

QUANTUM PHYSICS ON FREUD'S COUCH

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ABSTRACT: Psyche is described by Homer as the energy of life and not as it is now understood, synonymous with the virtual organ named mind. Starting from the etymology of psyche it is possible to discover that the field of study of psychoanalysis is very close to that of quantum physics. In their correspondence Jung and Pauli had already guessed how the reality described by quantum theory is very similar to the description that psychoanalysis makes of the subconscious. Observing the ability of psychotherapists to interact with this inscrutable world could offer new insights to physics. The latter could finally undertake studies that lead to a theory and therefore a mathematical function that can include the psyche variable.

KEYWORDS: Quantum; Psychology; Physics in psychotherapy; Quantum mind; Psychophysics

The year 1900 marks the official dawn of two disciplines: Max Planck publishes his studies in which the concept of Quantum is expressed for the first time; at the same time, Freud publishes “The Interpretation of Dreams”, giving birth to Psychoanalysis.

As twins separated at birth, quantum physics and psychology found themselves in front of the same destiny, even if they came to the same place following different routes; in their pursue of truth they reached a realm that they were not expecting to find and which changed the entire reality which we thought we knew. Physics discovered that matter is substantially made of vacuum which is, however, filled with waves. Psychoanalysis discovered that the subconscious, a void filled with instincts and energies, is the foundation of behavior, thought and human physiology.

I am posing myself these questions: how is it conceivable that these two disciplines led to the same crossroads? Did they just happen to cross each other by coincidence?

Physics and psychology use very different languages; however, we often have the distinct impression that they are talking about the same things or, at least, about the same processes and dynamics. The connection between these two disciplines had

already been recognized by Pauli and Jung¹ in their famous exchange of correspondence.

Before proceeding with exposing my thoughts on this matter, I would like to emphasize that I am a psychologist and a psychotherapist. My knowledge and understanding of quantum physics is limited and my professional experience, primarily of a clinical nature, leads me to look at this issue from a rather pragmatic perspective and makes me less inclined to follow a typical research approach. For this reason, I apologize in advance to the expert reader for my inaccuracies and imprecision in quantum physics. On the other hand, because of my peculiar position, I hope to be able to offer the reader a new perspective which may be useful in the pursuit of truth and knowledge. Noticing analogies between quantum physics and psychotherapy, paradoxically, has been to me a trivial process. As a therapist, I am used to my clients' contradictions, oneiric landscapes, and the unexpected. The psychic realm is a world which well fits the interpretation of reality offered by quantum physics.

For this reason, I also apologize for discussing some issues in a seemingly superficial manner, either as a consequence of my poor science proficiency or because I take for granted some psychological notions, which may not be familiar to a physic scientist. Lastly, I would like to emphasize that the main objective of this paper is to stimulate research, rather than present documented findings. My objective is to provide arguments, rather than notions; therefore, I ask the reader to take the risk of replacing the tranquillity of reason with the creativity of reasoning.

WHAT IS PHYCHE?

With this preamble in mind, I would like to start by arguing that cognitive science has led us to accept the idea that psychology is a science concerning the mind and thinking processes². Although this definition is in part correct, it provides a rather limited and distorted vision of reality.

Several branches of psychology, such as Gestalt therapy and Bioenergetics, encompass mind and body, as well as the interaction between them; in addition, other disciplines, such as Psycho Synthesis and Transpersonal Therapy, introduce a spiritual

¹ Wolfgang Pauli und C.G. Jung, Ein Briefwechsel (2015)

² It is important to remember that etymologically the words cognitive, mind and thinking derive from different idioms which have the same literal meaning, thinking, reasoning and, we can here add without fear of wrong doing, Logos. Therefore, psychology is reasoning on psyche, rather than being a science about reasoning, as rightly suggested by cognitive science.

component.

In practice, however, all these specific branches of psychology suffer yet from the same Cartesian distinction which is still prevalent in today thinking, i.e. the split of reality, of physics as it was understood by the ancient Greeks: *Physis*, the entire nature, *Res*, the material (extensive and manifested) reality as well as the mental, that is though, reality which cogitates. Subsequently, it became clear that it was necessary to introduce a further distinction between mental reality and spiritual or transpersonal reality. This further split of reality was partly due to the usual religious justifications, but also to the recognition of the existence of an immaterial reality which goes beyond individual thinking, transcending therefore the individual; a reality which, in any case, affects the mental reality. Currently, we are presented with a tri-polar vision of psychology which distinguishes among body, mind and spirit.

