

# Synchronicity Phenomena by C.G. Jung: Perspectives of Study and Possible Psychophysiological Substantiation

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## Abstract

Directions of researches, considering in any event the complex of phenomena specified in terminology of analytical psychology author, Carl G. Jung, as “synchronicity phenomena”, were considered. On the basis of available data the original concept was proposed, which could make it possible to provide a theoretical basis, interpreting observations of famous researchers, including from the psychophysiology position. Interdisciplinary approach is applied in this material taking into consideration state-of-the-art progress of the modern science.

**Key Words:** entanglement, synchronicity, psychophysiology, consciousness, scattering processes, electrostatic interaction

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## Formulation of the problem

At present, the practitioners of psychological services widely apply various psychotherapeutic methods proposed within the one or other branches of psychology. In particular, the matter concerns “personality approaches”, such as classical psychoanalysis, humanistic psychology, as well as at once so “exotic” and thriving trend as so-called “transpersonal psychology”. At the same time, one should state that practical application of considerable part of diagnostics methods and subsequent psychological correction passes ahead of their theoretical justification. In this respect,

such trend of depth psychology as “analytical psychology” is not exception, which creator was Swiss psychologist, philosopher and psychiatrist Carl Gustav Jung as is generally known. The complex of phenomena defined, as “synchronicity phenomena” in Jung’s terminology is the most mysterious as well as key within “Jungian psychology” in opinion of the creator of such approach. Special discussing of such trend of researches is determined by the fact that possibility of interpretation of such class phenomena runs counter to ordinary notion of physical reality. However, more detailed study of some foremost results, obtained by the modern science, affords ground for less skeptical consideration of “synchronicity” problem. Although description of so-called “semantic” coincidences (also called as “synchronicity phenomenon”) had been conducted a long time ago (Jung, 1969), their research became topical just for the last decades. Such researchers as Mindell

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(2000), Grof (1992) and some others work in such trend. "Breaking of the memory adaptation" theory is one of the most detailed researches (Tarlaci, 2006). Therewith other hypotheses were also proposed. For example, some theories are based on comparison of synchronicity phenomenon with quantum entanglement (Carminati and Martin, 2008; Duch, 2002; Martin *et al.*, 2009). Value of other researcher's investigation – S. Grof – lies in attempt to provide a theoretical basis, which probably will illuminate quite specific manifestations of mental life, based on hypotheses of Karl Pribram and David Bohm. As is generally known these assumptions postulate holographic analogy in attempt to describe psychophysiological mechanisms underlying nature of consciousness.

At the same time, proposed schemes allow to supplement them and, probably, modify them to some extent from the psychophysiology positions.

All above-stated creates prerequisites for subsequent researches in stated area.

### **Purpose and formulation of task, research hypothesis**

Being the consequence of trends stated in previous section the purpose of this article and formulation of task is to find out possible mechanisms of "synchronicity" phenomena realization subject to psychophysiological constituent.

It is necessary to go into detail on definition and interpretation of "synchronicity" notion.

Synchronicity (by Jung) is the phenomenon, when event in outside world meaningfully (i.e. semantically) coincides with psychological condition of one or another person. In general the Jung's notion of "synchronicity" comes to the fact that it is "*acausal connecting principle*" or "class of events connected not by the reason, but by sense (i.e. dispersed in time and space)". Causality is the philosophic principle underlying the concept of the law of nature. Such is the methodology of the science. However if the connection between the cause and consequence becomes apparent only statistically, and is only relatively true per se,

then the causality principle rather relatively fits for explanation of some natural processes and therefore assumes existence of one or some factors necessary for explanation. One may say that connection between the events under certain circumstances is of other than causal nature and requires other principle of explanation.

Jung classifies the synchronicity manifestation in the following way: 1) coincidence of observer's mental state with objective external event, taking place at the moment of such state and corresponding to mental state or its contents, where causal connection between the mental state and external event is not traced, and where such connection can not exist taking into consideration the mental relativity of time and space; 2) coincidence of psychic state with corresponding (occurring at the same time more or less) external event, taking place beyond the observer's perception, i.e. at a distance, whereof one may ascertain only later on; 3) coincidence of psychic state with corresponding but not existing yet future event, which considerably distant by the time and which reality may be also determined but later on.

Obviously, that foregoing is associated quite poorly with ordinary notions about determination of events by laws known to science. However, the possibility of consideration of similar "synchronicity" displays is demonstrated below from the positions of natural-science approach.

