

ON NATURE AND CONTROL OF CREATIVITY: TESLA AS A CASE STUDY

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***When we start to study 'non-physical' phenomena,
We will progress more in ten years than we have for centuries.***

Nikola Tesla

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Abstract. *Nikola Tesla* is undoubtedly the ***greatest inventor in the history of electrical engineering***, and what makes him especially fascinating was his unusual ***mental control of creative visions***. In this paper it is pointed out that they may serve as an ***extraordinary case study*** for understanding both ***biophysical basis of transpersonal psychology & control of creative processes***, in ***meditation & sleep***. This can presumably provide deeper understanding of this ***most complex cognitive issue***, thus ***helping humankind in developing collective knowledge, experience, and wisdom.***

Introduction

Phenomenon of deep creative insights is known to many creators in the fields of science and art. Most frequently, after significant effort to resolve some problem, the solution suddenly appears. However, the very act of creation is going on at **subconscious level**, escaping from rational scientific analysis to date.

Tesla's introspective analyses of his creative phases are therefore precious **case study** [1,2] for understanding the very **biophysical nature of creativity**. Tesla was absolutely convinced in similarity of scientific and artistic ideas: '**They are coming from the same source.**' This viewpoint is similar to *Plato's*, but Tesla did not come to that speculating philosophically, as he had *experienced the world of ideas from the boyhood*: '**When a word was spoken to me the image of the object it designated would present itself vividly to my vision and sometimes I was quite unable to distinguish whether what I saw was tangible or not ... Sometimes it would remain fixed in space though I pushed my hand through it.**' ... [**'Quantum hologram'** [3,4], in Tesla's altered quantum-coherent state of consciousness? (*D.R. note*)].

'Making excursions beyond the limits of the small world of which I had knowledge and saw new scenes. These were **at first very blurred and indistinct**, and would flit away when I tried to concentrate my attention upon them, but, by and by, I succeeded in **fixing** them; they gained in strength and distinctness and finally assumed the **concreteness of real things**. I soon discovered that my best comfort was attained if I simply went on in my vision farther and farther, getting new impressions all the time, and so began to travel – of course in my mind. Every night (and sometimes during the day) when alone, I would start **my journeys**.' ... [**'Astral journeys'** [4.5], in Tesla's transitional quantum-coherent states of consciousness? (D.R. note)] ... I have been practicing this until my seventeens, when my thoughts turned to inventions seriously'.

During his stay in Budapest (1881/1882), in looking for employment after leaving his engineering studies, Tesla was beset by his need to detach ... 'the commutator from the machine' ... He had made a ... 'decided advance' ... in Prague (1880/1881), but knew he had to reach higher, break new ground: 'I started by first picturing in my mind a direct current machine, running it and following the changing flow ... Next I would visualize systems comprised of motors and generators and operate them in various ways. The images I saw were perfectly real and tangible'.

His incessant thinking produced complete nervous breakdown ... His physical state had completely deteriorated. The breakdown **quicken***ed* and **sharpened his perspective a hundredfold**, so that he ... 'could hear the ticking of a watch with three rooms between me and the time-piece. A fly alighting on a table in the room would cause a dull thud in my ear. The whistle of a locomotive ... made the chair on which I sat vibrate ... in the dark I ... could detect the presence of an object at a distance of twelve feet by a peculiar creepy sensation on the forehead ... In some instances, I have seen all the air around me filled with tongues of living flame.' He stayed indoors, sunk in his night shirt and beddings, shivering continually under the thunder of cart wheels and horses, organ grinders, bells, and the sound of voices, incomprehensible and foreign. The air itself hurt ... His pulse fluctuated from very low to 260 beats per minute ... [By his incessant meditative efforts Tesla presumably had **awaken his 'kundalini' vital energy** in the base of spine [4,6], which abruptly opened his '**doors of perception**', usually causing permanent psychosis in persons mentally unpurified previously, but Tesla succeeded to recover owing to his '**pure soul**', and subsequently a series of his incredible '**meditative inventions**' began (D.R. note)]