This distinction is the normal consequence and complication of an artificial vision of reality. In fact, starting from the Cartesian vision, it was inevitable that psychology had to “invent” three different fields of intervention and subsequently, through holistic and psychosomatic theories, it attempted to integrate all three areas.

This entire complication is to me similar to the difficulty of calculating the orbits of planets before the Copernican revolution. Once the geocentric theory was overcome and replaced with the heliocentric theory, everything became both clearer and easier.

In order for a similar process to take place, psychology needs to follow in the physics footsteps and adventures beyond the Cartesian dualism. The first step which is required is to start from the very beginning, that is to pose the question “what is psyche?”

This question may appear trivial; however, it is not trivial at all, because the correct answer is: “we just do not know”.

The word psyche, partly because of the conditioning by the cognitive sciences, is commonly used as a synonym of mind, thinking, hence *logos*. However, we know that this is incorrect; Psyche is much more.

While mind means thinking from the Latin word *mens*, and also from the Sanskrit word *mati* (thought), psyche is a Greek word which is translated as “*anima*” (soul); however, this translation is somewhat incorrect, even just because of the meaning currently given to the word *anima* - soul.

In fact, psyche is associated to the word “*Phu*” (strengthen in “*Sphu*”) while *anima*³ derives from the Sanskrit “*Atman*” and both words have the univocal meaning of

³ The word Soul is coming from Old High German *sêula*, *sêla*. The original concept is meant to be “coming from or belonging to the sea/lake” because of the German belief in souls being born out of and returning to sacred lakes. This is easy to associate at the field (or sea) of possibilities in quantum theory.

breath, whiff, wind. Psyche is therefore something that in our culture is closer to the Spirit (these words in fact share the same root) rather than to the concept of an elusive soul which inhabits our body. Hence, Psyche is related to the concept of Qi (or Ki) for the Indian Prana⁴, specifically to the concept of a gentle breeze which animates matter, makes it alive, and makes it move.

Therefore, the psychologist studies “breath”, a particular breath, the breath which gives life to things. This can just be inferred from the way that Homer, who was the first philosopher to use this term, introduced the concept of psyche. According to Homer, psyche is life in a comprehensive sense, as a sort of immaterial energy that men and animals have in an impersonal way, a cosmic life, vital energy recognizable in the breath and found in the blood, over which men do not have any power.⁵

At this point, I need to stop in order to emphasize certain points which will be required later.

First of all, psyche is something which can be described as a breath, a gentle whiff. I ask the reader to note the expression “something which can be described as”. It means that psyche is not a breath, but it can be represented as such. This distinction is fundamental because it is one of the few certainties which physics has of reality. Currently, physics is aware that it is unable to tell us what reality is, and at the most is able to offer us more and more plausible representations of reality. Therefore, when we state that psyche is like a breath, we are making a sort of scientific affirmation.

Using representations, Homer describes psyche as a “sort of immaterial energy”, hence, without body, without matter.

Psyche is something which is not matter; however, it envelopes the whole matter (and it is something of which matter itself is most likely made of). That vacuum around matter which vibrates and breathes subtly, animates matter, moves it and puts it in relation with itself and with the surrounding matter.

Now, if we search in physics what Homer is (intuitively) describing, we discover something well known and defined as Zero Point Energy (ZPE), that is the lowest possible level of energy in a quantum system, once that the entire matter has been

⁴ In this respect, it is interesting to note that etymologically Pranotherapy is synonym of Psychotherapy. As we know Pranotherapy is the practice of transferring energy flows from the therapist's hands to the patient. The same image of energy flows can be found in the Mesmerism and the first hypnotic practices which are at the origin of modern psychotherapy.

⁵ U. Galimberti, *Psichiatria e fenomenologia* 1979

eliminated, when each particle has been removed, and at which point, instead of having zero energy, we have a vacuum filled with fluctuations and vibrations.

Furthermore, this connection psyche – ZPE evocates biblical and Vedic representations which describe reality and its composition as:

“Whatever this subtle substance may be, the entire universe is composed of it, it is the reality of everything, and it is the Atman. You are that (Tat tvam As)”.

