us to use the human mind as a reliable system of investigation and elucidation of the nature of consciousness, that are possible of replication an corroboration. I also emphasize here the numerous philosophical psycho-spiritual systems that during the history of humanity have been exploring through meditation and others psychotechnologies the nature of consciousness, having described a vast and systematized *cannon* of experiential knowledge and wisdom about consciousness (see for instance the interface between Buddhism and Neuroscience that is being studied by western neuroscientists with the Dalai Lama and buddhist *scholars* at the Mind and Life Institute).

6. Nature, Information and Consciousness

We understand like Weil [40] that "*intelligence's nature is nature's intelligence*" and like Atkins [41] that "*consciousness is emergent information itself at the moment of its generation, ongoing, self-organizing change in a self/world model*". It follows that only a holoinformational and self-organizing theory, capable of integrating

intelligence and consciousness to the non-local quantum-informational tessitura of the universe, can solve the question of consciousness nature. Fortunately, there is a quantum theory of the universe that integrates consciousness as an irreducible dimension of nature in its conceitual framework. Nevertheless, this theory has been inexplicably considered in a insufficient way by the scientific world, going unnoticed its revolutionary implications about the consciousness-universe interaction. It is the quantum-holographic theory of the holomovement developed by the physicist David Bohm [42] that mathematically demonstrates the existence of a hidden, spectral, implicit order in the universe, that is a primary reality. Matter, life and consciousness (the explicate order), would originate from this common ground (the implicate order) by means of a continuous movement of unfolding and enfolding of the cosmos called holomovement. Bohm [43] states that *“in the implicate order everything is folded into everything. But it’s important to note here that the whole universe, is in principle enfolded into each part actively through the holomovement, as well as the parts. Now this means that the dynamic activity - internal and external - which is fundamental for what each part is, is based on its enfoldment of all the rest, including the whole universe. But of course, each part may unfold others in different degrees and ways. That is, they are not all enfolded equally in each part. But the basic principle of enfoldment in the whole, is not thereby denied. Therefore enfoldment is not merely superficial or passive but, I emphasize again, that each part is in a fundamental sense internally related in its basic activities to the whole and to all the other parts. The mechanistic idea of external relation as fundamental, is therefore denied. Of course such relationships are still considered to be real, but of secondary significance. That is, we can get approximations to a mechanistic behavior out of this. That is to say, the order of the world, as a structure of things that is basically external to each other, comes as secondary and emerges from the deeper implicate order”*. So, we can say that we live in a quantum-holographic universe in which reality is essentially non-local, and the classical Newtonian world with its external local interactions, emerges as a special case from this deeper quantum order. According to Bohm [44], the analogy with the hologram in which each part of the system is an image of the total object, even if it is a static image that does not transmit the ever dynamic nature of the infinite unfolding and enfolding which at each moment create our universe, is a functional metaphor, because *“the mathematical laws of the quantum theory that apply to these waves, and therefore to all matter, can be seen to describe just such a movement in which there is a continual enfoldment of the whole into each region, along with the unfoldment of each region into the whole again. Although this may take many particular forms - some known, and others not yet known - this movement is universal as far as we know”*. This universal movement of enfoldment and unfoldment is Bohm’s “holomovement”. Bohm states - *and this is of supreme importance* - that these laws are also capable of being compatible with the theory of relativity, and therefore the implicate order is able to have support from the two most fundamental theories of modern physics, the theory of relativity and the quantum theory. In a posterior development, Bohm [44] postulated the existence of a superimplicate order, a still more subtle dimension of the universe’s organization. In this model, a quantum superinformation field of the totality of the universe would organize the implicate first level in multiple wave-like structures which would unfold in the explicate order. According to Bohm [see Weber, 45] *“there is a physical model developed by De Broglie that proposes a new type of field, which activity is dependent upon the information content that is conducted to the whole experimental field, which, if extended to the quantum mechanics, results in the superimplicate order”*. This De Broglie-Bohm *information field* is the non-local informational field that can interact with the brain’s non-local quantum-holographic fields. As we will see latter, these non-local fields can, through quantum coherence and superradiance in microtubules and synapses, and trough Bose-Einstein condensates and Fröhlich effect in water molecules of the CSF, generate local fields in brain’s neural network. That is the basis of our holoinformational field concept.

7. Consciousness and Non-Locality

Adding to its equations a Quantum Potential that satisfies Schrödinger’s equation, that depends on the form but not on the amplitude of the wave function, Bohm [44] developed a model in which the quantum potential, carries *“active information”* that *“guides”* the particle along its way. The quantum potential has inedited characteristics unknown up to then, because differently from the other nature’s forces, it is subtle in its form, and

does not decay with the distance. Such interpretation allows communication between this “pilot wave” and the particle, to be processed in a higher speed than the light, unveiling the quantum paradox of non-locality [46], i.e., of the instantaneous causality, fundamental in the holoinformational view of consciousness. In 1982, Alain Aspect and col. experimentally proved the existence of non-local actions, and more recently, in July 1997 Nicolas Gisin and col. (cf. Science, vol. 277, pg. 481 [47]) proved the existence of this non-local quantum informational instantaneous action in large scale.

For Bohm, differently from Bohr, the elementary particles do not have dual nature wave/particle but are particles all the time, and not only when observed. Actually, the particle originates from a global quantum field fluctuation, being its behavior determined by the quantum potential “*that carries information about the environment of the quantum particle and thus informs and affects its motion. Since the information in the potential is very detailed, the resulting trajectory is so extremely complex that it appears chaotic or indeterminist*” [48]. Any attempt of measuring particles properties, changes the quantum potential, destroying its information. Actually, according to Bohm, Bohr had interpreted the uncertainty principle as meaning “not that there is uncertainty, but that there is an inherent ambiguity” in a quantum system [see Horgan, 49]. As John Bell [50] observed, “*the De Broglie-Bohm’s idea seems... so natural and simple, to resolve the wave-particle, dilemma in such a clear and ordinary way, that it is a great mystery... that it was so generally ignored*”.

In the quantum-holographic theory, as Bohm [45] put it, *no field organized the implicate order, and it was consequently linear and difficult to unfold. The implicate order is a wave function, and the superimplicate order or superior informational field, is a function of the wave function, i.e. a superwave function that makes the implicate order non-linear organizing it in complex and relatively stable structures. Besides that, the holographic model as a way of organization of the implicate order was dependent upon the quantum informational potential field, that did not have capacity for self-organization and transmission of the information, essential for the understanding of the genesis and development of matter, life and consciousness. The superimplicate order fills this need, allowing the understanding of consciousness, energy and matter as expression varieties of a same informational order. As a result consciousness would already have been present since the beginning of creation in the various levels of nature’s unfolding and enfolding.*

“*Even a stone is in some way alive*” states Bohm.

8. Towards a Holoinformational Model of Consciousness

The quantum potential guides by means of active information the particle alongside its course. As any elementary particle is united to the whole cosmos by means of a non-local quantum potential capable of changing the structure of the universe, information then starts to be understood as nature’s fundamental process. This active non-local information that organizes the particle’s world reveal that the whole nature is informational, organized in a meaningful way. In the brain, this means that informational process is at the same time non-local quantum holistic and local classical Newtonian and mechanistic i.e. holoinformational. This is crucial to understand the holoinformational nature of consciousness and intelligence in the universe. Matter, life and consciousness are meaningful activities, intelligent quantum-informational processes, order transmitted through the cosmic evolution, originated from a generating informational field beyond our perception limits. A universe full of quantum potential and meaningful activity, is an intelligent universe *functioning like a mind*, as Sir James Jeans already had observed. So, as consciousness has always been present in all nature’s levels of organization, matter, life and consciousness cannot be considered as separated entities, capable of being analyzed under a fragmentary Cartesian-Newtonian framework. Actually, it must be considered as an indivisible unity, with quantum informational processes interacting by means of non-local holistic relationships, and simultaneously by local Newtonian mechanistic relationships, generating self-organization, complexity intelligence and evolution. Such view of a holoinformational intelligent “continuum”, a fundamental generating order with a quantum-holographic informational creative flow permeating the whole cosmos, permits to understand the basic nature of the universe as an intelligent self-organizing unbroken wholeness, i.e. a *cosmic consciousness*. A kind of universal consciousness unfolded in an infinite holoarchy. As a quantum-holographic system this universal consciousness is distributed in every part of the cosmosphere, and each part of this holosphere contains the

information of the whole cosmos in a holistic indivisible way. Quantum-informational fluctuations generated from this universal consciousness through the holomovement (a non-local holoflux) self-organize the universe's basic informational levels:

- The *Cosmosphere* with the *Nuclear Code* that organizes energy and matter. It is the physical level and information is stored in atomic structures.

- The *Biosphere* with the *Genetic Code* that organizes life. It is the biological level and information is stored in the DNA molecules.

- The *Noosphere* with the *Neural Code* that organizes the brain and mind. It is the psycho-social level and information is stored in neural networks

- The *Technosphere* with *Artificial Intelligence Codes*. It is the technology level and information is stored in hardware and software designs

- The *Holosphere* with the *Quantum-Holographic Code*. It is the consciousness level that organizes the interconnectivity between the mind and the universe. Spiritual level. Information is stored in quantum-holographic networks of the brain and the cosmos. This religation (latin *religare* and english *religion*) between us and the universe connects us with our primordial source, and has been described in a symbolic way in all humanity religious metaphors like “*the father is within us*”; “*as above so below*”; “*as in earth so in heavens*”, or the beautiful buddist metaphor of the Indra network . Such informational codes, this order that is transmitted in a meaningful and intelligent way through all levels of complexity of the universe, is the negentropic self-organization nature of the information-consciousness, an irreducible physical dimension of the cosmos as energy and matter.

9. Quantum Brain Dynamics

Experimental research developed by Pribram and other consciousness researchers like Hameroff [1] and Penrose [2], Jibu and Yassue [51], and Ho [52] confirm the existence of a Quantum Brain Dynamics in neural microtubules, in synapses and in the molecular organization of the cerebrospinal fluid. This Quantum Brain Dynamics can generate Bose-Einstein condensates and the Fröhlich effect. Bose-Einstein condensates consist of atomic particles, or in the case of the Fröhlich effect of biological molecules, that can assume a high level of coherent alignment, functioning as a highly ordered and unified informational state, as seen in lasers and superconductivity. Eccles's psychons operate on synapses by way of quantum coherence processes. These quantum dynamics show us that the interaction process between dendrons and psychons are not limited to the synaptic cleft, as stated by Eccles, but have a much wider embodiment throughout the whole brain, and as some researchers (see Popp), are saying, also throughout the whole body. Ho [52] has been demonstrating that “*Highly polarized multiple layers of liquid crystalline water molecules form dynamically coherent units with the macromolecules, enabling them to function as quantum molecular energy machines that transform and transfer energy with close to 100 percent efficiency. This liquid crystalline continuum of intimately associated polarized water and macromolecules extends throughout the extracellular matrix into the interior of every single cell, enabling each cell, ultimately each molecule, to intercommunicate with every other*”. Pribram [53,54] demonstrates good evidence that Eccle's dendrons make up receptive fields in cortical sensory units. Dendrons are composed of pre-synaptic teledendrons, synapses and post-synaptic dendrites, and they compose the fine fiber structure wherein brain processing occurs. As Pribram states [55], “*as sensory generated receptive fields they can be mapped in terms of wavelets, or wavelet-like patterns such as Gabor Elementary Functions. Dennis Gabor (1946) called these units Quanta of Information. The reason for this name is that Gabor used the same mathematics to describe his units as had Heisenberg in describing the units of quantum microphysics. Here they define the unit structure of processes occurring in the material brain*”. I see this quantum holographic interactions not as a contradiction but as a natural extension [1,10,22,31] of Eccles ideas of an interactionism between dendrons and psychons [56-61].

Dejan Rakovic from Serbia, points out how *Quantum-Holographic and Classically-Reduced Neural Networks can model psychosomatic functions* [62]: “*The prevailing scientific paradigm considers information processing within the central nervous system as occurring through hierarchically organized and interconnected*

neural networks. However, it seems that this hierarchy of biological neural networks is going down sub-cellular cytoskeleton level, being according to some scientists a kind of interface between neural and quantum levels. At the same time it appeared, within the Feynman propagator version of the Schrödinger equation, that the quantum level is described by analogous mathematical formalism as Hopfield-like quantum-holographic associative neural network. The mentioned analogy opens additional fundamental question as to how the quantum parallel processing level gives rise to classical parallel processing level, which is a general problem of the relationship between quantum and classical levels within the quantum decoherence theory as well. The same question is closely related to the fundamental nature of consciousness, whose in-deterministic manifestations of free will and other holistic manifestations of consciousness like transitional states of consciousness, altered states of consciousness, and consciousness pervading body – necessarily imply that some manifestations of consciousness must have deeper quantum origin, with significant psychosomatic implications”.

I expanded my conjecture that the interconnectedness between brain and cosmos is an instantaneous holistic nonlocal connection and proposed the concept of a holoinformational flux, from which both mind and matter are in-formed, that resembles Bohm’s holomovement. But in this new concept, quantum holographic brain dynamic patterns are conceived as an active part of the universal quantum-holographic informational field, and capable of generating an informational interconnection that is simultaneously nonlocal quantum-holistic (mind-cosmos holographic connection), and local Newtonian-mechanistic (brain-mind neural networks connections), i.e., holoinformational. Taking yet in consideration the basic mathematical property of holographic systems in which the information of the whole system is distributed in each part of the system, plus Bohm’s holographic quantum physics data, and the experimental data of the holonomic theory of Pribram, we propose that this universal interconnectedness [9,10,31] could permit us to access all the information coded in the wave interference patterns existing in all the universe since its origin [7,21,29,30]. This quantum-holoinformational nature of the universe interconnects each part, each brain-mind-consciousness, with all the quantum information stored in the holographic patterns distributed in the whole cosmos, in an indivisible irreducible informational cosmic unity [9,10,31,42,44,45].

10. Consciousness and the Human Mind

The cybernetic networks of cyclical hierarchical relations through which we try to characterize life and consciousness, interrelate themselves in a multilevel dynamic of “*hypercycles*” [63], organizing in “*self-cathalitic*” cycles [32,55] in the “*edge of chaos*” [64]. Self-cathalitic cycles can organize in higher levels, by means of cathalitic hypercycles, (e.g. a virus) capable of evolving to more complex and more efficient structures, until the “*emergence of sets, of sets of... of sets of neurons*” [65]. In this way, the network generate “*creative loops*” [51] and “*hyperstructures*” [66] integrating themselves in systems with patterns of connectivity distributed and parallels, as the “*Global Workspace*” [67] and the “*Extended Reticular-Thalamic Activation System*”-ERTAS [68].

Dynamic non-linear systems like the human brain, with all these “neural correlates of consciousness” are generated not only by such complexifications of matter’s mechanistic external relations, but as we already saw, also as a prime reason by an harmonic unfolding of an indivisible universal holoinformational field. This quantum-holographic intelligent self-organizing field, is self-referred and continuously creates (unfolds) and recreates itself as a holographic distributed medium, and goes on experiencing continuously new possibilities of existence and non-existence, in an eternal and ever new unfolding-enfolding cycle. The “*self-consistent non big bang cosmology*” of Prigogine-Geheniau et al., describes the main features of this multi-cyclic learning scenario in which the cosmic evolution is the result of an interaction between the quantum vacuum (a *plenum*) and the particles of matter that are synthesized in it. Laszlo [69] adds to this scenario “*the postulate according to which the quantum vacuum is the fifth universal field interacting with matter*” stating that “*the field acts as a holographic medium, registering and conserving the scalar wave-transform of the 3n-dimensional configuration spaces assumed by matter in space*” (pp. 204).