Antal Szigeti, a co-worker, came one day to his lodging, and said that, while he had no clue as to what was ailing him, knew that a walk in the fresh air and light never harmed anyone, and pointed toward the City park, *Varosliget*, and invited him to come for a **stroll** ... *'We exercised every day and I gained rapidly in strength. My mind also seemed to grow more vigorous and as my thoughts turned to the subject that absorbed me I was surprised at my confidence of success.'*

On one occasion... during a walk in the park toward the end of February, Tesla looked at the setting sun, and began to **recite** *the glorious passage from Goethe's Faust* [...] **'As I uttered these words, the idea came like a flash of lightning ... and in an instant the truth was revealed. I drew with a stick on the sand the diagram of my motor ... secrets of nature which ... I had wrested from her against all odds and at the peril of my existence ... See, how smoothly it runs. No commutator, no brushes, no sparking. As the current in one coil decays, in the adjacent coil it increases, coil after coil, creating new magnetic rotating fields and pushing the shaft continually.'**

'In less than two months, I evolved virtually all the types of motors and modifications of the system now identified with my name ... it was a mental state of happiness as complete as I have ever known in life. Ideas came in an uninterrupted stream and the only difficulty I had was to hold them fast.'

He had been right in Graz (1875/1877). The fire, the wheel, and now the electromagnetic field ... He had entered a treasure house of electricity. ***Perhaps the disarrangement of his senses had been necessary.*** His life had been preserved for a purpose ... ***It was all new, and yet, he felt as if had always known it ...***

The above Tesla's quotations undoubtedly reveal that Tesla's visions & inventions were realized in ***controlled altered & transitional states of consciousness***, which are manifestations of ***macroscopic quantum nature & nonlocality of consciousness***, with significant implications.

Quantum-holographic bases of consciousness: psychosomatic-transpersonal & cognitive-creative implications

According to our theoretical investigations, *in-deterministic manifestations* of **free will** and *holistic manifestations* of **transitional & altered states of consciousness** – necessarily imply **quantum bases of consciousness** – with significant *psychosomatic-transpersonal implications* [4]:

Namely, as demonstrated by **quantum-coherent characteristics** of the Russian-Ukrainian school of **microwave resonance therapy** (MRT) [7] – the **acupuncture system** is the only **macroscopic quantum system** in our body (while brain still seems not to be!) which might be **related to consciousness**.

Also, recent theoretical investigations show that **any quantum system** has formal mathematical structure of the **quantum-holographic Hopfield-like associative neural network** [3].

Then, **acupuncture memory attractors** can be treated as *psychosomatic individual disorders* representing (*quantum*) *holistic records* – representing **biophysical basis of (quantum) holistic local psychosomatics** [4], cf. Fig. 1!

