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The Neural Correlates in the Presumed Extrasensory Faculties of the Medium and in the Perception on the Sacred

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Abstract

Starting from dozens of studies on neural correlates during mystical experiences and the use of extrasensory skills from the common sense, I proceeded to contextualize in a more scientific way the concept of extrasensory mediums and faculties, then analyzing the state of the art in relation to discoveries in the neuro scientific field concerning precisely the alleged extrasensory faculties possessed and the perception of the sacred in the subjects of the researches so far evaluated. From this examination there emerges a direct involvement of the cerebral areas of the frontal and temporal lobes and in general of the circuits connected to the limbic system. This thematic research has deepened the object of study concerning the phenomena of subjective perception; however, in the last part I proceeded instead to suggest a research-oriented research scheme not so much of the subjective profiles already known as much as the hypothesis of the existence of the entities perceived by the mediums, therefore an objective profile, in order to better know the external context of the medium.

Introduction

The figure of the medium and the presumed extrasensory faculties

The medium is a subject with apparently controversial psychic abilities, as it would seem to be able to communicate telepathically and physically with the different spirit entities present on the astral plane, or a plane parallel to the physical one. The occult tradition relates that these abilities are insistent in every human being and only certain people are able to free their own energy flow, to concretely reach the state of connection with the plane where these entities are present.

From a scientific point of view, of course, these assumptions become mere speculations, the result of superstitions and personal convictions of some subjects who, using their mental manipulation and credibility skills, manage to make people believe what they want, especially if the victims are prone to religious beliefs and easy credulity.

Extra sensory perceptions are called in different ways depending on their nature:

1) Ability to predict the future (*precognition*);

2) Ability to visually perceive things that are not naturally visible (*clairvoyance*);

3) Ability to communicate with thought (*telepathy*).

The field of study of extra sensory perceptions (and other alleged paranormal manifestations such as psychokinesis) is called parapsychology. The person believed to possess such faculties is called an esper or a psychic (also a paragnost, especially if connected to retro cognition; a medium, on the other hand, who claims to communicate with spiritual entities, such as the dead, for example).

The debate on the existence or not of extra sensory perceptions is very heated. On the one hand, supporters of the existence of these phenomena bring some research to support their theses, on the other significant doubts are raised about the methodological validity of these studies. More particularly if on the one hand parapsychologists affirm that certain experiments such as ganzfeld experiments would show evidence of the existence of extra sensory perceptions, on the other hand the scientific community disputes these experiments seriously lacking in rigorous scientific method as well as a solid theoretical basis.

On the basis of this premise, in the academic and research fields, there have been several studies that have tried to demonstrate the inconsistency of the paranormal phenomenon: mental disorders, epileptic forms and alterations of the electromagnetic field are the causes usually given. And yet, in some cases, these deep-seated beliefs have faltered.

It is the case of the Brazilian research by Dr. Moreira-Almeida et al. [1], conducted on one hundred and fifteen mediums and their state of mental health, in order to demonstrate a greater psychopathological component than the average of the population: this prejudice, however, seems to be denied, having found that the sample submitted to the study have a high partner level educative, a low probability of mental problems and a good integration in society compared to the rest of the population.

Attention then shifted to the state of trance that the medium lives during contact with the alleged spirit entity, or that mental condition typical of dissociations, when a lack of integration between consciousness and the other cognitive processes arises (memory, emotions, ...): also in this case, according to the research of Dr. Peres et al. [2], focusing however on the moment related to psychography

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(so-called automatic writing in trance), using a sample of ten subjects (five experts and five apprentices), it was found, with the use of SPECT (photon emission tomography single), of interesting peculiarities. In particular: << (...) the mediums had an experience from fifteen to forty seven years of automatic writing, performing up to eighteen psychographs a month. Everyone was right-handed, in good health and did not normally use psychiatric drugs. No one had trouble entering a trance state to perform a psychography task, while they were in a regular state of consciousness during the control task (i.e., without psychography). (...) Experienced mediums had low levels of activity on the left side of the hippocampus, in the right superior temporal gyrus and in the regions of the frontal lobes of the brain with respect to the control condition (i.e., without trance). On the contrary, for the apprentice mediums, the results were practically opposite, above all higher levels of activity in the same frontal regions with respect to the control condition and the difference was even more marked compared to experienced mediums. The frontal lobes are those regions of the brain associated with high cognitive functions, such as reasoning, planning, language generation, problem solving. It seems that the more experienced mediums reduce their "rational" concentration, have a bizarre and less integrated consciousness during psychography. Instead, the less experienced form the test with more difficulty, activating the more "cognitive" regions of the brain. A further and more curious a spectis that the best mediums produce more complex and elaborate writing texts than the control condition (without trance) and the less good ones.