This universal fifth field is not inferred from space-time interactions like the gravitational, the electromagnetic, the strong and the weak nuclear forces. In this new type of field, space and time become

implicate, enfolded, as described mathematically by Bohm, in a spectral and holographic organized medium, made of the energy present in the interference patterns of the waveforms. The transformations from space-time order to this spectrum dimension are described by holographic mathematical formulations. This type of formulations was first described by Leibniz that created the conception of monads. Dennis Gabor in last century described the mathematical principles of holography and defined a quantum of information he named *logon*, a channel which can carry a unity of communication with the least amount of uncertainty.

11. Quantum-Holographic Neural Network Fields

Pribram in his Holonomic Brain Theory [53-55,70-72] proposes that there is a holographic process of information treatment, he named *multiplex neural hologram* distributed by the whole brain's cortex, dependent of neurons of local circuit that do not show long fibers and do not transmit the common nervous impulses. "*They are neurons that work in undulatory way, and are overall responsible for the horizontal connections of the neural tissue's layers, connections in which holographicoides interference patterns can be built*" [53]. He describes a "*neural wave equation*" [54] resulting from the workings of the brain's neural networks, similar to the Schrödinger wave equation of the quantum theory.

Pribram has also demonstrated that hiperstimulation of the frontolimbic brain allows primates including humans to operate in a holistic, holographic-like mode. The electric excitation of these brain areas relaxes the Gaussian constraints, as Laszlo put it. "*While during ordinary levels of excitation of the frontolimbic system the signal processing creates the usual narrative consciousness, when the excitation of this system exceeds a certain threshold, conscious experience is dominated by unconstrained holographic processes. The result is timeless, spaceless, causeless, 'oceanic' sensation*". In these states the nervous system becomes, '*attuned to the holographic aspects of - the holograph-like order- in the universe*' [69]. Electroencephalographic and brain mapping studies made during altered states of consciousness as meditation, prayer, and others brain-mind relaxation techniques, shows a high synchronization of the brain waves as if all the neurons of all brain centers were all playing the same symphony. In this highly synchronized states of consciousness the holographic brain treatment of information is optimized facilitating the interaction of the quantum-holographic brain network with the quantum holographic cosmic network [8,29].

Pribram have demonstrated that the receptor field of the cortical neurons reacts selectively to multiples sensorial modes making the harmony curves of adjacent receptors fields to mix as in a piano. In this way the harmony field of the cortex originates a resonance as a string instrument. The mathematical formulations that describes the resulting harmony curve are the Fourier transformations that Gabor applied in the creation of the hologram enriching these transformations with a model that can be reconstructed by the application of the inverse process. That holographic organization is what Bohm calls implicate order, a model that includes space and time in its structure as an enfolded dimension. Functioning in this holograph mode our brain "mathematically builds the objective reality" interpreting frequencies originally from a spectral dimension, a fundamental order, a informational field located beyond time and space.

12. Eccles Interactive Dualism and Pribram's Monism

Sir John Eccles described in the brain fine fibers structures he called dendrons composed of pre-synaptic teledendrons, synapses and post-synaptic dendrites connections, that he postulated could interact with the mind side of the interaction by way of units he called psychons. He proposed that these psychons could operate on synapses through quantum processes, and with Beck developed a beautiful and logical quantum interpretation of the synaptic function. Pribram [54] demonstrated that Eccles' dendrons make up receptive fields in cortical sensory units, that "*as sensory receptive fields they can be mapped in terms of wavelets, or wavelet-like patterns such as Gabor Elementary Functions. Dennis Gabor (1946) called these units Quanta of Information. The reason for this name is that Gabor used the same mathematics to describe his units as had Heisenberg in describing the units of quantum microphysics. Here they define the unity structure of processes occurring in the material brain. However, Gabor invented his function, not to describe brain processes, but to find the maximum*

compressibility of a telephone message that could be sent over the Atlantic Cable without destroying its intelligibility. The Gabor function thus describes both a unit of brain processing and a unit of communication. Brain is material, communication is mental. The same mathematical formulation describes both. The elementary structure of processing in Eccles' material dendron is identical to the elementary structure of processing of a mental (communication) psychon. There is a structural identity to the dual interactive process.

To summarize: The structural identity between a material brain process and a mental communication process is provided by the Gabor "wavelet". The wavelet instantiates and accounts for the dual interactive process that Eccles and Popper are promoting. Eccles places the interaction within the synapse. This is not contradicted by the emphasis on the receptive field properties of the fine fibered pre and post-synaptic arbors except that the interaction is not limited to the synaptic cleft. Fine fibered membranes are also involved (Jibu and Yasue 1995). This extension overcomes two problems: There is no need to have ineffable, undefined mental processes acting on the synapse; and the energetics involved are brought into the realm of ordinary science.

Pribram proposes a monistic basis for Eccles dualism, showing that *there is a interactive mind/matter duality that is a "ground" from which both matter and mind are "formed" and the "dual" emerges.* That ground functions as a potential reality similar to Heisenberg potential world. *"This flux provides the ontological roots from which our experience regarding matter as well as mind (psychological processing) itself become actualized in spacetime".* To illuminate this claim, Pribram relates the following story: *"Once, Eugene Wigner remarked that in quantum physics we no longer have observables (invariants) but only observations. Tongue in cheek I asked whether that meant that quantum physics is really psychology, expecting a gruff reply to my sassiness. Instead, Wigner beamed a happy smile of understanding and replied, "yes, yes, that's exactly correct". If indeed one wants to take the reductive path, one ends up with psychology, not particles. In fact, it is a psychological process, mathematics, which describes the relationships that organize matter. In a non-trivial sense current physics is rooted in both matter and mind. Communication depends on being embodied, instantiated in some sort of material medium. This convergence of matter on mind, and of mind on matter, gives credence to their common ontological root. My claim is that this root, though constrained by measures in spacetime, needs a more fundamental order, a potential order that underlies and transcends spacetime. The spectral basis of both matter and communication portrayed by the Fourier relationship delineate this claim.*

As the brain has the capacity of function in the holographic non-local mode as in the space-temporal local mode, we think that we are dealing here with Bohr's concept of complementarity in the quantum functioning of the central nervous system.

The holonomic brain theory of Pribram, and the holographic quantum theory of Bohm, added with Laszlo's fifth field contribution quoted above, shows us that we are part of something much greater and vast than our individual mind. Our mind is a subsystem of a universal hologram, accessing and interpreting this holographic universe. We are interactive resonant and harmonic systems with this unbroken self-organizing wholeness. We are this holoinformational field of consciousness, and not observers external to it. The external observer's perspective made us lose the sense and the feeling of unity or supreme identity, generating the immense difficulties we have in understanding that we are one with the whole and not part of it. In this holoinformational model of consciousness the non-local quantum-informational flow in a continuous holomovement of expansion and enfoldment, between the brain and the superimplicate order, is the universal consciousness self-organizing itself as human mind. We are this very non-local quantum-holographic cosmos manifesting itself through our consciousness, seeing itself through our eyes, and interconnecting in a participatory holistic and indivisible way the human brain to all levels of the self-organizing multiverse.

13. Qualia and the Hard Problem

Also, the essential characteristic of quantum non-local information of this dynamic process makes the question about the phenomenal quality (qualia) of conscious experience raised by Chalmers [15,17,73], multicontextual, multidimensional, relative not only to the observer, but also to the observation process and to what one observes, that is, to the holographic distributed information of the whole in question. The level of this

informational quality is capable of increase or reduce, in a phase transition, depending on the amount of information contained in the part of the universal hologram in focus and on the relations referential, whether external (Newtonian mechanistic) or internal (quantum holistic). The hard problem of consciousness proposed by Chalmers is only difficult and problematic in a mechanistic and reductionist Cartesian-Newtonian context in which consciousness and universe are considered separated entities. In a holoinformational context of internal relations, indivisible and non-local, it ceases to exist, because the self-organizing sublevels of the universe that get structured in a mechanistic-local way are understood as secondary manifestations of the harmonic, holistic and non-local nature of the universal holoinformational “continuum”. Matter, life and consciousness, are expressions of this holoinformational field, with fundamental non-local quantum relations, unfolding in myriads of possibilities.

Theoretically this sends us also to the question of the unconscious, which could be hypothetically understood this way, as a part of the universal holographic consciousness unfolded in the brain/mind that gets “out of focus”, gets “obscured”, when it self-organizes as human consciousness, as in a hologram, in which little parts contains the whole in a less clear way. The holoinformational consciousness when structured (embodied) in the human brain, reduces the quality (qualia) of the perception of the unity/totality (holos) of nature, making these aspects remain usually unconscious, restricting the being’s consciencial field, and limiting it mentally and symbolically.

Matter, life and consciousness, will never be understood by means of a fragmented and reductionist emergentism view that only considers the external and mechanistic relationships. This is a perception error, already pointed out by the oriental traditions, thousands of years ago, under the name of “*maya*”. As symbolical beings we can better understand this process going through the flower and fruit’s metaphor. We can say the fruit comes from the flower. However, the fruit is already implicit in the seed, making it impossible for us to state that it only and essentially comes from the flower. This would be a reductionism, a perceptive fragmentation of reality. Actually, not even the seed originates the fruit. The fruit comes from an indivisible totality, clearly intelligent and holo-related: sun, rain, earth, air, wind, cosmic rays, seasons, weather, microorganisms, insects, birds, seed, sap, steam, leaves...“ad infinitum”, in an irreducible holoinformational order.

14. Final Considerations

Besides outline the fundamentals of a non-local, self-organizing and holoinformational conception of consciousness, this approach also gives the directions for understand information as the unifying principle, capable of connecting consciousness to the universe and to the totality of space and time. It also allows a better understanding of phenomena and theories related to consciousness which up to now we could not explain or understand adequately, such as synchronicities, archetypes, collective unconscious (Jung), unconscious complexes (Freud), near-death experiences (Moody Jr.), premonitory dreams, psychokinesia and telepathy (Rhine), morphogenetic fields and morphical resonance (Sheldrake), out-cerebral memory (Stevenson), memories of previous existences (Weiss), amongst others.

Brian D. Josephson, Nobel Prize in physics, believes that Bohm’s theory of the implicate order can even lead someday to the inclusion of God in the science network. We believe that the holoinformational view of consciousness which has in Bohm’s quantum theory one of its very foundations, implies in the inclusion in science’s framework of a Cosmic Consciousness. An Universal Intelligence that originates, permeates, maintains and transforms the universe, life and mind, through the holoinformational process.

Finally, we would like to state that in the Cartesian-Newtonian reductionist paradigm, the question about consciousness nature is unanswerable. It can be useful to unfold new knowledge and generate new questions and answers. However, the inherent fragmentation to this perspective, obscures more and more our understanding of what reality and consciousness are.

“We did not come to this world: we came from it, like the leaves of a tree. Like the ocean produces waves, the universe produces people. Each individual is an expression of the whole kingdom of nature, a single action of the total universe. Rarely this is, if at any time it is at all, felt by the majority of the individuals”.

Allan Watts

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THE UNIVERSAL CODE AS A REALITY OF HOLISM

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Abstract. From ancient times it was thought that the codes and conventions are the basis of all cultural phenomena, and they have divided the world culture from the world of nature. The nature is governed by objective immutable laws, whereas the culture is produced by mutable conventions of the human mind. However, the discovery of the genetic code in the early 1960s, like a bolt from the blue, shown that the barrier between nature and culture does not exist. It turned out that the genetic code, in its essence, is a metaphor, a secondary structure such as a computer program which allows us to represent the physical and chemical properties of molecules writing only the binary numbers. In my researches of the genetic code, from early 1980s until now, I understood coding process as a correspondence between two systems, one realistic and second symbolic. Thus, the genetic code as well as periodic system of chemical elements appears to be only the aspects of a universal code which structure and composition is determined by the best possible symmetry, harmony and proportion. Later I viewed that the possible aspects of such a universal code can be found among the creations of the human mind, as there are examples of poetic structures and compositions of classical literature (Homer, Dante, Shakespeare, Goethe, Pushkin, Njegoš, Tolstoy ...); then the structure of Bible, I Ching and so on. In recent times I see that so-and-such universal code is nothing else than the reality of a possible holism, which connection is just the subject of this communication.

Keywords: *code, convention, genetic code, universal code, holism, culture, nature, metaphor, symbolic system, symmetry, harmony, proportion, poetic structures, human mind, classical literature, Bible, I Ching*

1. Introduction

The idea of the universal code of nature I presented in several papers of which only a few mentioned here [1-4]. The very idea resulted from my researches of the genetic code that were started in the 1973rd, when the Genetic Code Table (GCT) before long time has been definitely established [5-6]. If genetic information can be written out and then be translated, that at least means an analogy with natural (speaking) language. With this reason the route toward the universal code has already been set [7]. But during the time came new questions: why just 64 coding words in the genetic code, does this have to do with 64 boxes of chess and with the 64 hexagrams presented in one of the oldest books, in the Chinese book I Ching [8]? If such a connection exists, and it turned out to be, then we are at the heart of understanding the universal code. The Pavle Bidev's book *Chess, a symbol of the universe* [9] has prompted a new question: is Njegoš's poem *Luča mikrokozma* (The Light of Microcosm) only a metaphor or this title indicates the essence, the symbol and a code?

So I found first by Njegoš, and then by other literary classics (Homer, Dante, Shakespeare, Goethe, Pushkin, Tolstoy ...) that these authors, consciously and deliberately, built the structure and composition of their poetic works in accordance with structures determined by the best possible symmetry, harmony and proportion (golden mean); such structures as, for example, the structures of the genetic code and the periodic system of chemical elements, in an analogical comparison [10-13].²⁴ Within this work we will present only the basic elements of such

²⁴ My friends and colleagues, Prof. Djuro Koruga and Prof. Dejan Raković, do not agree with me that these authors intentionally do this. According to the first of them this is the result of the existence of a general intelligence of the universe; according to the second one, this is, *par excellence*, the result of the holographic universal connectivity. We can say that these

structures, relying on our already published works, but for the first time we will also present a *hypothesis* that such a universal code represents by itself the reality of holism.

2. A Possible Approach to Universal Code

It was easy to see that from the aspect of optimality and validity of two principles, the principle of continuity and the principle of minimum change (change in unit), four-letter alphabet is one and only possible solution. Namely, from the four-letter alphabet it makes sense to generate three-letter words, from five-letter alphabet four-letter words and so on.²⁵ Then, three-letter words have the root of two letters, and the root is preceded by the smallest possible unit – a single letter. Altogether, it is implemented a complete and homogeneous hierarchical system (4-3-2-1), and so it is not possible in any other case.

If the system of 64 coding words of GCT develop into a binary tree 0-63 [10], we obtain the same binary tree that is found in the aforementioned Chinese book I Ching, for the 64 hexagrams. A full line in each hexagram corresponds to a binary zero, and each broken line corresponds to unit (binary number 1) on the six-bit binary tree. But not only this, such a binary tree (with a system of 64 words) is the only one that strictly corresponds to the first four perfect numbers. The sum of the ordinal numbers for the first four words (in the first quartet), 0-3, makes number 6 what is the first perfect number; the sum of the first eight numbers, 0-7, gives the 28 (the second perfect number!). Then there comes the realization of a half of the system, 0-31, with the sum of 496, which is the third perfect number. If, however, it is going to end, 0-63, and returned to the beginning (cycling!), we have the sum of the first 128 numbers, from 0 to 127, which is 8128, the fourth perfect number. In general, the determination with perfect numbers is related to the realization of 2-bit, 3-bit, 5-bit and 7-bit binary trees, where again we have a strict order²⁶ – the order of the first four prime numbers: 2-3-5-7. "Skipped" is the determination of 4-bit and 6-bit binary tree, where we have 4 classes, each of 16 and 8 classes, each of the eight words, which logic is also the aspect of uniqueness and validity of the principle of self-similarity²⁷ [$(2^4 = 4^2)$, $(2^6 = 8^2)$, $(2^6 \rho 6^2)$]. (Note: Notice that 16 stay in relation with 16 two-letter words, and 64 in relation with 64 three-letter words.)