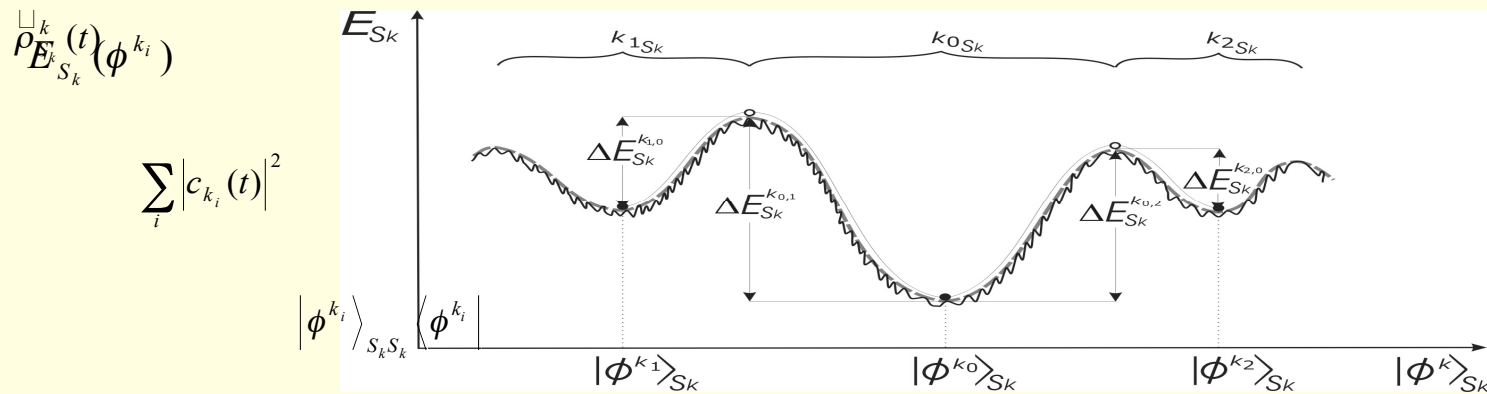


Figure 1. Schematic presentation of memory attractors in energy -state hypersurface () of **quantum holographic memory/propagator macroscopic open quantum acupuncture system/consciousness** :

$$G^{(k)}(r_2, t_2, r_1, t_1) = \langle r_2, t_2 | (r_1, t_1)^* = \langle r_2, t_2 | (r_1, t_1)$$

It should be pointed out that **quantum decoherence** evidently plays **fundamental role** in biological quantum -holographic neural networks , through presented **shape adaptation of energy-state hypersurface** (in contrast to *low-temperature artificial qubit quantum computers* where quantum decoherence must be *avoided* until the final read -out act of quantum computation!) – which implies that Nature has chosen elegant **room-temperature solution** for **biological quantum -holographic information processing**, continuously **fluctuating** between **quantum-coherent state** = $\sum_{i=0}^{P_k-1} A_{k_i}$ and **classically reduced state**

= of **acupuncture system/consciousness** , through nonstationary

interactions with out -of-body far-environment and through decoherence by body near -environment [4]. Also, **quantum neural holography** combined with **quantum decoherence** might be very significant element of feed -back **bioinformatics** , from the level of cell to the level of organism [4,42]!

At the same time, the mentioned analogy between *mathematical formalisms of Hopfield's associative neural network* and *Feynman's propagator version of the Schrödinger equation* implies that **collective consciousness** is a possible **ontological property of the physical field itself** with various *micro-quantum* and *macro-quantum* (both non-biological and biological) *excitations*, which is a **widely spread thesis of Eastern esoteric/religious traditions**.

Then, **collective consciousness memory attractors** can be treated as *psychosomatic collective disorders representing generalized (quantum) holistic field records* (including *interpersonal hesychastic-prayer finally-reprogrammable loads!*) – which might represent **biophysical basis of (quantum) holistic global psychosomatics** [4]!

Accordingly, **mystical quantum-holographic states of consciousness bear information on wholeness** (which resembles Hinduistic relationship **Brahman/Atman** [6]), which can be **registered only in altered states of consciousness** (*sleep, creative dozes, meditation, prayer ...*), **when consciousness of a mystic is not under pressure of bodily environment any more**, and **can acquire information about cosmic quantum hologram as a whole** [4].

By returning into bodily normal state of consciousness, out of quantum-holographic sum of information **only one term is selected** while others disappear, as a **characteristic of transition from quantum to classical state of consciousness** (related to so called **quantum collapse** [4]).

This explains **in principle non-adequate informational rationalization** of any direct quantum-holographic **spiritual-religious mystical experience** (and hence mystics of all traditions agree that everything is clear in these states of consciousness, but that they have a problem to explain this experience to themselves and to others!) – with **significant epistemological implications**.

This imply **two cognitive modes of consciousness**, according to the coupling strength consciousness-body-environment [4]: (1) **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 (2) **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.

It should be pointed out that **direct quantum-holographic coupling of individual and cosmic collective consciousness needs weak out-of-body consciousness-environment coupling**, i.e. **needs previous reprogramming of all psychosomatic loads**.