For many years Jung was collecting corresponding material but he did not publish the results of his observations and their analysis relating to so-called "acausal chances". Sometimes Jung made casual mention of such problem in his papers, however it and phenomena related to it were so "extraordinary", that only in 1951 the scientist made a report "On synchronicity", where he stated in general terms his investigations in such area describing "inconceivable coincidence". It should be noted that Jung's papers, representing quite extensive material for general understanding of synchronicity phenomenon, does not seem to be rich in concrete examples. Being considered as "classical" incident, when the Jung's patient, having stated the meaning of her dream, which key character was "scarab

beetle", "initiated" appearance of such insect on sill of opened window in Jung's room, cannot be regarded as the most interesting example. Really, incidents with correlation of people behavior are far more informative and demonstrative.

The case deserving attention is that Sigmund Freud described such examples (though in some other terms) more minutely than Jung. Although the creator of psychoanalysis was materialist and strictly adhered to points of his modern science. Also it is known that rupture between Jung and Freud occurred also in connection with such researchers' divergence of opinion about so-called "occult phenomena". Specifically Freud described the "occult" phenomena in his paper "Introduction into psychoanalysis: Lectures" (Freud, 1966). As is generally known the lectures from 1 to 28 were published by the author before 1917. Subsequent sections, including lecture 30, which in fact stated synchronicity phenomena, were published by Freud only in the thirties. Creator of theory of the unconscious stated the fact when contents of dream became the event correlating with external incident beyond the direct perception of such subject. This concerned a fact when daughter of Freud's patient gave birth to twins. Two more similar cases are stated further in lectures.

Jung believed that synchronicity phenomenon underlies his hypothesis of "collective unconscious", which key ideas are so-called "archetypes" rather than being of own significance. Jung believed that synchronicity phenomena cannot be considered in isolation from the structure of "collective unconscious", having "archetype nature". Swiss psychologist expressed his opinion that some phenomena of coincidence or synchronicity are certainly stipulated by archetypes.

As to validity of such conclusions, extremely rich practical material shall be taken into account, whence the creator of analytical psychology had the opportunity of data deriving. It is known that he (as well as Freud) conducted about 10 analyses of the patient's states every day. At the same time he "found out coincidences", which were so significantly connected and which probability of "chance" was expressed in

such figure, that they were obviously sense from the viewpoint of probability theory. As it was mentioned above, in Jung's opinion the "semantic coincidences", which should be distinguished from senseless "chance groups", are reposed on archetype basis. At least all cases in Jung's practice (and there were many of them) possessed such distinguishing characteristic.

Not only Jung appealed to the matter about possible correlation of mental processes stipulated by connection with some external substance. Laureate of Nobel Prize on physiology, John Eccles (Eccles and Popper, 1977), and Canadian top-ranking neurosurgeon, Penfield (1978) jointly put forward similar hypothesis in their time.

In addition, famous Italian psychiatrist, Assagioli, appealed to synchronicity phenomenon in his papers (Assagioli, 1975).

However without providing corresponding theoretical basis and, surely, subsequent experimental verification, the synchronicity hypothesis risks remaining only bold assumption, being of less interest in the course of time.

At the same time, some up-to-date trends of investigations, representing the forefront of modern science, are able to illuminate a number of problems in psychology, including synchronicity phenomenon.

In particular, the matter is about such new area of physics as "quantum information science". Such section of physical science is also called "quantum information theory".

Many researchers, including Bohm (1980) and Pribram (1971), conclude that many phenomena similar to synchronicity may be interpreted within so-called holographic paradigm. At the same time, it is postulated that subject's psyche and consciousness is indivisible part of universe and connected with other individual "I" in a certain way. According to holographic paradigm, as Grof noted, the consciousness is the part of continuum in fact. Whereas correlation of mental processes may be stipulated just by this mechanism. Thereupon the hypotheses are put forward to the effect how the mental processes of

different individuals may correlate at any distance, and attempts of explanation (including of synchronicity phenomena) are made. Such hypotheses may be based on the latest achievements of theoretical physics, namely on quantum theory. As is generally known description of quantum phenomena by no means conform to our notion about the nature formed during ordinary life. It is notable that notions of the creator of analytical psychology were formed due to his close cooperation with theoretical physicist, Nobel Prize Laureate, Wolfgang Pauli, who laid the foundation of quantum theory together with the others.