From the aspect of determination by generalized golden mean, the four-letter alphabet, through six-bit binary tree, appears also to be the optimal and appropriate composition, i.e. the best possible solution [10-11]. This is because the exact determination is possible only within the decimal numbering system, from ϕ^0 to ϕ^9 [10, Tab. 2].²⁸ The 22 years ago five U.S. scientists have presented still an another property of four-letter alphabet, more exactly for its 64 three-letter words: "the number of all distributions in the set of 64 codons [words] is 1741630" [16]. After the publishing of this result, I showed that the number 1741630 also follows from the number of verses in the Iliad and the Odyssey ([3, Fig. 13], [17-18], [18, Fig. 5, p. 191]), as well as from the number of verses in the first Njegoš's triptych [18, p. 60].²⁹

three standpoints are, *mutatis mutandis*, the key models of alignment when it comes to the attitudes of researchers in such research situations. With them, from the early nineties of the twentieth century, there is still a model of *intelligent design*, what will be discussed further in a following paper.

²⁵ By this, the words are arranged in quartets, quintets, sixth, and so on, respectively. That's because this is the first, the simplest n-tet, in which each letter of the alphabet used at least once.

²⁶ Božidar Knežević (1862-1905), a famous Serbian philosopher of history („The Serbian Montaigne“): “One of the basic laws that are the same for the whole nature and all human things is the law of order. With one and the same order are going the things in all external nature, and in the process of individual and social life of a human, in the matter, and in the process of soul and spirit“ [14].

²⁷ Bearing in mind the relation $(2^6 \rho 6^2)$ it becomes clear why from the 64 coding words (codons) in the genetic code to encode the amino acids are used 61 ($36 + 25 = 6^2 + 5^2 = 61$), and three codons have a "stop" function (encode the end of protein synthesis) (cf. legend to Figure 3).

²⁸ Why the decimal numbering system is the best possible in the coding processes, see our paper [15].

²⁹ The first Njegoš's triptych make: Glas kamenštaka (The Stone Man's Voice), Svobodijada (Voices of Freedom) and Ogledalo srpsko (The Serbian Mirror); the second triptych: Luča mikrokozma (The Ray of the Microcosm), Gorski vijenac (The Mountain Wreath) and Lažni car Šćepan Mali (The False Tsar Stephan the Small) [18].

Otherwise, the total cumulative number of verses of the Iliad and the Odyssey can be generated from the binary sequence 2^n ($2 \exp n$) ($n = 0, 1, 2, 3, \dots, 14$). At first, the obtained 15 numbers must be grouped into three fives and then comes the choice: from the first and third fives select two first and two last numbers, and from the second (central) five select only the number 128, a middle number ([3, Fig. 12], [18, Fig. 4, pp. 189-190]).³⁰ However, without a genial thought of Dante Alighieri it would be hard today to understand the essence of the universal code. The selection of the number of verses in 100 songs of *The Divine Comedy* performed by a unique pattern, which we present through the examples of four songs from Hell (Inferno): VIII 130 (**4**), IX 133 (**7**), X 136 (**10**), XII 139 (**13**). If we take any of 100 songs, no song is out of this pattern (4-7-10-13). Just in our time the same model is found in the genetic code [19]. It was found, namely, that the number of nucleons within the amino acid constituents of the genetic code is corresponding to the multiples of 037, a unique two-digit numbers in the decimal numbering system ($q = 10$).³¹ But it is also found that the same property possesses the analogues of 037 (13, 25, 37, 49 ...) in the numbering systems with the $q = 4, 7, 10, 13, 16, 19$, etc..., respectively. As we can see the first four cases, are actually the Dante's numbers.³²

It should be noted that the first digit in a series of analogues comes from the series of natural numbers, and the second one from a series of odd natural numbers. But despite this simplicity, I needed a very lot of time (and work) until I realized an arrangement of natural numbers in form of a matrix, with such numbers in the first diagonal which possesses the form of Shcherbak's (and of Dante's?) numbers. In such an arrangement unique are also the neighbors of the number 37 (the numbers 26 and 48).³³ (Table 1).

2.1 Some uniqueness in relation to the universal code

We will consider Table 1 more broadly. If the first diagonal neighbour of the number 26, the number 16 ($26 - 16 = 10$) is added to the number 26 and its two followers (17 and 18) are successively added to the obtained result, we get the results as in Solution (1):

$$\begin{array}{rcl}
 26 & = & 26 \\
 26 + \mathbf{16} & = & 42 \\
 42 + \mathbf{17} & = & 59 \\
 59 + \mathbf{18} & = & 77 \\
 26 + 42 + 59 + 77 & = & Y \\
 Y & = & 204 \\
 Y/4 & = & 51 \\
 \mathbf{16} + \mathbf{17} + \mathbf{18} & = & Z \\
 Z & = & 51 \\
 Z & = & Y/4
 \end{array} \tag{1}$$

With three addings ($16 + 17 + 18 = 51 = Z$) we obtained three new results, and with the inclusion of the initial number 26 – four results. Their sum is 204 ($26 + 42 + 59 + 77 = 204 = Y = 4Z$), exactly four times greater than

³⁰ The Homer's choice (Iliad + Odyssey = 15693 + 12110 = 27803): (**1, 2, 4, 8, 16**), (32, 64, **128**, 256, 512), (**1024, 2048**, 4096, **8192, 16384**). Njegoš's choice are all numbers which are not the Homer's choice: printed version + manuscript version of *The Mountain Wreath*: 2819 + 1528 = 4347 verses; plus the number of person-scenes: 318 + 150 = 468; plus pages for printing as well as for manuscript version: 116 + 33 = 149; altogether: 4347 + 468 + 149 = 4964. Finally, Homer's choice plus Njegoš's choice: 27803 + 4964 = 32767, what is 77777 in octal numbering system.

³¹ The uniqueness is because the multiplication through the modulo ($q - 1$) preserves all three digits: ($1 \times 037 = 037$; $10 \times 037 = 370$; $19 \times 037 = 703$), ($2 \times 037 = 074$; $11 \times 037 = 407$; $20 \times 037 = 740$) etc.

³² To satisfied my friends, Prof. Koruga and Prof. Raković (and non-confidential readers) that Dante intentionally build his poetic structures, I will mention the Dante's verses which say that a hidden doctrine is lying under the verses, that is teaching or science: "O ye who have undistempere intellects, / Observe the doctrine that conceals itself / Beneath the veil of the mysterious verses!" (" O voi ch'avete you 'ntelletti sani, / safely without che la dottrina s'asconde / sotto' l'I say de li versi side ") (Div. Comm., Inferno, IX, 61-63).

³³ In further text follows the explanation of the uniqueness of the number 26, but about uniqueness of the number 48 see ref. [15].

the sum of the three addings (16+17+18 = 51 = Z). But this connection of two equalities is a single and unique case in the entire system of numbers within Table 1, in other words within the set of natural numbers.³⁴

Table 1. A specific arrangement of natural numbers in decimal numbering system

(-2)	-22
(-1)	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11
(0)	-10	-09	-08	-07	-06	-05	-04	-03	-02	-01	00
(1)	01	02	03	04	05	06	07	08	09	10	11
(2)	12	13	14	15	16	17	18	19	20	21	22
(3)	23	24	25	26	27	28	29	30	31	32	33
(4)	34	35	36	37	38	39	40	41	42	43	44
(5)	45	46	47	48	49	50	51	52	53	54	55
(6)	56	57	58	59	60	61	62	63	64	65	66
(7)	67	68	69	70	71	72	73	74	75	76	77
(8)	78	79	80	81	82	83	84	85	86	87	88
(9)	89	90	91	92	93	94	95	96	97	98	99
(A)	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA
(B)	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB

The uniqueness of the number 26 is expressed not only through the difference $26 - 10 = 16$, but also through the sum $26 + 10 = 36$, where number 36, as the second diagonal neighbour of the number 26, appears to be the member of a unique pair $25 - 36$; unique case in the entire system of numbers within Table 1, and that means within the set of natural numbers. Namely, the numbers 25 and 36 are neighbours in third column of Table 1 with a difference of 11 as in all other cases, in all columns. But their square roots, as integers, appear to be also neighbours, and that is the said uniqueness [Solution (2)]:

$$\begin{aligned}
 x_1 + y_1 &= 36 = 6^2 \quad (x_1 = 26; y_1 = 10) \\
 x_2 + y_2 &= 25 = 5^2 \quad (x_2 = 17; y_2 = 08) \\
 x_1 - y_1 &= 16 = 4^2 \\
 x_2 - y_2 &= 09 = 3^2
 \end{aligned}
 \tag{2}$$

2.2 The unity of two realities – mathematical and physical

Through a purely chemical analysis it is possible to find such an arrangements of protein amino acids that fully correspond to the observed arithmetical regularities, related to the uniqueness of numbers 26; as if we are dealing with an "intelligent" imitation, in one possible classification and systematization. Namely, Figure 1 shows an arrangement of AAs (in the 4 x 5 system), with the number of atoms as in Solution (1). This arrangement follows from a classification and systematization of 20 protein AAs into four diversity types³⁵, as it is shown in Figure 2: first row from the vertical line of the circular model; fourth row from the horizontal line; second row from four middle points of circular model; third row make two left and two right AAs in relation to two middle

³⁴ Moreover, it appears that this is the zeroth case in the 4th column of Table 1 in the decimal numbering system, and also the zeroth case within all Shcherbak's numbering systems ($q = 4, 7, \underline{10}, 13, 16, \dots$); in all other cases, discrepancies arise [15, Tables C1 and C2].

³⁵ On the four diversity types of AAs (2 + 4 + 6 + 8) as it is presented in linear model of Figure 2, about a strict chemical hierarchy within and between them, the reader can see in Ref. [15].

points (M & D); finally, fifth row make two left and two right AAs in relation to two middle points (A & R). By this, each sequence in Figure 1 is arranged by the size of molecules, i.e. by the number of atoms in the side chains,³⁶ going from left to right; and the order of sequences is determined by the size of the first amino acid molecule in the sequence.³⁷ Only with such a precise and strictly regulated system can we get the desired result, the sequence 26-42-59-77, signifying the number of atoms in the four columns of AAs (in their side chains) [cf. Table 1, Solution (1) and Figures 1 & 2].

G 01	S 05	Y 15	W 18	39	78	102
A 04	D 07	M 11	R 17	39		
C 05	T 08	E 10	F 14	37	24	102
N 08	Q 11	V 10	I 13	42	13	
P 08	H 11	L 13	K 15	47	89	
26	42	59	77			
16		17	18			
(1 x 68)		(2 x 68)				

Figure 1. A specific classification and systematization of amino acids, which follow from four diversity types (Figure 2). In the shadow space there are 20 AAs with atom number in molecules side chains. Within first two and last two columns: 1 x 68 and 2 x 68 atoms, respectively. Within two inner and two outer columns: 102 ± 1 atoms. Regarding at the rows: there are 78 atoms within first two and 78 +11 = 89 within last two rows; within first half of the middle row 13, and within the second one 13 +11 atoms. Within two halves of shadow spaces (light and dark) there is also a specific balance: 102 ± 00 atoms. All amino acid sequences are of the growing series from the aspect of number of atoms; all but one, in which Q-11 precedes V-10, because different stereochemical types have been distinguished: N-Q belongs to alanine but V-I to valine type.

³⁶ The only exception is valine, which is understandable enough when we know that valine and isoleucine belong to the same stereochemical type, the valine type. That sequence should, therefore, be understood as follows: two AAs of the alanine stereochemical type (N, Q) are followed by two AAs of the valine stereochemical type (V, I).

³⁷ The dilemma whether before N or P is resolved by the following pairs: N is followed by a smaller pair V(10) – I(13), while P by a larger one L(13) – K(15).

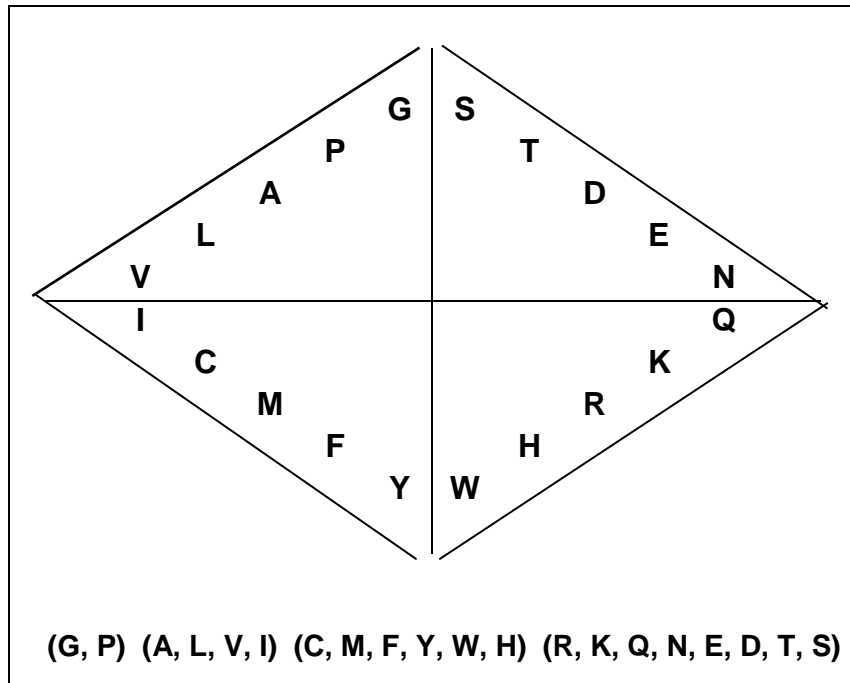


Figure 2. Four diversity types of protein amino acids in a linear arrangement in form of the sequence 2-4-6-8; then in a circular arrangement, in form of the sequence 5-5-5-5. From this last sequence it is possible a new arrangement in form of the sequence 4-4-4-4 as in system, presented in Figure 1.

1st letter	2nd letter								3rd letter
	U		C		A		G		
U	UUU	F II	UCU	S II	UAU	Y I	UGU	C I	U
	UUC		UCC		UAC		UGC		C
	UUA	UCA	UAA		UGA	A			
	UUG	UCG	UAG		UGG	G			
C	CUU	L I	CCU	P II	CAU	H II	CGU	R I	U
	CUC		CCC		CAC		CGC		C
	CUA		CCA		CAA		CGA		A
	CUG		CCG		CAG		CGG		G
A	AUU	I I	ACU	T II	AAU	N II	AGU	S II	U
	AUC		ACC		AAC		AGC		C
	AUA		ACA		AAA		AGA		A
	AUG		ACG		AAG		AGG		G
G	GUU	V I	GCU	A II	GAU	D II	GGU	G II	U
	GUC		GCC		GAC		GGC		C
	GUA		GCA		GAA		GGA		A
	GUG		GCG		GAG		GGG		G

Figure 3. The standard Genetic Code Table with designation of four diversity types of protein amino acids and corresponding codons (lightest, light, more dark and most dark tones): 08, 17, 10 and 26, respectively ($8 + 17 = 25 = 5 \times 5$ and $10 + 26 = 36 = 6 \times 6$). The roman numbers designate class I and class II of aminoacyl-tRNA synthetases. For details see the text.