This implies ***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-channelled tunnelled consciousness ***on the out-of-body environment***, and thus to ***classically-reduced out-of-body extrasensory observing of the mentally-addressed environment*** [4].

So, ***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*) appear reasonable (which still leaves room for *personal love*, whose highest manifestation is ability and readiness for permanent and ***unconditioned forgiving*** (to loving person, and because of him/her to everybody else, including enemies), *in spiritual prayer and (subtly related quantum-holographic) living practice*; the same refers to love for relatives and friends).

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 epistemological limitations***. This traditional knowledge was preserved for millennia in ***shamanistic*** tribal traditions [8], or by Patanjali in ***Yoga Sutras*** pointing out that mystical experience (samadhi) is 'filled with truth' and that 'it goes beyond inference and scriptures' [6], or 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' [9]!

Control of creative processes in meditation and sleep

In the context of **creative insights & extraordinary inventions of Nikola Tesla** (*directly visualized in consciousness with all functioning details of devices, without any application of Maxwell electromagnetics!*), it is interesting to consider **possibility of controlling creativity in the framework of our theoretical investigations**.

They predict unusual **anticipative properties** of psyche in quantum-holographic quantum-coherent **transitional & altered states of consciousness** (with **subsequent classically-reduced extrasensory-perception** of the **mentally-addressed out-of-body complementary environment**, which might also be Jung's '**archetype**' of the **problem-with-solution of quantum-holographic collective consciousness**, which arises association on Tesla's '**mental inventions**' and Plato's '**world of ideas**').

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) **acupuncture system/nervous system threshold filter** (which requires 'emotional colouring' of the solving problem) and (2) **frontolimbic-amplification filter** (which requires 'emotional-thinking priority' of the solving problem).

According to our investigations, all mentioned conditions might be realized in *quantum-coherent stationary state of **waking meditation*** (by entering in this *prolonged altered state of consciousness, with mental addressing on the solved problem*) – which **Tesla** has been doing by ***persistent mental focusing*** on the solving problem as described in the introductory section!

On the other hand, during the ***sleep state*** the mentioned conditions might be realized in *quantum-coherent transitional states of **falling asleep*** and *quantum-coherent stationary states of **REM-sleep*** (with previous ***intense concentration*** on the solving problem before sleep, and ***subsequent amplification*** of the obtained classically-reduced answer in the form of *symbolic dream*, which should be then ***correctly interpreted*** in the context of *personal internal symbolism* [4]) – ***widely applicable*** even to *meditation-non-trained persons*!

Of course, for solving conceptually complex ***scientific problems*** it is necessary to be an ***expert*** in the corresponding field, in order to ***scientifically rationalise a solution*** representing *scientific shift*.

The same might be applied to **artistic creative experiences** and their subsequent **artistic expressions** [*Mozart as an excellent example! [4,10] (D.R. note)*], while very **art-works** then behave like **mental addresses of "archetypes"** being in contact with artists in transpersonal communications during the acts of creation.

Then **deep artistic experiences of public** might have strong **spiritual note** too, through **spontaneous mental addressing on the masterpeace** and **emotionally-induced excitation into transitional state of consciousness**.

Finally, this could similarly be extended to **deep spiritual experiences of the believers** with their **mental addressing on holy icon/relic** and **emotionally-induced excitation into transitional state of consciousness**.

Conclusion

In conclusion, it should be noted that ***Tesla's introspective analyses of his creative visions*** are so precious for understanding both ***biophysical basis of transpersonal psychology & control of creative processes, in meditation & sleep.***

Regarding ***Tesla's extraordinary creative ranges*** of his experiences in these exotic states of consciousness (*categorized in his time as 'non-physical' phenomena!*), ***Tesla's conviction*** in introductory moto that '***when we start to study non-physical phenomena, we will progress more in ten years than we have for centuries***' becomes clearer.

This can presumably provide ***deeper understanding of this most complex cognitive issue***, thus ***helping humankind in developing collective knowledge, experience, and wisdom.***

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