In general, this would imply a greater activity in the temporal and frontal lobes, an increase in activity that instead was not. Indeed, if a less regular writing, more chaotic and confused due to a low frontal cortical activity, was waiting for us, however the mediums were able to write better than when not in trance (...) >> [3]. According to the researchers, a possible explanation for this phenomenon is therefore due to the fact that the state of trance acts more or less like alcoholic and narcotic substances, disinhibiting precisely those areas that guide psychographic writing, increasing the complexity of the elaborate. However, this research suffers from two important critical issues: a) the sample examined is too small and comes from the same geographical region; b) the correlation with any presumed paranormal mental contact has not been explained.

A third interesting research, carried out by Dr. Richeport [4], has instead focused on the hypothesis of a possible multiple personality disorder at the base of the mediumistic experience. This assumption, tracing interesting parallels with the historical, clinical and anthropological perspectives, then focused on the Eriksonian vision, where multiplicity may not be strictly linked to a psychopathological fact in the strict sense: in essence, seeing themac resources and not as affections to cure, the other personalities would be nothing but normal manifestations of "other selves". A fascinating thesis, although not confirmed in the light of the scientific rigor that a research should have.

In the wake of the latest theses, or dissociation in a general sense, another research, conducted by Dr. Wahbeh and Dr. Radin [5], however, showed that people who report experiences of medium ship have higher scores of symptoms of dissociation compared to the non-average, but still below the thresholds for pathological dissociation.

The results instead obtained from the research conducted by Dr. Beischel and Dr. Schwartz have really brought to light something very interesting [6]: it seems that some mediums can receive accurate information on deceased individuals, but not according to the classical telepathic scheme, as more the survival of consciousness (the so-called continuous existence, separated from the body, of the consciousness or personality of an individual after physical death) and the super-ESP (the so-called recovery of information through a psychic channel or a quantum field).

A detailed study on the electromagnetic interaction of these subjects with the surrounding environment is therefore urgently needed. Research partially carried out by Dr. Persinger but not completely completed [8]: a total of six hundred and one reports (with experience over a period of about seventy years) of paranormal experiences concerning death were differentiated according to traditional labels: telepathic phenomena, precognitive and postmortem. The two hundred and thirty two telepathic experiences occurred during 24-hour periods in which the global geomagnetic activity was significantly less (more silent) than in the days before or after the experiences; this relationship was not shown by the one hundred eighty-six precognitive cases or two hundred and three postmortems. The main daily differences in geomagnetic activity for the three classes of experience were equivalent to a correlation of about 0,35. Although content analysis suggests that nocturnal psi experiences and temporal lobe epilepsy may share a similar mechanism, different classes of subjective psi experiences may not be affected by the same stimuli.

Finally, Dr. Claus came to the conclusion that the spirit phenomenon has its own existential dignity [8]: in particular, it has argued that the phenomenon of spirit possession is considered in relation to the broad cultural context in which it is found to exist, in a region of southern India. The author critically criticizes various attempts to explain the possession of the spirit as an exclusively psychological or sociological event; instead, it addresses the cults of medium ship, oral traditions and social ideology for an ethnographic interpretation.

The theme is therefore still to be studied: little and nothing is known about this mystery

a) Despite the studies of Dr. Alexander [9], it is not clear if the ESP phenomena are to be attributed to the right (predominant) or left hemisphere, or depend on factors related to more areas present in both hemispheres. In particular, the author argues that: For over a century, evidence has been pointed to that the two cerebral hemispheres of the human brain each tend to have their own behavioral specializations. An issue that has long been of interest to parapsychologists is whether the ostensibly

Anomalous behavioral phenomenon of "Extrasensory Perception" (ESP), in which a person seems to obtain veridical information about other people, objects, places, events beyond the range of the body's sensory-motor system, may be a specialized function of either of the brain hemispheres. To address this issue, a review of parapsychological experiments designed to explore the potential relevance of cerebral lateralization to ESP performance was initially conducted by Brought on in 1983. He generally concluded

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that although here was some indication of a contribution to ESP by the right hemisphere, results were mixed and possibly confounded by issues of interpretation. In a more concise review conducted in2002, Alexander found that a limited number of experiments continued to indicate a right hemispheric tendency, although certain others separately indicated left hemispheric involvement. Thus, the issue is still clearly unresolved. This paper seeks to build upon these two reviews by experiments that have been conducted up to the present time. Although several experiments continue to offer modest support for a right hemispheric contribution, general interpretation of the current database remains hindered by a wide degree of variability in experimental methods and outcomes, potentially confounding factors, and the scarcity of additional clarifying date. Thus, while the issue remains unresolved, there are some potential avenues for progress in future experiments;

b) Persinger demonstrated with dozens of researches [10], between the 50s and 60s of the last century, that there was a direct connection between hallucinations and temporal lobes (in the left there is the sense of the Self, while in the right there is another external self, precisely the entity, as there was between the mystical and religious experience and the limbic system. Ramachandran then came to the conclusion that the temporal lobes were the seat of religious experiences (in particular the right temporal lobe, for Morse) [10]; of different opinion were Newberg and D'Aquili who focused on the parietal and frontal lobes [10], while Joseph valued the importance of the amygdalas a transmitter of God [10].