Bearing in mind that an arithmetical law, presented in Solution (1), is fully confirmed, it makes sense to set up a *working hypothesis*, related to an algebraic law, presented in Solution (2): it must be that the quantities, given in Solution (2), $x_1 = 26$, $y_1 = 10$ as well as $x_2 = 17$, $y_2 = 08$ in a way also contained in the genetic code. Figure 3 is an obvious and direct evidence for this. The first diversity type of AAs (P, G) and corresponding **08** codons appears to be diagonally on the right within Genetic Code Table (GCT), designated in Figure 3 in lightest tones; the second one (L, I, V, A) with **17** codons diagonally on the left (in a little dark tones); altogether, in both diversity types of chemically low-level-functions there are 25 codons.

	a	b		U,C	A,G	U,G C,A	
I	04	04	25	12	12	12	12
II	17	00		31	20	31	20
III	03	07	36	20	10	19	11
IV	08	18		30	48	29	49
	25			100	83	100	83
	36						
				(93)	(90)	(91)	(92)
	U C	A G		U,A	C,G	75	
I	02 10	02 10	75	04	20	11	
II	19 12	08 12		27	24	86	
III	14 06	05 05	108	19	11	11	
IV	10 20	29 19		39	39	97	
						11	
	96	87		86	97	108	
				(89)	(94)		

Figure 4. This Figure follows from Figure 3. The designations I-IV: Four diversity types of amino acids. In first quadrant there is the number of three-letter words, i.e. codons within GCT (in total 61), while in other three quadrants – the number of letters. The rule valid for zigzag line is given in two last paragraphs of Section 2.2. (a) The first half of Table in Figure 3. (b) The second half of Table in Figure 3. In column *a* there are codons of pyrimidine kind, regarding at the middle position in codon, whereas in column *b* of purine. The validity of two principle (continuity and minimum change) is self-evident; also the changes for 01, 10 and 11.

The third diversity type of AAs and corresponding **10** codons follows, within GCT, in the next order (more dark tones): in column "U" *up* and *down*, and in columns "A" and "G" only *up*. The fourth type, with **26** codons (the most dark tones), in column "C" *up* and *down*, and in columns "A" and "G" only *down*; altogether, in two diversity types of chemically high-level-functions there are 36 codons.

The positioning of codons within the system of GCT in the terms "up" and "down" at first glance seem to be arbitrary and optional. However, if such a classification is viewed from the aspect of key qualificatives – the first half of the GCT (of pyrimidine kind) is of lower rank, and the second half of a higher rank (of purine kind) – then

we get here also to the very strict quantitative relations (Figure 4). The Figure 4, in fact, shows that the principle of self-similarity (through the alignment into 25/36 codons) achieved in another way. First, if a series of I-II-III-IV types is taken as splitting into two classes, then in the first class belong two types from odd positions, and in the second one two types from even positions. Then (in a holistic way?) there "enters" at the scene the validity of the following regularity: the number of low-ranking codons in two types at the odd positions, plus the number of higher-ranking codons in the two types at the even positions is the same as the number of all codons in the first two diversity types (25). The reverse is true for the reverse situation: the number of low-ranking codons in the two types placed at the even positions, plus the number of higher-ranking codons in two types placed at the odd positions is the same as the number of all codons in the second two diversity types, the third and fourth, just 36.

As we see, here we are in a situation that is both very simple and very complicated. Simple, because here all comes to be a balance, expressed through two zigzag lines (Figure 4), which balance we have so often found in the classifications of the genetic code constituents ([10, 21]). Complicated, because this balance is mediated by more wholeness, each of more parts. On the one hand we have the wholeness of low-ranking codons in all four diversity types, then the wholeness of higher-ranking codons; finally, the wholeness of all codons. And the results are such that as the parts of all of these wholeness also provide information on the number of codons in all individual wholeness, and all individual parts, as well as to have their own internal "awareness" about all this. This and such situation leads us (inevitably) to the conclusion that for the solution of the problem we need to seek help from the possible holistic approach.

3. A Hypothesis About Possible Relation Between Universal Code and Holism

With this inter-title I deliberately insist on the *relation* to holism, and not the connection or identity and so on. This is because the holism is itself still hypothetical idea, and my hypothesis requires a proper interpretation of the interdependence of the two realities presented above. The first reality makes the system of natural numbers in the arrangement given in Table 1, the arithmetic system introduced in Solution 1 and the algebraic system presented in the second Solution. Within the second reality there are the constituents of the genetic code represented in Figures 1, 2, 3 & 4, while both realities contained in Tables 2, 3 & 4 (see in further text). The question is, whether here is a classic Bohmian dilemma, a relationship between the original (material) and holographic reality? In other words, the question is what the reality is here and what the "illusion"? But, in the comparison of these two realities, it is not difficult to see that first we have to deal with the problem of coding, and just in terms of holism, not only in terms of coding what is seen in the information theory, though that coding, *per se*, is also present (the connection between the two alphabets: 4 Py-Pu bases vs 20 AAs). As we understand the formation of holograms that holographic film contains an encoded image, is here the same, in Bohmian or a different holism? The answer to this question should give future researches.

Table 2. Four types of diversity of protein amino acids

G P	A L V I	C M F Y W H	R K Q N E D T S
01 08	04 13 10 13	05 11 14 15 18 11	17 15 11 08 10 07 08 05
9+18=27	40+36 =76	74 + 54 = 128	81+ 72 = 153
(27+153 = 180) (76+128 = 204)			

The relationships between four diversity types of protein amino acids (2+4+6+8). In second row there is the number of atoms within side chains of amino acids. The calculations: within 10 AAs of two inner types there are 180 atoms, just as within 20 amino acid "heads", i.e. 20 amino acid functional groups (20 x 9 = 180). On the other hand, within 10 AAs of two outer types there are 204 atoms, just as within 20 amino acid side chains. This specific "simulation" is analogue to the "simulation", valid for the number of protons and neutrons in Table 3.

Another thing that reminds us of the Bohmian reality access is the issue of *order*. The Bohm's idea of different hierarchy and levels in the order, here, in these two realities also maximal comes into play; as under the reality of molecules, exists a deeper order of existence, embodied in a specific mathematical reality. However, what we can be very sure (or, perhaps, we cannot?) is that the primary (mathematical) level of reality does not rise buildings, not bearing molecules and their particles³⁸, but only the birth of the interdependence of these molecules, when, and if they do, find in an active system,³⁹ such interdependence, which is the "image", "hologram" – the mathematical reality is mirrored in the physical?⁴⁰

Table 3. The Sukhodolets' system of amino acids in a 4 x 5 arrangement

The number of H atoms (in brackets) and nucleons						
G (01) 01	A (03) 15	S (03) 31	D (03) 59	C (03) 47	(13) 153	569/686
N (04) 58	P (05) 41	T (05) 45	E (05) 73	H (05) 81	(24) 298	
Q (06) 72	V (07) 43	F (07) 91	M (07) 75	Y (07) 107	(34) 388	
W (08) 130	R (10) 100	K (10) 72	I (09) 57	L (09) 57	(46) 416	
569 as neutron number and 686 as proton number!						
569 – 59 = 627 – 117						
686 – 58 = 628						

The Sukhodolets' Table, with a minimal modification [25]: the system of 4 x 5 AAs. The shadow space: AAs with even number of hydrogen atoms (4, 6, 8, 10); the non-shadow space: AAs with odd number of hydrogen atoms (1, 3, 7, 9, 11). In brackets: number of hydrogen atoms [25] and out of brackets the number of nucleons. Nucleon number through a specific "simulation": 569 within two outer rows, as the number of neutrons, 569, in all 20 AAs: within their side chains; and 686 nucleons within two inner rows, as the number of protons, 686, in all 20 AAs: within their side chains. [Note: Within 20 side chains of amino acid molecules there are 569 neutrons as well as 569 non-hydrogen protons. Within 20 side chains of amino acid molecules there are 117 hydrogen protons, what means 117 hydrogen atoms at the same time (117 = 59 + 58).]

Just as every part of a hologram contains the whole picture, so in every part of the universe, says Bohm, is contained implicate ("enfolded") order, which is in relation to explicate ("unfolded") order of our level of existence [22-23].⁴¹ If not entirely, some of these ideas about the relationship between the whole and part can also be found in the genetic code system. Table 2 contains, namely, a system that suits Bohmian holism. The parts contain information about the whole system: within 10 molecules of two external diversity types there are, in total, 180 atoms; so exactly as how many is in all 20 molecular "heads" of all four types. On the other hand, within 10 molecules of two internal diversity types there are, in total, 204 atoms, so exactly as how many is in all 20 molecular "body" of all four types.

³⁸ There are, however, the authors with a point of view, that the mathematical essence birth the matter as such. Similar view had a great Serbian poet, and philosopher in addition, Laza Kostić; the 127 years ago he wrote: "The twins of the cross principle, fertilized by pure crossing, symmetry and harmony, were able to conceive the universe and then born it, developed, and populated with eternal life." ("Bliznakinje načela krsta, oplodene čistim ukrštajem, simetrija i harmonija su uspele da začnu vasseljenu i da je rode, razvijaju i nasele večnim životom") [20].

³⁹ In the case of the system of the constituents of the genetic code, this activity refers to the possibility of generating the life.

⁴⁰ This issue is important from the aspect of interpretation that the genetic code from the beginning was complete or not; whether it was possible that life arises only with the 7-8 amino acids - what is the prevailing view of the current science - or the genetic code from the very beginning must be a complete system of molecules [21]?

⁴¹ "One of Bohm's most starting assertions is that the tangible reality of our everyday lives is really a kind of illusion, like a holographic image. Underlying it is a deeper order of existence, a vast and more primary level of reality that gives birth to all the objects and appearances of our physical world in much the same way that a piece of holographic film gives birth to a hologram. Bohm calls this deeper level of reality the implicate (which means 'enfolded') order, and he refers to our one level of existence as the explicate, or unfolded, order. He uses these terms because he sees the manifestation of all forms in the universe as the result of countless enfolding and unfolding between these two orders" [23, p. 47].

Table 4. The harmonic structure with two “acidic” and three “basic” amino acid quartets

					a	b	c	d	M
D	N	A	L	→	189	189	221	221+3	485.49 ≈ 485
R	F	P	I	→	289	289	341	341+0	585.70 ≈ 586
K	Y	T	M	→	299	299	351	351+2	595.71 ≈ 596
H	W	S	C	→	289	289	331	331+1	585.64 ≈ 586
E	Q	G	V	⇒	189	189	221	221+3	485.50 ≈ 485
					1255	1255	1465	1465+9	2738.04
									2 (37 x 37)

The two “acidic” AAs because D & E are acidic and the three “basic” AAs because R, K & H are basic. Four choices after four types of isotopes: (a) Number of nucleons within 20 AAs side chains, calculated from the first, the lightest nuclide (H-1, C-12, N-14, O-16, S-32). (b) The number of nucleons within 20 AAs side chains, calculated from the nuclide with the most abundance in the nature [the same patterns as in (a): H-1, C-12, N-14, O-16, S-32; at heavier nuclides of other bioelements the data by (a) and (b) are not the same]. (c) The number of nucleons within 20 AAs side chains, calculated from the nuclide with the less abundance in the nature (H-2, C-13, N-15, O-17, S-36); (d) The number of nucleons within 20 AAs side chains, calculated from the last, the heaviest nuclide (H-2, C-13, N-15, O-18, S-36). (M) The AAs molecule mass. Notice that (d) is greater from (c) for exactly one modular cycle (in module 9) and that total molecules mass is equal to 2 (37 x 37). Notice also that molecule mass within five rows is realized through the same logic-patterns of notations as the first nuclide, i.e. isotope [21].

A similar logic we have also in Table 3, except that here the word is on the number of nucleons. In 20 amino acid molecules there are 569 neutrons and 686 protons. In doing so, the number of protons contains 569 non-hydrogen and 117 hydrogen protons (569 + 117 = 686). As we see within external part (the first and fourth row) there are, in total, 569 nucleons (protons and neutrons together), exactly as the amount of neutrons in the whole system. The reverse is true for the inner part of the system (the inner two rows: the second and third); here there are 686 of nucleons, as there are protons in the whole system. But not only that, in the last row of Table 3 is presented that the quantities of "569" and "686" contain the information on the total number of hydrogen protons (117), as well as the medians as well as arithmetic mean of total number of nucleons within 20 side chains (1255 = 627 + 628; 1255: 2 = 627.5). Without reference to holism, Bohm’s or another, these results would be difficult to explain.

3.1 A “phantom” molecular mass

To understand and explain the relationships within the system presented in Table 4, even more we need Bohmian "dualism", but also Pribram’s understanding of the holographic nature of the brain.⁴² We can, in fact, understand the symmetry of the molecular mass distribution as well as of the nucleon number within first nuclides which possesses the most abundance in nature (a, b and M). But how to understand the symmetry in the distribution of nucleon number within nuclides (columns c and d) which possesses a minimal abundance? Despite this fact, the balance can be obtained only when all the nucleons are included in the account, in one hundred percent!?! As it appears the information ("consciousness") of the presence of a huge mass, which is a pure

⁴² “This was precisely the feature that got Pribram so excited, for it offered at last a way of understanding how memories could be distributed rather than localized in the brain. If it was possible for every portion of a piece of holographic film to contain all the information necessary to create a whole image, then it seemed equally possible for every part of the brain to contain all of the information necessary to recall a whole memory” [23, p. 17].

illusion, because most of these masses in fact do not exist in reality; information, analogous to sensations in the brain, in the case of the so-called phantom parts of body.⁴³

4. Conclusion

In this paper, through a short scientific discussion, we tested a hypothesis of a possible relation between the universal code of nature and holistic approach to understanding natural structures and phenomena. By this, the access to the universal code has been made through the understanding that the genetic code as well as periodic system of chemical elements must be the aspects of such a universal code, whose structures and compositions are determined by the best possible symmetry, harmony and proportion (golden mean). The same – to be an aspect of universal code – is valid for all other natural, as well as possible artificial harmonic structures; especially the structures found among the creations of the human mind. Among other possible connections between these and such structures in this paper we were interested mainly for the bond that is established through a coding process, understood as a correspondence between two systems, one realistic and second symbolic.

Our discussion, with a high degree of reliability, showed that there are grounds for the placed hypothesis. What is more, and it turned out, that some recent results of my own researches of the genetic code are far easier to explain with the help of a holistic approach.

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⁴³ The phantom limb is the sensation that an amputated or missing limb (even an organ) is still attached to the body and is moving appropriately with other body parts. Phantom sensations may also occur after the removal of body parts other than the limbs.

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**SIXTY: „NUMBERS ARE LETTERS BY WHICH THE UNIVERSE IS BUILT“
Classical-quantum and information physics approach to life and medicine**

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Abstract. In this paper serendipity event is presented, which highlights Galileo's number importance: numbers are letters by which the Universe is built. In our case the simulative effect of the number sixty importance comes from contemporary science: nanotechnology of carbon materials with sixty atoms and molecular structure of clathrin in our brain. However, we found out that roots of number sixty lie hidden in thought of ancient civilization. Moreover, in some way sixty is the part of light ($c=\lambda \times \nu$) as ratio of spatio-temporal unity through wavelength (λ in *nm*) and frequency (ν in THz). If we use model of light, of both classical and quantum properties, as model of an existence (life) – then embryogenesis (as the primary quantum process) presents information processing which makes set up of events (with different probabilities) for a life after birth. Which one of these events will happen depends on probability of events in classical information processing during life. Classical and quantum probabilities are complements and compatible to each other. In everyday life this complex manifestation is given as our behavior based on interaction of real-imaginary and rational-irrational pairs dynamics (logic square of our fingerprint).

Keywords: *sixty, ancient civilization, light, molecule C₆₀, clathrin, quantum information processing, embryogenesis, medicine, life*

ONTOGENETIC AND PSYCHOGENETIC INSIGHT INTO THE TRADITIONAL CHAKRAS DOCTRINE

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Abstract. As it should be expected, the doctrinal theories of traditional medicine obviously belong to the domain of metascience (metaphysics). It means that they are based on revealed truths, which are necessarily expressed by an symbolic and metaphoric language. On the other hand, scientific theories are based on perceived truths, which are expressed by the language, which necessarily excludes the metaphors and symbols. Therefore, symbolic statements, as well as revealed truth, *per definitionem* cannot be expressed in a rational way, i.e. metascientific content can not be fully expressed in a scientific manner. The aim of this paper is not to translate the traditional (metaphysical) Chakras doctrine into the language of science, but to point out that in that teaching exist the contents which can be scientific interpreted. Namely, Chakras teaching, could survive for so long, only because the practice findings supports it. The traditional medicine practice can not be always explained in a scientific way, but it can not be completely ignored, if they have survived for centuries and millennia, as it is case with Chakras teaching. Specifically, as it will be pointed in this paper, the scientific knowledge about the human ontogenesis and psychogenesis, can be unambiguously associated with the empirically established findings, which are implicitly included in the Chakras teaching. In addition, based on this correspondence, it is possible to come up to the concept of a psychogenetic explanation of (so called) opening and balancing of chakras. Finally, there are serious indications that the process of opening the chakras can be closely linked to psychiatric regression analysis.