The word Atman comes from the roots *an* (breath) and *at* (moving); therefore, Atman means that breath blows everywhere.

The biblical tradition provides the image of a shapeless and desert land upon which darkness covered the void and the spirit of God hovered over the waters, which implies that when nothing yet existed, before the first particle appeared in the world already there was a spirit, a breath, something that hovered.

The similarities between ancient philosophies and religions and the world as it appears to the eyes of quantum physics are many and exciting, and just for this reason they have been already discussed in other contexts by other authors (one in particular stands out, F. Capra, the “Tao” of physics); the fathers of quantum physics themselves loved to interact with Indian philosophers and lose themselves in the study of the Veda.

In this moment in time, we should just realize that the study of psychology, etymologically speaking, is exactly the same as the study of the spirit, of that “fluctuating” which is the foundation of everything that exists and of which, according to science, we are aware for only about 4%.

If we want to be both honest and cautious, we should say that both psyche and Zero Point Energy are represented and described in the same manner. This realization, however, does not imply that they are the same thing.

On the other hand, it is also true that what is described is not exactly a “thing”; it is rather a dynamic, a movement; and if in one case this vibrating generates particles, waves and who knows what else, in the other case it generates thoughts, images, perceptions and emotions. Furthermore, the particles which are moved by the interaction with this energy interact with each other and express their own behavior. Needless to say that behavioral science is just another name used initially to indicate psychology. Thoughts interact with the forces and impulses emerging from the subconscious and generate behaviors.

From this perspective, psychology appears in a new light which may be met with dismay; however, I reaffirm, and I will never get tired of repeating it, that such images called forth by these speculations derive from an etymological reading of the word psyche.

If we were to set this consideration aside, we would risk speculating that the psychologist has both knowledge and techniques which would enable him/her to manipulate such energy and this, we know, would be science fiction.

However, to stimulate a little bit further yet our suggestion, let me add the curious coincidence of the usage of the letter Psi to indicate a wave's function, or that phenomenon which describes how reality projects itself in the world and in this way makes itself perceived as either a wave or a particle. The Holy Spirit performs the same phenomenon of creation in religions. The Breath of God or the Word (which is a sound, therefore still vibration) emerges from emptiness and fulfils his epiphany in the world. A world which, incidentally, all agree in defining illusory and subordinated to the senses, from the concept of Maya in the Veda to the "all is Vanity" of the Ecclesiastes, to the perception, mental and technical limits of the scientist.

QUANTA IN PSYCHOTHERAPY

Let's put aside for the moment the concept of psyche and let's get back to the therapist's room to discover how quantum physics may fit into his/her clinical work. Obviously, I am not alluding to imaginary equipment which could either substitute or integrate the therapist's work; I intend rather to focus on the therapist profession as it evolved from the beginning of modern psychotherapy.

As we all know psychotherapy originated from Freud who placed the subconscious at the foundation of his psychoanalytic theory. Freud places at the base of human thought and behavior instincts, impulses, forces of which we do not know either the origin or the entity, and of which, in fact, we do not know anything at all. Furthermore, we cannot even access such instincts. These impulses emerge and manifest through behavior, thoughts, and dreams; however, they are just manifestations of something, not the thing per se. With the use of psychoanalysis, that is the analysis of the psyche, such manifestations emerge from the subconscious and it is possible to attempt an interpretation to be able to say something about this subconscious, to grasp some limited understanding.

At the same time, physicists have been tackling a similar issue. Just like Freud, physicists have discovered that at the foundation of matter and its behavior there are forces of which we know nothing and emerge literally from emptiness; forces we have no direct access to, except through their manifestations and theoretical representations. Matter, waves, photons, phonons are all manifestations of this emptiness. Emptiness itself is manifestation of this incognizable reality. This is the consequence of our limits, including mental limits; we perceive emptiness, we interpret it as nothingness, however this is what we observe, not the reality per se. Similarly, atoms and particles are all

theories, hypotheses, mental and mathematical representations of something that we do not know and of which we ourselves are part.

The subconscious⁶ is something where space and time lose meaning, something where coherence loses meaning; there are no contradictions within the subconscious; things, like the well-known Shrodinger's cat, can exist and not exist at the same time and within the same space. Phenomena far away in time and space manifest in what physicists call entanglement.