c) Despite contributions on ESP by Joire (1892), Rhine (1884, 1930), Persinger (1950-1960), Mitchell (1971), Honorton (1974), Schmeidler (1988) and Bem (2011) [11], and the unbelievable intuition of various researchers that perhaps the answer to psi phenomena can be found in junk DNA there are no scientific research oriented towards the existential hypothesis of the spirit phenomenon [12-17], studied through field data related to temperature and electro-magnetism, or brain scan during the episode of telepathic connection with the entity. It seems really strange that no scientific research has been concretely oriented towards the hypothesis of hallucinations caused by electromagnetic alterations, except for the studies of Persinger on sacred places and the recent Dr. Blanke on the sensation of perceiving a presence (FoP, feeling of presence) [10,12], demonstrating the involvement of 3 brain regions: the temporo-parietal cortex, the insular or insular cortex and the fronto-parietal cortex. The data obtained help to understand how these illusory experiences are mediated by altered perceptions concerning the origin and identity of the sensorial and motor signals (in particular, those of a tactile, proprioceptive, motor nature) of one's own body. These results provide a framework of probable neural mechanisms for the FoP experience, for the generation of the experience of the "self" and of the "others" and constitute an advance in the understanding of brain mechanisms that induce hallucination phenomena in schizophrenic patients.

Precisely on this last point, interesting research, like that of Dr. Figner [11], showed instead how low-level electromagnetic fields manage to alter self-control and the sense of morality, while other researches have demonstrated how these fields are able to negatively interfere with the physiological functions of the organism, from the immune system with circadian system, regulated by melatonin, produced by the epiphysis or pineal gland (the so-called third eye for western and eastern esoteric traditions) , often indicated - even with different speculations - as the seat of the soul. Other research demonstrated the direct correlation between changes in sensory and extrasensory perception and electromagnetic field alterations [13-17].

The Perception of the Sacred According to the Human Brain

An interested comparative study on the theme "the search for the spirit in the brain" was carried out a little less than a decade goby a group of researchers: << [...] The search for the brain bases of spirituality, mystical experiences and religious sentiment has now a long tradition, but only in recent years have real progress been made in the definition of neuro functional correlates of the mental states studied. The recent development of this field of investigation has assumed such proportions and characteristics as to induce mere searchers to ask to recognize it as an independent discipline, for which two possible names have been proposed, each of which has already raised objections and criticisms: Neuroteology and Neuroscience of the Spirit. Among there searchers, the idea that these studies can be directed to a therapeutic purpose seems quite widespread: the identification of the processes that generate well-being in religious experience should be followed by the development of methods and techniques to induce them independently of it. (...) Some agnostic researchers believe that the neurobiological processes responsible for the affective-emotional state that characterizes mystical experiences are at the origin of religions. In other words, for them all religious culture would be nothing but literature, philosophy and art developed as a result of unusual or frankly pathological experiences that have affected distant ancestors and that still today affect many people's brains. It is understood that for these scholars the definition of the neuro functional profile of a mystical experience is equivalent to deciphering the biological origin of the sacred and the divine in terms of a functional minority or pathological stereotype, therefore it is not surprising that they may be tempted to neglect individual differences and "neutral" brain activity, emphasizing the datum approaching pathological findings. On the contrary, it can be noted that among believers, especially Christians of Catholic confession, there is the risk of an under estimation of the role of the mystical experience and therefore of the brain processes connected to it, because according to the Magisterium of the Church such experiences do not they are in themselves a guarantee of a spiritual condition of closeness with the divine, if not under certain precise conditions, and at the most they can be considered part of a constellation of physiological events at the base of the multiple psychic aspects of a faith. Among there search ers openly atheists then, there are those who, as we will see later, with the ill-concealed intent to prove that every super natural instance can be traced to the activity of a group of neurons, look for a hypothetical "God Spot", i.e., an area in which a function corresponding to the divine is located in the human brain [...] >> [18].

On this basis, the aforementioned researchers have done an extraordinary synthesis, with emphasis on some aspects that we will see in detail [19].