Keywords: *ontogenesis, psychogenesis, chakra, metascientific, scientific, doctrine, symbolic language, revealed truth, gnosis*

1. Introduction

Probably nobody today doubts that is overcome the dualistic mind - body concept of the western science, which was initially formulated by R. Descartes, who established that mind and the body are distinct, what means that the mind does not affects the body states, as well as the mind does not feels the changes of the body states. The long term influence of this dualistic concept contributed to the development of the biomedical model in the western medicine, which highlighted the role of the physical body and practically excluded the role of the mind. This model is based on the assumption that the human anatomical structures and physiological processes are the basis for addressing health issues, while the role of the mind has been limited to its influence on mental states. It was ignored that the psychological or mental processes of the mind can influence the biological structures and processes of the body and thus to contribute to body health.

The idea that the body and the mind both contribute to the physical and mental health was fostered by the penetration of the eastern traditional medicine. Today are dominant the interrelated mind->body (psychosomatic) and body->mind (somatopsychic) concepts, typical for the eastern philosophy and traditional medicine, that assert that the body and the mind are dynamically interrelated. These concepts, which can be named as mind<->body models (mind to body as well as body to mind) emphasize the influence of the mind and mental processes on physical health, as well as the influence of the body states on the mind and mental processes.

There are a numerous scientifically confirmed evidences that the mind and body operate as two interrelated parts of a whole; the mind state affects the body health, and the body structures and processes affect the anatomy of brain regions. The damage of the physical processes and structures of the body alters the expressions of the

mind and mental life. Likewise, psychological trauma alters the physical processes and structures of the body. For example, the standing examples of the mind influence on the body include the existence of somatic illnesses that occur in the absence of disease pathology or physical damage. The placebo effect is an example of the link between the mind and the body. In some cases the effect of the placebo is equal to the effect of the active treatment (Stanovich, 2010). It is known that the psychological and social factors not only influence the structure and function of the nervous system but also physical health and disease processes. It is confirmed also that the anatomical structures and physiological functions of the nervous system can predispose individuals to mental disorders (depression, anxiety).

However, it is noticeable that in all of the above mentioned models (mind-body, body->mind) the human being is seen as a fully formed individual, i.e. with fully formed morphological and physiological characteristics. In this way it is ignored the specific role of the body->mind interaction during the psychogenesis and ontogenesis. This problem is interesting for some kind of asymmetry of this interaction, since morphogenesis precedes the psychogenesis, because we are born physically formed, but not mentally. This means that in the early stages of adolescence can be expected pronounced morphogenetic influences on the characteristics of mental development, but cannot be expected that the undeveloped mental characteristics have a similar effect on the morphogenetic properties. This asymmetry is fully manifested in the early development phase, including the puberty, during which the child meets, investigates his own body and its functions.

This paper is a specific scientific analysis of doctrinal teachings of the Hindu chakras, which is part of a well-known and widespread Yoga. The aim of this analysis to identify the elements that provides an opportunity for reinterpretation of these teaching on a scientifically acceptable manner. As it is known, there are numerous researches demonstrating that Yoga practices can modify many physiological systems, including respiratory, cardiovascular, and autonomic and central nervous system. Chakras, which are defined as non-physical energy control centres, is attributed to be the initiator and controller of all these changes, which, otherwise, are the result of controlled balancing and regulation of the non-physical energy (prana, chi) absorbed from the environment.

There is no any, even partly, scientifically acceptable explanation of how the non-physical chakras physically change the states of the physical somatic structure. After all, it is irrelevant for this work because the non-physical entities, as well as everything else about them what can be found in any metaphysical doctrine, cannot be the subject of scientific attention. This only express our position that one should not investigate the chakras themselves, but what is attributed them to work and which leads to physiological changes. In other words, we believe that attention should be directed on the therapeutic procedures of Yoga healing therapy, rather than on the doctrinal descriptions of their mechanisms of action.

2. Chakras Themselves

The chakra system is a part of Vedic Yoga teaching, which is described as a system of seven energy centres of the body that make up the human energy field and integrates body, mind, emotions and spirit. The Yoga practices (asanas) stimulates the energy centres (chakras) to vitalize the body by absorbing primary energy from the universe and sending it along subtle energy channels (nadis) to the different areas of the body. The human maturation passes through seven stages, controlled and governed by the corresponding seven chakras, where each stage corresponds to a more refined understanding of personal and spiritual power (Myss, 1996).

Here are the most frequently mentioned characteristics of the chakras, which shows that they attributed to the dominant role of the controller of the human mental and physical development and regulation of all psychological and physical functions:

- The chakras are understood to be non-physical vortexes of subtle non-physical energy (vortices of etheric matter) that spin counter-clockwise, exerting non-physical control over the physical body.
- The chakras are vertically aligned, running from the base of the spine to the crown of the head, suggesting that we ascend toward the Divine by gradually mastering the seductive pull of the physical world (Myss, 1996).

- Each of the seven major chakras connects one's energy to the major nerve plexuses on the spinal column, the glands in the endocrine system, and the specific systems of the body. If a chakra is blocked it will eventually manifest on the physical dimension in the form of an illness body (Brennan, 1987; Myss, 1996).
- Chakras contain the mental programming that governs our behaviour. Each chakra functions similar to a floppy disk that holds the core programs that determine all of our decisions (Judith, 1996; Judith 1999).
- In the mind, chakras are patterns of consciousness - belief systems through which we experience and create our personal (Judith, 1999).
- Chakra programs contain information about the body in terms of survival, sexuality, and action. The higher chakras bring us to more universal states of consciousness and work with our deeper belief systems about spirituality and meaning (Judith, 1999).
- The chakra system functions as a map of one's evolutionary challenges (Ballentine, 1999). Each chakra contains a spiritual life-lesson that we must master in our evolution towards higher consciousness. In brief, the first chakra resonates with the life-lesson of survival; the second with sexuality and creativity; the third with personal power, assertiveness, and self-esteem; the fourth with love and forgiveness; the fifth with expression and will; the sixth with intuition, wisdom, and beliefs; and the seventh with transcendence and presence (Myss, 1996; Eden, 1998).

Although Yoga practices lead to clear physiological effects, there is no explanation of how non-physical chakras influence physiological function. Even more there is no valid scientific study that proves that the chakras, or anything like that, really exist. Further, there is no scientific proof that something non-physical could interact with the physical. If chakras exist and govern and control the physiological activity, some aspect must be accessible to objective analysis. Therefore, the attention should be directed on the therapeutic procedures of Yoga healing therapy, rather than on the doctrinal or pseudo-scientific descriptions of their mechanisms of action, which is completely based on the non-physical chakras. The non-physical entities cannot be the subject of scientific attention.

3. Chakras and Science

At the beginning of this chapter we want to point out that the relatively large number of theoretical papers devoted to the nature and functioning of the chakras and yoga practices, completely unfairly are attributed as scientific, even though they are not. In fact, they are pseudo-scientific hypothesis that on the basis of the chakras as unrealistic and non-physical entities, offer an explanation of the actual physiological processes in the human body. As an illustration of this assertion can serve the following most frequent pseudo-scientific statement (Raghuwanshi, 2011): „*Yoga practicing stimulates work of endocrine system which is directly connected with activity of the energy centers (chakras) and energy pathways (channels – nadis)*“. It is confirmed that Yoga practicing stimulates work of endocrine system, but there is no any evidence that chakras and nadis exist.

Concerning the so called science of alternative medicine, we are, in fact, faced with numerous indiscriminately attempts to translate the metaphysical teachings to the language of science. It is nothing more but an arbitrary reinterpretation of the scientific knowledge (truths), to which is attributed the desired metaphysical context. Therefore, we believe that any analysis of traditional medical systems, both Eastern and Western, must be limited to the empirically established facts. For example, it is out of sense the perception of 5 energies (earth, water, fire, wood, air) as a subtle non-physical energies, because, in fact, they have a symbolic meaning as the metaphorical guidelines of the particular psycho-physical states. The situation is similar with the chakras, which are doctrinaire defined as the existing non-physical entities, which are, in fact, the essence of the metaphysical explication of unknown changes, achieved by the yoga practice. There is no any scientific evidence that chakras exist, although if they really exist and can influence physiological activity, must be something of them accessible to objective analysis.

There is no way to interpret scientifically the parts doctrinal teaching, which operates with non-physical entities. All doctrinal theories of traditional medicine, including all chakra teachings, obviously belong to the

domain of metascience (metaphysics). It means that they are based on revealed truths, which are necessarily expressed by an symbolic and metaphoric language. On the other hand, scientific theories are based on perceived truths, which are expressed by the language, which necessarily excludes the metaphors and symbols. The symbolic statements, as well as revealed truth, *per definitionem* can not be expressed in a rational way, ie. metascientific content can not be fully expressed in a scientific manner. Therefore, the traditional chakras same is with traditional teaching about chakras, which is, in fact, teachings should be considered as the attempts to capture a number of empirical experiences, which has been confirmed in a traditional medical practice, in a doctrine that is in harmony with traditional philosophical and religious teachings.

There are a few scientific hypotheses, which concern the mechanism of changes that yoga practice brings. However, besides the numerous researches demonstrating that yoga practices can modify physiological systems, there are no scientifically acceptable description and explanation of these body to mind and mind to body (mind<->body) interactions. It is worth to mention the hypothesis that proposes that chakras are associated with embryological organizing centres in the central nervous system (Shang, 2001), possessing high concentration of gap junction connections. It was supposed that these intercellular gap junction connections provide a physiological mechanism underlying subtle energy systems described in yoga. Namely, it is assumed that the electrical conductance associated with a high concentration of gap junctions generate phenomena that, when subjectively experienced, have the qualities attributed to chakras (Maxwell, 2009). On other side, there is hypothesis of how body states can have influence over brain states affecting thought and feeling (Damasio et al, 1996). This chakra hypothesis emphasizes the role of networks of chemical synapses in favour of electrical networks. Finally, there is hypothesis which is based on the assumption that the physical location of the chakras can be viewed from an ontogenetic perspective. The lower five chakras are associated with sites of developmental control over the following five regions of the spine: cervical, thoracic, lumbar, sacral, and coccygeal. The upper two chakras are located within the brain at points where brain regions have differentiated (Maxwell, 2009; Rubenstein et al, 1998).

4. Ontogenetic and Psychogenetic Insight into Chakras Doctrine

Considerations in the previous sections could be understood as a critique of existing theories (hypotheses) about the chakras and the effects of yoga practices, but not as a denial of the entire teaching of chakras and yoga. In a few places we pointed out that the everyday practice conclusively confirms its importance as a unique empirically confirmed traditional medical system, which is based on the previously mentioned mind<->body approach. As for the existence of chakras, our posture is that one should not engage in non-physical entities, that do not have to think whether they exist, but whether something is going on if the therapeutic treatment places where it is claimed that they are located. More precisely, the chakra locations should not be seen as a place where are hidden these non-physical entities, because a non-physical entity can not be on a physical place, but as places in which some treatment may exhibit effects attributed to the chakras. This approach shifts the focus from theoretical investigations, which have resulted in a number of pseudo-arbitrary variations of the traditional chakra teachings, to the empirical researches of therapy treatments and yoga asanas (practices), to which is devoted much less attention. Following this approach, that means taking into account the phenomenological aspects of the chakras doctrine only, we tried to get answers to the following questions:

- Whether the doctrinal claim that chakras are located along the spine is based on some empirical facts, ie, whether on the part of the spine, on which it is assumed that is chakra X, there is something what connects that part with the organs, which are associated to that chakra?
- Does the therapeutic treatment of the spine part, where is presumably located chakra X, can lead to physiological changes in organs, which are associated to that chakra?

Formally, the answer on the first question might be yes. As it is shown in Figure 1, from the parts of the spine where are located the first five chakras start neurons which innervate the somatic structures that are associated with the corresponding chakras. More specifically, in the vicinity of these parts are five ganglia from which exit and enter in the interneurons and neurons that innervate associated organs. However, this does not

mean that chakras are there really located, or that in these parts of the spine is something what is unknown for modern neurology. These are parts of our body that are fully examined anatomically and physiologically, so it is irrational any notion that there could be some non-physical entities (chakras), which can radically affect the innervation structure and the physiological processes of the associated organs.

The answer on the second question is yes again, but for the first five chakras also. Namely, one can easily check that each energy therapy, applied to the spine part where is presumably located some of the first five chakras, manifest effects on organs that are associated with that chakra. For example, if we act on the part of the spine on which is presumably located the first chakra, arise the filling of the energy flow in the lower abdomen and legs. Of course, this is not the action on the spine itself, but on the segment of skin that is above it, so it is, in fact, a TC (trans cutaneous) energy stimulation: electric, masage and thermal TC stimulation, as well as touch healing, distant healing, and auto distant healing. The last one, usually applied in self relaxation techniques, is a mental concentration on a selected part of the spine.

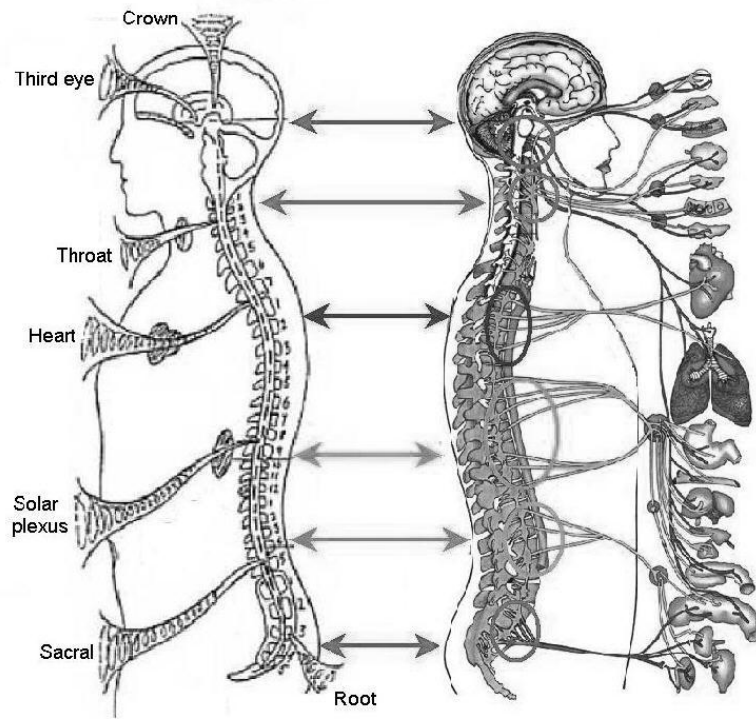


Figure 1.

These, and some other simmlar empirical data directed us to the conclusion that the chakras are the essence of the metaphysical explication of unknown changes, achieved by the yoga practice, which has a symbolic meaning as the metaphorical guidelines to the genesis of the particular psycho-physical states. A similar view was expressed by John Nelson who said this about the chakras (Nelson, Ref. 7): *"I found them (chakras) to be an ideal metaphor to characterize the way we expand our consciousness as we progress through life."* Simplistically speaking, this aims to point out the fact that the doctrinal descriptions of the chakras can not be indiscriminately linked to the autonomic and central nervous system or to the endocrine glands, because they are formulated at a time when none of them was not known. Instead that, attention should be focused on those skills, or those phenomena, which were known to the creators of these doctrines, because the base of the doctrines are not theories but phenomena.

The answers on the above two questions diverted our attention from chakras themselves to the therapeutic effects, i.e. to the phenomenological background of the doctrinal description of chakras therapy. In this regard, one can set the following questions:

- Does any therapeutic treatment (yoga asanas, meditation, TC stimulation, healing) of the spine part, where is presumably located chakra X, can lead to changes of the psychological (mind) states, which controll are associated to that chakra?