This subconscious, as wide as the sea (the sea of possibilities), is chaotic and impulsive; yet, it is this subconscious which guides every single behavior, every single thought and every single emotion. Therefore, there is no particle which does not emerge from this immense physical void, or, as the popular saying goes, "not a leaf stirs God forbid".

While Freud discovered in some ways that chaos was at the foundation of human behavior, Jung, Freud's Alter ego, stepped forwards and discovered that this chaos was not of the individual, personal, but rather collective. This implies that each one of us, is nothing more than one tree branch of the same tree. In practice, Jung had the intuition that reality is one, and that the distinction between people and things is in itself a mental artifice.

Needless to say that Jung's conclusion resonates with the concept of nonlocality of reality.

In addition, Jung deepens the theme of the archetypes. Archetypes are images, symbols which carry information from the subconscious. Jung observed that the more we enter the subconscious void, the more these images cease to have a cultural identification, typical of the patient's own culture. The deeper we go, the more the images become trans-cultural (suggesting the idea of a collective subconscious). Going deeper yet, these archetypes appear more and more unrecognizable; they lose shape, meaning, and substance yet maintaining their strength. It is as if going deeper we get closer to the zero point of physics and similarly, after having taken away all

⁶ Etymology of subconscious means that is under, before, how we can be conscious and know. Something that is underneath and on which awareness, knowledge and knowledge are supported, or we could say from which they emerge. We could say that the thought emerges from the subconscious like energy and matter emerge from the void

characteristics and all forms, we are still in front of an infinite sea of fluctuating energy.

We can place next to the two Masters of psychoanalysis other eminent figures such as Groddeck and Reich, as well as the many therapists who work with the body. They all have observed how muscles, a single cell, a single portion of matter contain within themselves an incredible energy and psychic force. A mere body contact can move and bring out (or inhibit) an infinite amount of thoughts, memories, and emotions which can change the patient's *Weltanschauung* and even his/her physical body.

Groddeck presented Freud with the idea to call this unknown energy and, therefore the subconscious, "Es" (It). In my opinion, having provided this label has been one of the reasons why the original meaning of psyche has more and more faded and mixed with the concept of mind. However, it must be recognized that human conceptual abilities required an entity capable to issue such a vital force; in other terms, it was necessary to have a place, something that emanated psyche⁷. In physics there is a connection between a wave function and its collapse. The so called sea of possibilities, which cannot be known (Es), manifests through the function of the wave (psyche) collapsing in a wave or particle (in a thought or acting out).

Reich conjectured the orgone: the orgasm's particle. Similarly to the physicists who look for a specific particle for anything (as if they were chemists), Reich attempted to find the particle of the force called libido, in the same way as today we are aware of the connection between Photon and light or Phonon and sound.

The fact that Reich was not a physicist and ventured onto dangerous moral grounds did not allow him to develop his theories; even if his findings have been in part revalued, his studies remain locked in closets and considered with condescending detachment.

Recently, it has been observed that the human eye reacts even to just one single photon. This discovery suggests that in general human perception, if sufficiently trained, can perceive a certain quantum level and, if it is able to perceive it, it is able to interact with it in a conscious manner.

It remains unknown how this is possible. However, there are more or less widespread examples of body hypersensitivity developed with therapeutic practices, for instance, the listening capabilities and wrist pulse diagnosis typical of Chinese

⁷ Religion has addressed the same question representing a God which cannot be known (subconscious) and his manifestation through the spirit; in the same way, in Zen philosophy it is said that the Tao of which we can talk, it is not the true Tao, implying that anything that can be said about the Tao is just a human and limited interpretation.

medicine. A pulse diagnosis expert is able to perceive, in addition to the blood flow, up to 10 different energy flows. In Craniosacral techniques as well as in Biodynamic psychology⁸, the therapist affirms to perceive at least three flows (or breaths) with which he/she interacts to attain psychophysical wellbeing.

It is evident which there are no study which can demonstrate the existence of such energy flows; neither such energy flows are foreseen by any main stream scientific theory. For these reasons, it may be easier to label these theories as the results of suggestion.