At the same time, the synchronicity principle has the properties capable of solving mind-body dichotomy. It should be noted that such principles is motiveless order indeed, or rather “semantic orderliness” capable of illuminating psychophysical parallelism.

It is evident that the character of phenomena attached to synchronicity and their psychophysiology cannot be studied within investigations of electrochemical transfer of nerve impulses.

Specific solution of synchronicity phenomena problem apparently may be found by investigation of such phenomenon as “quantum non-locality” in respect of biological objects. Such investigations are conducted by such authors as Duch (2002), Carminati and Martin (2008).

As is generally known quantum entanglement is referred to as quantum-mechanical phenomenon when quantum state of two or more objects shall be described in mutual interconnection, even if separate objects are dispersed in space. Hereupon the correlations between observed physical properties of the objects appear.

Described behavior of microcosm objects is capable of the most “functional” appearing as mechanism whereby such mental phenomena may be realized as the synchronicity phenomena are. However study of synchronicity phenomena supposes to conduct analysis how similar phenomena may be realized within biological objects and human organism in particular.

Many researchers tend to apply to interpretation of biological processes from

the positions of quantum mechanics. Article of French researcher, Ogryzko, is of special interest therein, since it is the paper where possible meaning of such phenomenon as “quantum entanglement” is considered for processes taking place in DNA and its environment (Ogryzko, 2008).

Key supposition about possible mechanism of synchronicity phenomenon realization is existence of quantum entanglement of genetic materials of different subjects.

Both origination of quantum entanglement because of “scattering processes”, and quantum entanglement because of “fluorescence resonance energy transfer” (FRET) may be the ways for realization of such mechanism. Formalism of the first process is described in paper of Mishima *et al.*, (2004), wherein origination of quantum entanglement under electrostatic interaction is examined. In turn, electrostatic interaction in DNA is described in paper of Kornyshev and Wyncveen (2009). As concerns FRET, origination of quantum entanglement under such mechanism is described in paper of Sekatskii *et al.*, (2003). FRET also occurs in DNA, whereof it is described for example in paper of Ota *et al.*, (1998).

Solution of the problem of decoherence – transformation of quantum states, characterized by quantum superposition or so-called “pure states”, into so-called “mixed states” goes beyond the scope of this article. It should be just noted that one or another solutions of such problem are proposed by various researchers, in particular, in paper Ogryzko (2008).

Appeal of above-stated hypothesis lies in the fact that origination of quantum entanglement between genetic material of the parents and descendants seems to be quite realizable. Really, in its time DNA of descendants “interacted” with the same genotypes of the parents. By “extrapolation” of such assumption towards the people not of kin, one may assume existence of quantum entanglement within quite large groups of individuals. In addition, truth of such extrapolation follows from relatively recent obtained data about the origin of a



man from one center some hundreds millions years ago.

It is obvious that within proposed hypothesis it is necessary to reject stereotype notion about the role of electrochemical transfer of nerve impulses in determination of consciousness nature.

The hypothesis is based on the assumption that "frame" in its way, where the material carriers of consciousness are located, forms DNA of brain neurons. In addition, molecular orbital (electron shells) of nuclear DNA of nerve cells appears as "carriers" of consciousness in fact. This perfectly conforms to the hypothesis of Karl Pribram about holographic principle of brain functioning.

### Conclusions and perspectives of subsequent researches

Summarizing the material given in the article one may ascertain that study of synchronicity phenomenon is quite topical at present. First it is conditioned by the up-to-date achievements in the area of theoretical physics, namely of quantum theory.

Theoretical substantiation and experimental verification of quantum entanglement allows assuming possibility of synchronicity reasoning by Jung. As it was noted, such psychological phenomenon obviously conforms to stated quantum effect. Quantum entanglement between DNA of brain cells of different subjects is proposed as psychophysiological mechanism in this article. In its turn, the mechanisms of quantum entanglement origination under such conditions may be the processes of scattering under electrostatic interaction in DNA, as well as fluorescence resonance energy transfer.

It stands to reason that perceptivities of such researches are defined by the possibility of their experimental verification. Thereat the publications of such researcher as Thaheld deserve attention (Thaheld, 2001; 2004). Continuous improvement of laboratory equipment and development of new methods makes it possible to expect obtaining of acceptable data during the next years.

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