Our experience and collected data indicate a partial affirmative answer. Therapeutic treatment itself can conclusively point to the existence of energy blockages in the organs that are associated to the chakras, can reduce or even remove these blockages, but there are no visible indications that it changes the mental state. However, guided meditation, followed by associations that have been partially induced by the color associated to the given chakra, gives unexpectedly different results. This approach leads to psychological responses that are similar to those that occur in the regression analysis, when the patient is confronted with suppressed psychological blockages. Namely, guided meditation, properly adapted to the corresponding chakra (ambient, color and text), have provided informations about possible suppressed psychological blockages in the phases of the ontological and psychological development of the patient, which are presumably controlled by these chakras (posnatal, childhood from age 2, puberty, adolescence and adulthood respectively).

Previously mentioned indicates that the chakras teaching, in fact, metaphorically explicit empirical knowledge about the human ontogenesis and psychogenesis. Strictly speaking, it is explicated in an universal way, i.e. without any access to psychological types, and therefore leads us to think that it refers to phylogenesis. Namely, it confirms the view that every man, if long enough and persistent enough applies yoga exercises, can fully balance all the chakras, what means that everyone can achieve results that correspond to the perfect human phylogenetic development, which is implicitly identified with the ontogenetic and psychogenetic development. However, although it is true that the phylogenetic and ontogenetic development of man are inseparable, but it is also true that the ontogenesis can not be identified with phylogenesis.

The assertion that the chakra teaching promotes a phylogenetic approach is supported by the fact that the chakras should be balanced successively, starting from the first one, where $n + 1$ chakra balancing starts, only if the n -th chakra is balanced. This implies that each chakra can be always balanced, regardless of suppressed psychological stresses and blockages, what means that is always possible to repeat and to correct all phases of the phylogenetic (as well as ontogenetic and psychogenetic) development.

5. Conclusions

There is no scientifically acceptable evidences that the chakras really exist, that is, formally speaking, in accordance with the doctrinal assertion that they are nonphysical entities. Because each doctrine is a metaphysical (unscientific) explication of the traditional empirical experience of the effects of yoga practices (asanas), we can conclude that the chakras are only metaphorically designated developmental stages of the human ontogenetic and psychogenetic development. This also indicates that the chakras teaching is explicated in an universal way, i.e. without any access to psychological types, and therefore leads us to think that it refers to phylogenesis.

Although the therapeutic treatment of the spine part, where is presumably located chakras, can lead to physiological and psychological changes in organs and mind states, which are associated to them, it does not mean that chakras are there really located. These are parts of our body that are fully examined anatomically and physiologically, so it is irrational any notion that there could be some non-physical entities (chakras).

Our opinion is that the metaphysical doctrinal chakra teaching explicits rich and valuable empirical experience, which illustrates a holistic approach to psychiatry, which considers the interrelated influences of the mind to body and of the body to mind in the ontogenesis and psychogenesis. In this approach there is nothing that is unknown for science (psychiatry), and therefore it could be scientifically acceptable, but it is necessary to reinterpret it using the language of the modern science. However, it can not be done, if one still insists on the chakras. The metaphors are untranslatable into the language of science, but science can identify scientific content which is metaphorically presented, or hidden.

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REFLEXOLOGY

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Abstract. Reflexology is a science dealing with mechanisms of origin, development and acting of every kind of reflexes on the all levels of ontophylogenesis. It is interdisciplinary branch of biology, which has its subject, branches, sub-branches, principles, conditions and mechanisms. The subject of reflexology is research on all levels of ontophylogenesis: principles of functioning, mechanisms of origin, development and acting, as well as influence of all kinds of reflexes from the simplest to the most complex. Basic fields of reflexology are: medical reflexology, dentistry (dental) reflexology, veterinary reflexology, animal (zoo) reflexology, and fitoreflexology. Basic branches of reflexology are: reflexodiagnostics, reflexotherapy, reflexoprophylaxis, and reflexoergonomics. Basic methods of reflexology are: physioreflexology, hemioreflexology, and bioreflexology. Basic principles of reflexology are: holographic or quantum-holographic [Tao (holistic) conception or conception of unique wholeness], circulation of energy [meridian's (*Jing-Luo*) conception or conception of acupuncture channels (reflexogenic meridians)], ontophylogenetic (*Haeckel's law*), rhythmic functioning, self-regulation of the body systems, reverberation links (energetics and other influences), action-reaction, reflexogenic aferentation (conditional-unconditional reflex)... In Western medicine, reflexology is a treatment modality which employs only manual pressure to specific areas of the body, usually the feet and the hands, which are thought to correspond to internal organs, in order to generate positive health effects. However, in Eastern medicine and nowadays appearing Integrative medicine, reflexology is an application of any treatment modality on reflexogenic zones, reflexogenic points or reflexogenic meridians (e.g. digitopressure, acupressure, acupuncture, laseropuncture, magnetopuncture, magnetic hammer, moxibustion, cupping, etc.). In this holistic framework, each organism is considered as (quantum-holographic) unique wholeness whose health status is manifested by reflexogenic (acupuncture) zones and their (acupuncture) points, linked in paths of reflexogenic (acupuncture) meridians. Reflexogenic zones are exteroceptive projections of internal organs on the skin (head, nose, ears, palms, feet), mucous membrane (endonasal, gums, tongue) and iris. Reflexogenic points are locations in which is occurring energy exchange (transformation) with external environment according to the principle of functioning of "body channels" or reflexogenic meridians. Through reflexogenic points as mirrors of the organ status or some individual function, one can regulate disturbed energetic equilibrium between some of organs and body parts, also between wholeness of organism as mikrococosmos and its environment, macrocosmos. Morphofunctional basis of reflexogenic zones, points and meridians is ontophylogenetic linkage of internal organs and all systems in organisms with the most ancient energy-informational system, which is composed of the gap junction channels network.

Keywords: *quantum-holographic unique wholeness, ontophylogenesis, exteroceptive projection, reflexogenic zones, reflexogenic points, reflexogenic meridians, energy-informational system, gap junction channels network*

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Abstract. The ancient energy-informational holistic knowledge, as reflexology, acupuncture, ajur veda, tibetan medicine, korean medicine, is very useful in control of opening gap junction channels – prainformative centers in the organisms. The knowledge accumulated through the centuries of the human history is explained and scientifically approved in the 1980s. The subtle influence of the permanent magnetic field, oriented by the North pole to the body surface, belongs to this quantum-informational holistic practice: It increases and improves physiological processes and thus stimulates regenerative processes. One of contemporary novelties in medicine, based on the above ancient techniques, is the new health technology which includes application of “Trap for shell fragments” patented 1995 and “MADU strips” (MAGnetic Deep Unipolar oriented field) patented 2000 by D. Mandic, and acclaimed as the new health technology in 2007 by Serbian Ministry of Health. This kind of therapy represents new medical technology, subtle, holistic, noninvasive, quantum-informational, complementary to acupuncturology and other traditional medicine methods, and could be applied as additional therapy together with contemporary medical procedures. It is ecological friendly and long lasting, applicable in hospitals, outpatient units, and even in the field therapy conditions. Having in mind the experience gathered and its effects on local and global level, this type of magnetotherapy belongs to the future.

Keywords: *medicine, quantum-informational medicine, regeneration, gap junctions, cartilage, blood vessels, angiogenesis, nerves, neuroneogenesis, MADU method, magnetic field*

1. Introduction

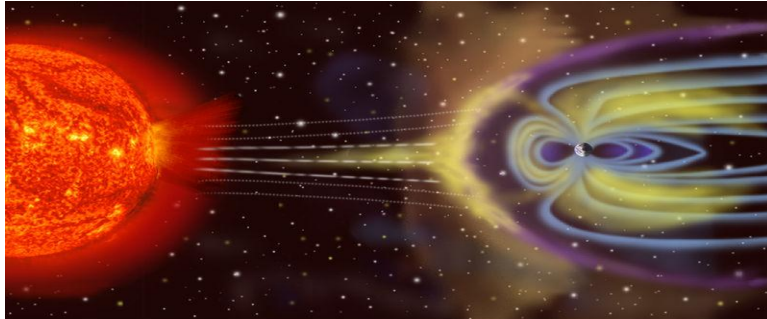


Figure 1. Earth magnetosphere as a magnetic shield for extraterrestrial charged particles.

The efficiency of magnetic therapy is supposed beneficial because the Earth is rapidly losing natural magnetic field (important also as a magnetic shield for extraterrestrial charged particles, Fig. 1) for last 100 years, and all beings are „hungry“ for the natural magnetic field. The Earth magnetism belongs to one of four natural central forces that have made significant contribution on the survival and on the health preservation of all the life on Earth.

One of the contemporary novelties in medicine, based on ancient techniques is the new technology in magnetic therapy which includes application of the “Trap for shell fragments” patented 1995 [1] (awarded WIPO UN 1996 Woman World Inventor of the Year) and the MADU (MAGnetic Deep Unipolar oriented field) strips patented 2002 [2]. WIPO UN PCT research (2000) qualifies MADU STRIP as: Novelty (N), Inventive step (IS) and Industrial applicability (IA). This new method was acclaimed as the new health technology in 2007 by The Ministry of Health, Republic of Serbia [3]. The MADU medical devices are ecological friendly and long lasting,

applicable in hospitals, outpatient units and even in the field therapy conditions. This kind of the therapy represents the new scientific medical technology [4], subtle, holistic, noninvasive, quantum-medical, complementary to acupuncture and other traditional medicine methods.

The substitutional MADU therapy means additional therapy applied together with the contemporary medical procedures. The subtle influence of the permanent magnetic field, oriented by the North pole to the body surface, provides the quantum-energetic level which increases and improves the physiological processes in the organism. As the final result it generates and stimulates regenerative processes. The processes of cartilage regeneration [5-10], angiogenesis [11-22] and neurogenesis [23,24] are of the great significance for the mankind.

The ancient knowledge as reflexology, acupuncture, *ajur veda*, tibetan medicine, korean medicine are very useful as the base of opening Gap junction channels [25-27] – prainformative centers in the organisms [25-27,33]. The knowledge accumulated through the centuries [25-32] of the human history is explained and scientifically approved in the 1980s.

The confirmed indications are: Faster and more complete development of callus in bone fracture [34-38]; Delivery of medicaments with ferromagnetic and paramagnetic properties; Non-invasive displacement and evacuation of ferrous foreign bodies; Preventive and curative with vein deformations; Immobilization of thrombus for its faster rechannelisation; More lavish oxygen delivery by blood into the areas of reduced micro-circulation [11-22]; Reduced swelling in the area under the influence of directed deep magnetic field; Improved viscosity in the arterial and vein blood vessels; Faster and improved regeneration of various tissues.

Having in mind the experience gathered up to now through the application of MADU and its effects on the local and global level [23,31,38,43], the indicational field is getting more and more wider while the contraindications and the precautions are narrowing down. Thus, this type of magnetotherapy belongs to the future.

2. Method

MADU medical method for tissue regeneration is based on utilization of deep magnetic unipolar field which is created by magnetic MADU strips. It includes a 2-3 hours therapy with a number of different medical devices, prior to using the MADU strips of magnetic dipoles.

MADU strips (below 100 mT), much weaker than the WHO's prescribed maximum magnetic field levels (up to 2T), were applied and observed in patients over a period between 3 months and 10 years. The strips were applied on the skin over the treated area.

3. Discussion

MADU principles and mechanisms are as follows [31,39-46,68-70]:

- biophysical effects at the cellular level (the impact on water and its cluster structure; ferromagnetic and paramagnetic; opening of ions channels);
- biochemical effects (change of membrane potentials; improvement of modulation of the potential of the K/Na (potassium/sodium) pump; synchronization of endogenous oscillations of Ca ions; enzymes activation, especially of metalloenzymes; ATP production improvement);
- bioelectric effects - bioconductivity increase (the cell's membrane is equivalent to electrical battery due to diffusible and other ions concentration);
- physiopathological effects - magnetized water is important for enhancing diffusion in cartilage tissue (in synovial liquid of joints, rich of proteoglycans responsible for high water intake, with hydrated cartilage tissue taking 1000 times the space of dehydrated cartilage tissue).

Therapeutic effects are as follows:

- reduced pain (analgesic, hypoesthetic, morphinemimetic effects);
- reduced inflammation (anti-inflammation and acth-like effects);
- reduced swelling (antiedematous effect, dipoles settlement);

- provided tissues oxygenation and nourishment (vasodilatation, spasmolytic effect, microcirculation, metabolism activation and acidity reduced).

4. Results

As a final result MADU magnetic field generates and stimulates regenerative processes, Fig. 2. Out of them, processes of cartilage regeneration [5-10], angioneogenesis [11-22], and neuroneogenesis [23-24] are of great significance for the mankind.

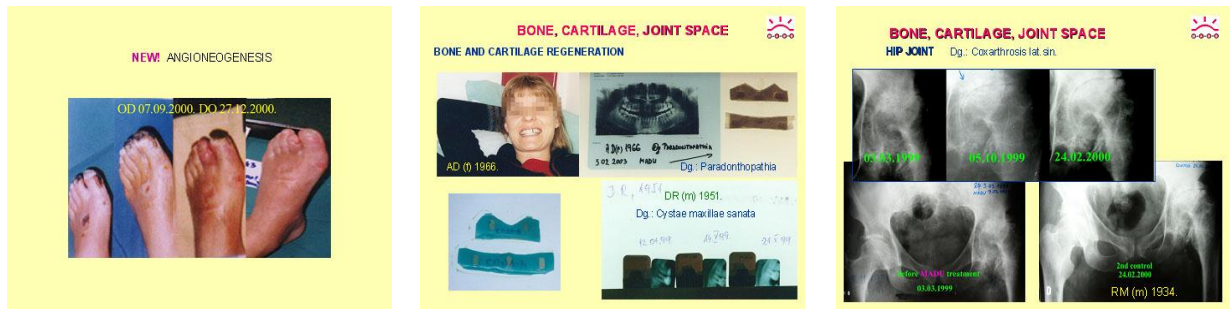


Figure 2. Presentation of case studies of patients suffering from angioneogenesis (left), parodontopathia (middle), and coxarthrosis (right), treated by MADU therapy, who would otherwise be candidates for surgery.

The curved flexible magnetic trap can also be used for noninvasive displacement of ferrous foreign particles from human organism, Fig. 3.

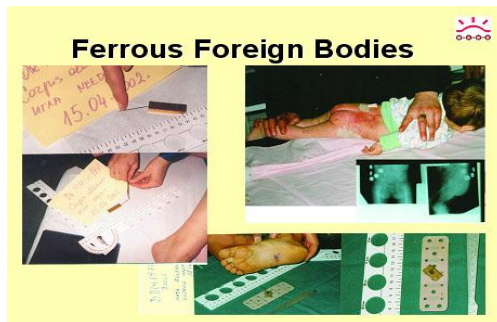


Figure 3. Noninvasive displacement of ferrous foreign bodies from the organism.

The confirmed indications for MADU magnetic therapy are: Faster and more complete development of callus in bone fracture [34-38]; Delivery of medicaments with ferromagnetic and paramagnetic properties; Non-invasive displacement and evacuation of ferrous foreign bodies; Preventive and curative with vein deformations; Immobilization of thrombus for its faster rechannelisation; More lavish oxygen delivery by blood into the areas of reduced micro-circulation [11-22]; Reduced swelling in the area under the influence of directed deep magnetic field; Improved viscosity in the arterial and vein blood vessels; Faster and improved regeneration of various tissues.

5. Conclusion

Having in mind the experience gathered up to now through the application of MADU and its effects on the local and global level [23,31,38,43], the indicational field is getting more and more wider while the contraindications and the precautions are narrowing down. Thus, this type of magnetotherapy belongs to the future.