We must, however, not get discouraged; on the contrary, it can be argued that suggestion is a valid psychological instrument, in fact the primary psychological instrument. Hippolyte Bernheim was the physician who first used the word psychotherapy and, in my view, the first to use it in the correct manner. Psychotherapy was for Bernheim a process of wakeful suggestion, that is the action of suggesting an information in a specific state of consciousness so that this information can modify the patient's baseline thoughts and, therefore, also his behavior and physiology. There is documented evidence to vouch for this approach⁹; however, in the course of time, in psychotherapy, hypnotic-suggestion approaches as well as abreactive cathartic methods have fallen into oblivion leaving space to other kind of psychoanalytic approaches based on psychic enquiry, psychosexual development theories and free association technique.

It is easy to understand the reasons why this shift took place; to date, we have no idea of how hypnosis and the suggestion mechanism work, (for the same reason, the placebo effect is underutilized). Still today, a hypnosis session may appear to the observer as something associated with magic (which is taboo), and while there have been attempts to provide some scientific explanations, because of the very nature of the phenomenon they cannot stand on solid ground.

How is it possible that an idea, simple information suggested in a specific state of consciousness is able to generate behavioral and often even physiological changes? The vastness of variables at play makes it rather impossible to standardize a process according to some classical models with which suggestion could be studied. In addition, we talk about states of consciousness; however, we do not know what a state

8 G. Boyesen, *Entre Psyché et Soma* 1990

9 F. Granone *trattato di ipnosi* 1983.

of consciousness is in physical terms; we do not even know what is consciousness, nor thought nor any other terms which has something to do with psychology. For these reasons, it becomes difficult to integrate physics and psychology. For physicists it is now easy to explain phenomena such as the sound coming from clapping hands and describe how it takes place at quantum level (that is there is no contact between the hands; in reality, an exchange of forces, including space compression, takes place, which generates other forces which fluctuates through the air to our ears, which translate them into sound). For psychologists explaining the so called psychic phenomena it is not that easy yet. For a start we need to become able to answer the question “what is a thought?”

First of all, thought is something which manifests within our consciousness; we are not the ones who construct it. We can contribute to bring it forth and statistically we can succeed. Thought is something that, for what we know, emerges from the subconscious, from something of which we know nothing about and of which we cannot know anything about, from the incognizable. As I said earlier, thoughts emerge from and disappear within their corresponding quantum void, just like particles, interacting with everything and modifying the field. In addition, the average life of is comparable to the life of particles, from the longest lived particles, such as the electrons, comparable to solid ideas (the combination of the adjective solid with the concept of idea is quite curious; on the other hand, we are led to think that even the electron is something solid) to those particles which live for an infinitesimal fraction of time, just what suffices to leave a trace of their transit (a perfect example is the sudden and without apparent reason change of mood, which we all experience from time to time).

CONCLUSIONS

The therapist, therefore, whether he/she works with thoughts, body or suggestions, in fact appears as an expert (it is hoped) navigator of that sea in which we are all submerged and of which we are all part; a navigator who is capable to move across the waves having renounced to the solid ground of the mainland. The Therapist does not study physics; however, he is aware of the strength of a storm and of the rhythms of the tides, and his tales and recounts can be of great help to physics. Surely, the Therapist's narrations will tell of dragons and marine monsters, just as did the sailors' tales before the great explorations; the language used by the Therapist is different from that used by the scientist. Furthermore, such tales will already provide an interpretation in the attempt to give some logics to something which is bigger than logic itself. After all even the scientist, who conduct an experiment, once the experiment is over has in his

possession just the data that his limited instruments have been able to detect, and he has anyway to give some interpretation of the data which can make them understandable and usable.

Perhaps, the Therapist finds him/herself playing the role which, before the age of chemistry, was played by the apothecary; some herbs, some spice and the mixture becomes a treatment tool. Today, this kind of approach appears to us rather coarse, superficial, even if somewhat romantic. After all, how could the apothecary know that only one essential part of the plant was useful? He did not have the instruments to know that. However, in spite of everything, his approach was effective. Science, in due course and thanks to Chemistry, has later explained the reasons why he succeeded.

My hope is that one day quantum physics could explain the reasons why and in what ways the Therapist work is effective for the individual wellbeing. It is evident that this type of work is effective; however, the explanation of the why and how is up to the physicists. We, therapists, are only able to recount what we have experienced.

As discussed earlier, this short and rather basic paper neither can nor aspires to be comprehensive; yet, its main aim is to open a dialogue between two scientific disciplines which, most than others, represent the future of human knowledge.

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