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CHIROPRACTIC AND HOLISTIC APPROACH TO HEALTH

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Abstract. Chiropractic was established in 1895 in the USA, when Daniel David Palmer, who was spiritual and energy healer, made first adjustment of the spine with the new method which was called chiropractic. Today chiropractic is one of the leading alternative or complementary methods of healing in the world. In more than 20 schools and Universities only in the USA and much more in other countries around the world, students are learning (during 5 years of studies), about the philosophy, science and art of chiropractic adjustments. The main focus of chiropractic is spine (back pain, neck pain, headaches) and pain that has sceleto-neuro-musculoskeletal origin, but often chiropractic can help those who have also other health problems. Three major philosophical principles of chiropractic are: vitalism, holism, and naturalism. Vitalistic principle in chiropractic assumes existence of Vital force, which in chiropractic we called *Innate Intelligence* (similar to Qi in Chinese medicine). Innate Intelligence or “innate” as a part of *Universal Intelligence* is acting mainly through the nervous system, creating the state of health or disease. We are all created to be healthy (not sic) and to have joyful and happy life and the only thing that can interfere with this is *misalignment* or “subluxation” which block the free flow of innate - nerve impulses (energy and vibrations), which put body in state of *dysfunction* and consequently disease, which is followed at the end with the symptoms. By definition and philosophy most conventional medical doctors (practicing allopathic medicine) tend to view good health primarily as a physical state where there is no obvious disease present. In contrast, chiropractic doctors, recognize true health as the optimal state of physical, mental, emotional and spiritual well-being. Holistic principles of chiropractic therefore require from us to look at the *whole person* and not only on its symptoms, which last comes and first goes away. Naturalistic principle of chiropractic is saying that: “Only the power that creates us can heal us”. Therefore, we have to look for more natural ways of treatment, without depending heavily on drugs and surgery. With more holistic and less materialistic-mechanistic approach to health, chiropractic is looking forward to share her holistic insights with other quantum-holistic methods, looking for better understanding and explanations of some “intangible” phenomena, such as Innate Intelligence, that she has often hard time explaining by paradigm of classical science. Chiropractic innately knows that quantum-informational medicine with consciousness based holistic approach, as well as energy-vibration medicine and mind-body approach, has paramount importance for bringing us that missing link and opening the door for better understanding of the real cause of the disease process, from non-physical perspective and out of *limited reality* that classical mechanistic scientific paradigm offers. In some near future this can brings us closer to the *source* of all diseases and helps us to understanding better: “Who we are and Why we are here”? This can provide us than with new tools for healing our individual and collective consciousness and re-connecting with our true self, nature, God and whole Universe. Better understanding of our consciousness, spirit (life force – innate), and soul, as the part of the brain and/or body experience, or as our “*extended self*” (aura, unified field of energy and vibration), will strengthen our quest for meaning and complement our mature spirituality. It is for us to hope that this quest will ultimately bring us transformative insights for better health and for the birth of a *new wisdom*.

Keywords: *chiropractic, health, Innate Intelligence, Universal Intelligence, holism, limited reality, extended self*

1. Introduction

Chiropractic was established in 1895 in the USA, when Daniel David Palmer, who was spiritual and energy healer, made first *adjustment* of the spine with the new method which was called chiropractic. Today chiropractic is one of the leading alternative or complementary methods of healing in the world. In more than 20 schools and Universities only in the USA and much more in other countries around the world, students are learning about the philosophy, science and art of chiropractic adjustments.

World Federation of Chiropractic (WFC), which is part of World Health Organization (WHO), is governing chiropractic in terms of education and safety procedures in more than 90 countries all over the world. Chiropractic help is covered by insurance in most of these countries.

The main focus of interest for chiropractic is spine and musculoskeletal system [1]. Chiropractic is well known as the safest and most effective way for treating back and neck pain – acute or chronic. Other conditions that chiropractic treats very successfully are: headaches, vertigo (dizziness), pain in the arms and legs, degenerative changes, sports injuries, etc. In addition, chiropractic can help those who have also other neurological or visceral (organ) problems. In its diagnostics chiropractic is using all methods and procedures that are commonly used by the conventional medicine (X-ray, MRI, CT etc.). Therefore, we like to say that chiropractic combine the wisdom – healing power of nature with the rigors of modern science.

Chiropractic doctors believe that the body has considerable power to heal itself. It is the role of doctor to facilitate and enhance this process with the aid of natural non-toxic therapies. Chiropractic is art of natural healing, which follows the Hippocrates principle: “First do not harm - Primum no nocere”. Therefore, chiropractic adjustment is safe and effective. Furthermore, doctor of chiropractic is first and foremost preventive medicine specialist and teacher who is educating, empowering, and motivating the patient to assume more personal responsibility for their health by adopting healthy attitude, lifestyle and habits which support health and prevent disease.

2. Three Major Philosophical Principles of Chiropractic

Three major philosophical principles of chiropractic are [1]: vitalism, holism, and naturalism.

Vitalistic principle in chiropractic assumes existence of Vital force, which in chiropractic we called *Innate Intelligence* (similar to Qi in Chinese medicine). Innate intelligence or “innate” as a part of *Universal Intelligence* is acting mainly through the nervous system, creating the state of health or dis-ease. We are all created to be healthy (not sic) and to have joyful and happy life and the only thing that can interfere with this is *misalignment* or “subluxation” which block the free flow of innate – nerve impulses (energy and vibrations), which put body in state of *dysfunction* and consequently disease, which is followed at the end with the symptoms.

For chiropractic Innate as Internal Intelligence and wisdom of the body has (i) material expression in flow of nerve impulses through the nervous system and (ii) spiritual expression as the *life force* (spirit, accumulated knowledge through the ages). This force is always working in our favor and acts from above – down and from inside – outside. Virgil Strang in his book *Essential Principles of Chiropractic* [2] explains that chiropractic first and most important philosophical principle, based on Innate Intelligence, cannot be proven by measuring it, because technology for it steel does not exist, but it is confirm indirectly every day on numerous examples of highly organized live matter which exists everywhere around us.

By definition and philosophy most conventional medical doctors (practicing allopathic medicine) tend to view good health, primarily as a *physical state* where there is no obvious disease present. In contrast, chiropractic doctors recognize *true health* as the *optimal state* of physical, mental, emotional and spiritual well-being. Holistic principles of chiropractic therefore require from us to look at the *whole person* and not only on its symptoms, which last comes and first goes away.

Naturalistic principle of chiropractic is saying that: “Only the power that creates us can heal us”. Therefore, we have to look for more natural ways of treatment, without depending heavily on drugs and surgery.

With more holistic and less materialistic-mechanistic approach to health, chiropractic is looking forward to share her holistic insights with other quantum-holistic methods, looking for better understanding and explanations

of some “intangible” phenomena, such as Innate Intelligence, that she has often hard time explaining by paradigm of classical science.

Talking about Innate Intelligence and subluxation as two major terms in chiropractic I would like to explain that today’s explanation of subluxation is not any more strictly related to only bony misalignment (less than 5 mm), but it also entails changes in the tonus and vibration field of receptors with consecutively changes in muscle tone, proprioceptive (receptor) deficit and changes in posture, that than affect brain function. It is interesting to mention that 80% of total brain stimulation is coming from those receptors in muscles, ligaments and joints.

From non-physical perspective and from the realm of vibration and energy medicine, everything from stones to angels is just vibration. Thus, we are all entities of different frequencies and we are all interconnected through vibration fields. We are all part of this eternal flow and ocean of energy that is everywhere around us.

If internal nature of our being is vibration, than our most important *alignment* sometimes is not on the level of our structure or receptor function, but on the level of our thoughts. An alignment that comes from there, we can call it “subluxation on the mental level”, is maybe than the most powerful alignment of all. Whenever we are aligned with who we really are – with the core of our being, we will be in balance and aligned with the source. Then we will be adding to the balance of the whole.

If we become good in our vibrations, choosing the best possible available thought in every moment, we will be performing everything through the eyes of source, that will provide us satisfaction in everything we are doing and we will be living joyful and happy life. Even more, from physical body and time-space reality we can transcend to become vibrational body in vibrational universe. Richard Gerber in his book *Vibrational Medicine for the 21st Century* [3] is saying that this can bring new awareness and expanded version of self, where becoming *ONE* with the source (*unified field*, or *energy informational field*), can bring us experience of the abundance (idea of any lacking than vanish) and eternal bliss. Then we can enter the field of collective consciousness (source of all ideas and creativity), where we can feel ideas flying to us because we are becoming *ONE* with the creator, we are co-creators and our potentials are limited only by capacity of our dreams and desires. If we keep ourselves in vibrational alignment with our dreams we will be speaking through them and our dreams will still live even when we are physically gone.

For all this we just have to know how to consistently “tune in” – quiet our mind, focus, put our thoughts where they feel the best, ask for what we are looking for and with the faith wait to receive it – to Feel it. Thus, through this expansion of self, we can all be the mechanism or mean of source, allowing vibrational source (Innate – life in us) to express, because we all have access to Infinite – Universal Intelligence. It is all about vibration (energy), vibrational alignment and the power of our thoughts. This is how Richard Gerber and many others spiritual “Gurus” and vibrational seekers are teaching us, how to reduce our resistance and *connect our physical and non-physical self* (which is as non-physical part always around us as vibrational match).

3. From Neurophysiology to Consciousness

Finally, from the level of thoughts, we can now move to the next level and even more enigmatic phenomena such as *consciousness*, spirit, spirituality, and soul.

We have one certain fact at hand: We can be conscious. This is a great miracle no matter how it happens. As neurophysiologists, I know that consciousness has a clear and concise meaning. It is awareness of oneself and one’s surroundings and it engages certain brain systems in a certain order. However, much how it functions in the physical brain is mysterious and of dizzying complexity.

Within consciousness, neurophysiology recognizes three states: Wakefulness, REM sleep (dreaming state followed with eye movement), and Non-REM sleep. The opposite of consciousness is coma. This definition and understanding is admittedly narrow and breaks down when pressed in certain directions.

The switch that regulates our three conscious states is in the brain stem. Brain stem is considered to be a “primitive brain” that controls arousal (wakefulness) and vital functions such as: heart rate, breathing, body temperature, muscle tone, etc. Many contributions come to consciousness from our senses interwind with mental processes that include emotion, thought, memory, reasoning and language. *In order to be conscious we must be aroused.* Brain stem has vital role in regulating consciousness and is basically similar to all mammals. It activates

other brain areas, like thalamus (limbic system – where our emotions are generated) and cortex (which analyzes, store and retrieve information important for our survival). Only our emotions and meanings we can give to the things happening to us, gives us unique human qualities.

And now we can make the central question: *Is man related to something infinite?* This question was made by many great scientists and philosophers in the past, including Carl Gustav Jung. I believe that making this question does not do harm to the mystery of life and death, or any religious believes.

According to the scientists with our basic senses we can sense only small segment (around 5 – 8%) of the universe or what surround us. The reminder exists as a *dark matter of energy*. Also, they indicate that 60 -80% of total energy consumption of the brain is taken by the circuitry that are working “behind the scene” and are without any connection with our basic senses and their responses to outside events. Furthermore, researchers have claimed that near death and out-of-body experience “prove” that mind exists separate from the physical brain. Such a claim is maybe the most extraordinary in all of science. However, there is no calculation for the experience on outside the brain yet.

Kevin Nelson, world renowned neurologists (professor at University of Kentucky, USA) who is examining the processes of spiritual sensations, in his book recently published *Spiritual Doorway in the Brain* [4] wrote: “We know more still about machinery of consciousness than about spiritual experience. Perhaps they use the same brain mechanism but in a different way... Believing in experience outside the brain is faith. Although there is room in the brain for faith, what brain can do for us, can be seen as spiritually neutral... Thus, spiritual truth of our being, were within dark energy and mass, as vast majority of the universe. But, this is the case if we are using only left hemisphere (analytical – rational thinking). Because it will look for “natural” and “supra natural” explanations. Therefore, I believe things my left hemispheres tells me exist, until better idea comes along with so called *direct insight*, from somewhere else”.

It seems that the nature of Faith makes it immune to science’s demands for consensus, verification and prediction. Science cannot prove or disprove the truthfulness of spiritual experiences. The prophet speaks lies beyond the brain in the realm of faith, or higher transcendental consciousness. How many levels of consciousness are there? Yes, we can be aware of our body parts and even about our thoughts – as “ground of our being” and still be *holistically aware* about connection of all things – which already has strong similarities to the mystical. It is all-pervasive, all-embracing, “The mind at large” experience.

Although some scientists are saying that basing one’s spirituality on science is as basing one’s science on spirituality, to me faith and science are not as different as some people have made them. And even if the scientist in me sometimes can be little bit reserved about this view and association to some extent, I innately know that mind needs to become aware of itself and its *potential to become*. The life of spirit and soul (if we agree that we have it), is evolving through asking two simple fundamental questions on which we all, I believe ponder sometimes. Those two questions are: Who we are? and Why we are here? Than it is not hard to realize that in essence we are all spiritual beings – made from “stardust”, living temporarily in these physical bodies on our journey between two eternities.

What does it mean to have spiritual experience and what makes personal experience spiritual?

For William James (professor at Harvard Medical School) who wrote *the book Variety of Religious Experience* [5]: “Sensing that something is more than coincidence is also expression of faith. The term *spiritual* is generally applied to any human essence connecting us to an unseen world that defies scientific measurement, but which we nonetheless believe and feel exists. It is something that deeply moves or transports us and connects us, in one way or another, to something “larger” than ourselves. When we are willing to sacrifice our small selves to that something that we feel and know is greater. This impulse can drive us to reach out to our fellow man in ways that are noble, inspiring and heroic... and it’s a part of what it means to be Human... Transcending the self or losing the self has long be thought to be prerequisite for the mystical experience of Oneness”. William James also wrote: “The world of our present consciousness is only one out of many worlds of consciousness that exist and those other worlds must contain experience which have a meaning to our life also”.

And then what makes personal experience spiritual? William James wrote: “It is the feelings, acts and experiences” of individual people who typically in their solitude understand that they have touched whatever they may consider the Divine (truth or wisdom). Each individual experience remains very much his or her own.

Which means it is exclusive to individual and was not shared directly with others. It is transcending experience as “stream of consciousness” that lead to important insight, or profound inner truth, about us, or real nature of the things around us.

Today spiritual seekers of all kinds in all areas, manipulate and “fine tune” (as the chiropractic is doing with structure of the body) their arousal (brain stem) and emotions (limbic system), through practices of: solitude, fasting, praying, meditation, etc. to enter the *borderlands of consciousness*. Following the idea that spiritual experience erupts in the borderlands between conscious, unconsciousness and dreaming state – getting *somewhere between REM state and waking* – where our consciousness states are not whole, but fragmented and blended with one another, in something similar to: universal or infinite intelligence (chiropractic term), universal energy-informational field, or collective unconsciousness (C. G. Young).

Thus, *fragmented self* did not strip away the illusion of integrated self, but on contrary it becomes pathway to integrated self and this notion of “borderlands” is simply another way of expressing a conscious state that is “higher”, “global”, “transcendent”, or “expanded” – a consciousness that touches Innate wisdom, nature itself, God, or the Universal truth.

Is our brain our spiritual source remains mystery? Kevin Nelson is questioning: “What if there is particular brain center or system, inside the brain or outside (as non-local entity), that give genesis for divine or mystical experience. And when we find it, will we try to nurture, destroy, or control it...? It is one thing to know brain mechanisms of putting sensation together or use the language, and quite another to be able to open it to searing experiences of ultimate truth or purpose. What if we have a drug which can create the mystical experience in us, bringing us to state of “Oneness”, or even closer to God? When divinity should be administered? Would withholding “Oneness” or Enlightenment be inhumane, if we have a power to summon it at will?

Finally, we are all of this world, but as human beings we have always been longing for immortality. The will to believe exist in each of us. Therefore, we are all religious to some extent, although we are not always aware of that. Today, we are on the threshold of a *new era* that holds tremendous promise for a new level of understanding consciousness and spiritual nature of our being. New quantum physics and integrative approach to health, through traditional (complementary) methods of healing and quantum-informational understanding of consciousness, can bring us new level of consciousness about ourselves and universe around us.

4. Conclusion

Better understanding of our consciousness, spirit (life force – innate), and soul, as the part of the brain and/or body experience, or as our “extended self” (aura, unified field of energy and vibration), will strengthens our quest for meaning and complement our mature spirituality. It is for us to hope that this quest will ultimately bring us to better health and to the birth of a *new wisdom*.

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THE ANALYSIS OF BIOLOGICAL SIGNALS AND GENETICALLY DETERMINED FUNCTION OF AUTONOMIC NERVOUS SYSTEM

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Abstract. It is very known fact that according to some new studies hypertension and resting heart rate are genetically determined. According to some studies heart rate variability is the constant related to type of autonomic pattern. Owing to this fact that function of autonomic nervous system is constant, the treatment of diseases could be evaluated using different groups related to type of dysfunction. This is the first but very important step in the development of general principles of personalised medicine. In order to reveal right type of autonomic disorder we used short and long term of HRV analysis with special Ansa Scan Software. A comprehensive study protocol was done including finger blood pressure variability (BPV) and heart rate variability (HRV) beat-to-beat analysis and nonlinear analysis, 24-hour Holter ECG monitoring with QT and HRV analysis, 24-hour blood pressure (BP) monitoring with systolic and diastolic BPV analysis, cardiovascular autonomic reflex tests, cold pressure test, and mental stress test. The patients were also divided into sympathetic and parasympathetic groups, depending on predominance in short term and long term spectral analysis. In the second level of treatment of patients, we used drugs which are in complementary relationship to the type of autonomic pattern.

Keywords: *autonomic nervous system, biosignal processing, sympatho-vagal polarity, genetic aspects*

1. Introduction

The genetic determination of autonomic nervous system with constant patterns of activity is new and very promising approach in the treatment of diseases using principles of personalized medicine. The first and most interesting methodological problem is to reveal the type of autonomic pattern in order to start with medical treatment according to rule: one patient-one disorder. Sympatho-vagal polarity of two main branches of autonomic nervous system is the principal philosophy of the treatment of disorder in order to solve the problem of disbalance using rule to decrease stronger part of the system and increase the weaker. The main methodological problem related to assessment of autonomic system is solved in past decade using help of the physics and theory of chaos, especially heart rate variability analysis. This very strong step in the development of new science became exciting promotion of new integrative discipline – Neurocardiology [1-4].

2. Evaluation of Autonomic Function and Hemodynamic Status

All patients were tested in our Neurocardiology laboratory using comprehensive tree steps protocol for the assessment of autonomic nervous system and hemodynamic status. Tree steps protocol includes: (1) five standard Ewing's clinical autonomic function tests, cold pressure, and mental stress test; (2) short term ECG and HRV analysis; and (3) non-invasive beat-to-beat monitoring and analysis of hemodynamic parameters and autonomic function (Task Force monitor). Patients were tested under ideal temperature conditions (23°C), without any previous consumption of alcohol, nicotine, or food.

2.1 Clinical Autonomic Function Tests

Cardiovascular reflex tests according to Ewing's battery were the first step in our assessment of autonomic function. Participants rested in the supine position for 10 minutes before starting the tests and also rested for 2 minutes between each test [5].

Parasympathetic tests

Heart rate response to Valsalva maneuver: The patient rested and lying recumbent was asked to maintain a column of mercury at 40 mmHg for 15 second blowing into a modified sphygmomanometer, with ECG recording. The result, expressed as a Valsalva ratio (VR) was taken as the maximum RR interval in the 15 seconds following expiration divided by the minimum RR interval during the maneuver.

Heart rate response to deep breathing: Respiratory sinus arrhythmia was assessed by the performance of 6 deep breaths at 0.1 Hz frequency. Patients were given adequate rehearsal to achieve the required frequency and counted through the 6 breaths. The response was taken as the mean of the differences between the maximum and minimum instantaneous heart rate for each cycle.

Heart rate response to standing: Heart rate response after standing (30:15 ratio), expressed as a ratio between the longest RR interval corresponding with 30th beat after starting and the shortest RR interval corresponding with 15th beat. The ratio was measured using a ruler and electrocardiograph trace which was recorded continuously.

Sympathetic tests

Blood pressure response to standing: Orthostatic blood pressure change was calculated as the difference between the nadir systolic blood pressure 180 seconds after standing and the systolic blood pressure prior to standing.

Blood pressure response to sustained handgrip test: Sustained muscle contraction causes a rise in systolic blood pressure, diastolic blood pressure and heart rate. The test was performed with 30% of maximal voluntary contraction for 5 minutes with blood pressure measurement. Increment of diastolic blood pressure during this test was taken for the result.

Cold pressure test: The hand of the patient was put in iced water for 6 minutes. Sympathetic failure was diagnosed related to the fall or absence of changes of heart rate and blood pressure during the test.

Mental stress test: Arithmetic calculation with addition of 17 and 1017 for 6 minutes with previous rest period in duration of 3 minutes was used. Sympathetic dysfunction was present related to the absence of rise or changes of heart rate and blood pressure during mental stimulation.

Results of cardiovascular reflex tests were expressed as a scoring system: normal (0), borderline (1) and abnormal (2), related to the normal values from tables according to Ewing.

2.2 Short term ECG and short term HRV analysis

Analysis of standard 12 leads ECG recording using commercially available softer (Schiller AT-10, Austria) includes ECG waves and interval analysis: duration of P wave, PQ interval, QRS complex, QT and QTc interval.

QT parameters were measured automatically from the 12-lead ECG recording (ECG recorder model AT-10; Schiller, Austria) at a paper speed of 50 mm/s (gain, 10 mm/millivolt). The QT interval was measured from the onset of QRS complex to the end of T wave. Each QT interval was corrected for patient heart rate according to Bazett's formula: $QTc = QT/\sqrt{RR \text{ interval}}$, where QT and RR interval are expressed in seconds.

Short term HRV analysis was done from 512 consecutive RR intervals using commercial softer (Schiller AT-10, Austria) according to previously published guideline [6]. Short term HRV analysis includes: time domain analysis, frequency domain analysis, and nonlinear HRV analysis (Poincare space plot).

Time domain HRV analysis: Short term time domain variables were computed for each subject: mean RR interval (mean RR), standard deviation of normal RR intervals (SD), absolute mean of standard deviation (MD), mean square root of the mean of the sum of the squares of differences between adjacent RR intervals (r-MSSD) and percentage of adjacent RR intervals differing > 50 ms (pNN50).

Frequency domain HRV analysis: Short term frequency domain indices were determined using Hamming window type signal limitation before Fourier transformation: very low frequency (VLF, 0.016-0.05 Hz), low-frequency power (LF, 0.05–0.15 Hz), high-frequency power (HF, 0.15–0.35 Hz), and LF/HF ratio.

Nonlinear HRV analysis: Used to compare the shape of Poincare plot before and after amlodipine therapy.

2.3 Task Force Monitor: Beat-to-beat analysis of heart rate and blood pressure variability, baroreflex sensitivity and hemodynamic parameters

The Task Force Monitor (CNSystems, Graz, Austria), was used to monitor beat-to-beat heart rate (HR) by ECG, beat-to-beat stroke index (SI) by an improved method of impedance cardiography, and beat-to-beat blood pressure (BP) by the vascular unloading technique, which was corrected automatically to the oscillometric blood pressure measured on the contralateral arm.

Beat to beat spectral analysis of heart rate, systolic and diastolic blood pressure variability: Automatically provided, applying an autoregressive methodology. The total power and power of three frequency bands (VLF, very low frequency band between 0-0.05 Hz; LF, low frequency band between 0.05-0.17 Hz; and HF, high frequency band between 0.17- 0.40 Hz) are computed and expressed in absolute values (ms^2) or normalized units (%).

Baroreceptor reflex sensitivity: Automatically assessed using the sequence technique according to Parati [7,8]. Beat to beat analysis of blood pressure enables assessment of baroreceptor reflex sensitivity (BRS) from spontaneously occurring blood pressure rises and falls which are followed with regulatory heart rate interval changes. The following parameters were included in analysis: maximal slope, minimal slope, mean slope (ms/mmHg) and baroreceptor effectiveness index (BEI) (%).

The Task Force Monitor allows intervention marks to be set to define periods for automated statistical analysis. Mean and standard deviation (SD) of the measured parameters were computed automatically for defined steady-state period.

2.4 Holter ECG: Rhythm analysis, Long term HRV analysis, ST segment, QT and QTc analysis, T wave morphology analysis

Twenty-four-hour ambulatory ECG recordings were acquired by a 12 leads electrocardiogram, with sampling rate 1000 Hz per each lead (Cardioscan, D.M.S.USA), and analyzed by an experienced analyst. Cardiac rhythms were screened for ventricular premature beats (VPBs) and supraventricular premature beats (SVPBs). The recordings were reviewed, and the beat classifications were manually checked, corrected, and readied for further analysis. After all of the artifacts and misclassified beats were corrected, time and frequency domain HRV analysis, QT and QTc interval analysis, and T wave morphology analysis were carried out, using the software package present in the system. The Fast Fourier transformation (FFT) and Hamming window were used for the analysis of the frequency (spectral) domain parameters.

Rhythm analysis: Total number of VPBs and SVBPs for the whole period of recording was determined and number of VPBs per hour calculated.

Time domain HRV analysis: Long term time domain variables were computed: mean RR interval for 24 h (mean NN), standard deviation of normal RR intervals (SDNN), standard deviation of all 5-min mean normal RR intervals (SDANN), square root of the mean of the sum of the squares of differences between adjacent RR intervals (r-MSSD), and percentage of adjacent RR intervals differing > 50 ms (pNN50).

Frequency domain HRV analysis: Long term frequency domain indices were determined: total power (TP, 0–0.4 Hz), high-frequency power (HF, 0.15–0.4 Hz), low-frequency power (LF, 0.04–0.15 Hz), and the (LF/HF ratio). Heart rate is measured in milliseconds (ms); variance, which is referred to as the power in a portion of the total spectrum of frequencies, is measured in milliseconds squared (ms^2).

Beat to beat analysis of QT i QTc interval and T wave morphology: Determined from ambulatory ECG recording.

3. Conclusion

The genetic determination of autonomic nervous system with constant patterns of activity is new and very promising approach in the treatment of diseases using principles of personalized medicine. Owing to the fact that function of autonomic nervous system is constant, the treatment of diseases could be evaluated using sympathetic and parasympathetic groups, depending on predominance in short term and long term spectral analysis [9-13].

In this paper a comprehensive study protocol was done including finger blood pressure variability (BPV) and heart rate variability (HRV) beat-to-beat analysis and nonlinear analysis, 24-hour Holter ECG monitoring with QT and HRV analysis, 24-hour blood pressure (BP) monitoring with systolic and diastolic BPV analysis, cardiovascular autonomic reflex tests, cold pressure test, and mental stress test.

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NEW NANOTECHNOLOGIES FOR BRAIN STIMULATION AND IMAGING

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Abstract. Intermolecular multiple quantum coherence "iMQC" methods have been used to enhance the contrast of conventional Magnetic Resonance Imaging (MRI) and improve its resolution. It has been shown that MR images based on detection of iMQC (e.g., zero-quantum iZQC and double-quantum iDQC) give tumor enhancement in rat brains and novel contrast in human brain imaging. Intermolecular double quantum coherences (iDQC) correspond to simultaneously flipping two water spins in the *same* direction, while intermolecular zero-quantum coherences (iZQC) correspond to simultaneously flipping two water spins in the *opposite* direction on distant molecules. Dipolar couplings of proton spins in two water molecules separated by distances ranging from 10 microns to one millimeter can yield detectable MRI signals in the brain. Thus, this MRI method provides clear evidence the wet and thermally noisy brain can support detectable quantum coherence. However, externally induced quantum coherence has never been used for treatment of brain diseases. Currently used brain stimulation techniques (e.g., ECT, TMS, VNS, DBS) cannot stimulate specific subcellular neuronal structures that are implicated in brain diseases. We are developing a new noninvasive method to produce quantum coherence in specific neurons in vivo via bio-nanoparticles with encapsulated hyperpolarized noble gases and/or ¹³C-elements. By inducing quantum coherence in "diseased" neurons our method will enable neurons to simultaneously sample all the potential energy pathways and choose the most efficient one, meaning they can retreat from wrong "diseased" pathways to the healthy one. Our nanopatform uses the natural protein clathrin that is present in every cell. Clathrin was modified to carry C13 and C14, plus targeted ligands. We showed that Clathrin-nanopatform could non-invasively cross the blood brain barrier and target specific brain cells (e.g., dopaminergic neurons). We plan to apply iMQC methods with hyperpolarized C13-clathrin nanoparticles to further show that sustainable quantum coherence in specific neurons is feasible via nanoparticle-induced spin-spin coupling in vivo. These bio-nanoparticles could be used to exploit brain quantum mechanical effects for both diagnostic and treatment purposes. Quantum sensors could be developed for detecting various brain diseases, and also in analyzing genotypes, phenotypes, metabolic actions and states, and different cell types and proteins. This new quantum cognitive processing sensor could also be developed to instantly comprehend chaotic, ambiguous situations, sort and classify their component elements, and use its intelligence as a means to adapt and develop new diagnostic and treatment capabilities for different CNS diseases.

Keywords: *nanoparticles, hyperpolarized 13C-clathrin, MRI, intermolecular multiple quantum coherences, brain stimulation*



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KNOWLEDGE FEDERATION DIALOG BELGRADE 2011

Workshop by Associate Professor Dino Karabeg and Professor Dejan Raković

Join us for a special event – Knowledge Federation Dialog Belgrade 2011. Imagine a world where the insights and methods of quantum medicine are integrated in mainstream healthcare; and where the experiences and the wisdom of healing and spiritual traditions are allowed to inform the conventional lifestyle and culture. What can we do to help this natural and needed development become reality? In Knowledge Federation we have turned this question into a collection of collaborative strategy games. We create projects that are game-changing, each in its own domain, and we provide just enough structure to allow individual contributions to add up to a shared goal, which is characteristically a change of practice. So, the strategy behind our Tesla and the Nature of Creativity (TNC) project may be understood by analogy with the way how large improvements to legal practice are commonly made in the US and Canada (an example is the court case that tobacco industry lost recently at the Supreme Court of Canada): a certain specific law suit is carefully prepared and taken all the way to Supreme Court. In the TNC project (http://www.knowledgefederation.org/TNC_Prototype) we develop a case for quantum medicine and the corresponding worldview by focusing on a specific academic result – Dejan Raković’s model where quantum-informational medicine is used to explain the ‘deep creative insight’ – a phenomenon manifested in unusually high degree by inventor Nikola Tesla. Around Raković’s result we develop a complete methodology and infrastructure by which an academic result from any specialized area (here quantum-informational medicine) may be

- explained in terms that are accessible to general public,
- expressed as an idea in an idea graph and made available online for everyone to comment and work with,
- linked with other related ideas and results,
- developed into general insights that can inform policy- and lifestyle change,
- brought to the attention of academic and other communities where it may have large impact,
- brought to the attention of the media and the public,

or in one word, we are developing a method by which an academic result may be *federated*. As participant in this workshop you will be invited to give your creative contribution to the TNC project. The dialog technique we will be using is an adaptation of the dialog technique developed by physicist David Bohm; we loosen the usual academic constraints on discourse and allow our human voices and our lived experiences to shine through. The authentic anecdotal material that will be contributed in this way will be an asset in our undertaking to make a good case for the media and the public. At the same time, this less constrained and more personal meeting will help us augment our own sense of reality and purpose; and it will also strengthen our personal ties and community.

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Prof. Dr. Dejan Raković is Professor at the Faculty of Electrical Engineering, University of Belgrade, Serbia. Since early 1990ies he has been developing a quantum-informational framework for consciousness and acupuncture, with significant psychosomatic-cognitive implications.