The temporal lobes

The general view, in the past was to consider any paranormal

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experience as the fruit of a pathological condition, in particular a temporal lobe epilepsy, crystallizing the union of epilepsy-visions in psychiatric treatises already from the end of 1800. In 1975, In fact, neurologist Dr. Norman Geschwind described a clinical form ofepilepticseizureoriginatingpreciselyfromelectricalalterationsofthe temporal lobe, in which patients reported intense spiritual experiences. Twenty years later, researcher Vilayanur S. Ramachandran, then came to the conclusion that the temporal lobes were the seat of religious experiences (in particular the right temporal lobe, for Morse) [10]; of different opinion were Newberg and D'Aquili who focused on the parietal and frontal lobes [10], while Joseph valued the importance of the amygdalas a transmitter of God [10].

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The hyperactivity of the pre-frontal cortex

Researchers Andrew Newberg and Eugene d'Aquili: << [...] studied the brains of Buddhist practitioners, using Single Photon Emission Computed Tomography (SPECT). (...) The results of the study are based on the results of the study of radio nuclide images by neurons. In fact, the distribution of radionuclide in the brain presented a completely particular configuration, characterized by a sudden drop in activity in the vast area of the parietal lobe, associated with a functional increase in the dorsolateral, frontal and orbital prefrontal cortex, as well as in the thalamus and around the track. (...) The hyperactivity of the pre-frontal cortex has been interpreted using its well-known importance in attention, planning and cognitive asks that require concentration [...] >>.

A. possible research hypothesis

The research, object of the present project proposal, focuses on the resolution of four main questions:

1) The ontological profile, linked to the question: does the reality in question exist objectively?

2) The epistemological profile, linked to the question: is the reality under examination known?

3) The methodological profile, linked to the question: is the reality under consideration measurable?

4) The axiological profile, linked to the question: is the reality under consideration worthy of study?

Compared to the first point, it is undeniable that the reality under examination has no official recognition by the scientific community, supporting rather the majority orientation of the evidentiary inconsistency. On the other hand, it could not be otherwise, as the research conducted so far has never taken into consideration, at the same time, the different points of view of the paranormal phenomenon. The present research therefore wants to emphasize not only the neuro-scientific aspect but also and above all the environmental context according to the laws of physics today known. The main objective with respect to this first point is to demonstrate the consistency or otherwise of the paranormal spirit is tic phenomenon, with robust scientific evidence, taking note of all the parameters of analysis at the time of contact with the alleged entity.

The starting hypothesis is therefore to demonstrate the real existence of the spiritual phenomenon understood as a projection of the unconscious capable of reactivating extra sensory faculties different from those known and dormant in the individual under investigation.

Compared to the second point, the reality under consideration is certainly known and knowable, as shown by dozens of scientific researches and by thousands of essays written on the subject of parapsychology and sociology. From these profiles we exclude the theses sustained in esoteric works and in occult traditions, too tied to subjective evaluations often without foundation or modulated according to logics of superstition and ritual magic. The main objective with respect to this second point is to make the analyzed reality accessible to the whole public in a coherent, linear and concrete way, eliminating a sociological influence linked to the world of occultism.

Compared to the third point, the research aims to make the reality under consideration measurable, according to the parameters indicated in the next paragraph, dedicated to the description of the research. The main objective with respect to this third point is to find certain data, objectively measurable and reproducible, each time with the same result, so as to shed light on the spirit phenomenon.

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Compared to the fourth point, the research aims to make the reality under examination worthy of study, from an educational point of view. It is "all too clear that the role of science is to solve every question by giving a coherent response to the case, eliminating any interaction and interference with unfounded or modulated profiles according to the logic of superstition and popular credulity. The main objective with respect to this last point, the fourth, is to guarantee co-cognitive certainty with respect to the reality-science relationship, without any subjective cultural contamination of any kind.

The research hypothesis proposed here relates more to a survey profile linked not so much to the extrasensory faculties and uchastothehypothesisoftheveryexistenceoftheperceivedbythesubject: in practice, it is suggested not to investigate so much the neurobiological functions during mystical experiences (subject already discussed in the academic field) as much as to deepen the theme of the corporeal existence of the entities that are theoretically perceived by the mediums and more generally by all those subjects with high sensitivity and predisposition to the mystical belief.

The research hypothesis is structured in six phases

The first phase of the project will be focused on the preparation of the doctoral student and the technical personnel involved, including a plan of subjects to be studied, such as: neurobiology, psychology of cognitive processes, neurology, principles of neuro-sciences, psychometry, statistics basic and data analysis, biology, chemistry, biochemistry, basic physics and medical physics.

The second phase of the project will be oriented to the selection of the sample and the technical staff to be used in the research. In particular, the sample will be composed of nos thirty subjects, nos fifteen male, nos fifteen of female gender, of an analogical age not less than eighteen years. The anonymity of the individual participants will be guaranteed. Such subjects must submit to:

a) A clinical and neuropsychological assessment, to ascertain any previous pathologies and the use of certain drugs. Only those who do not have full psychiatric pathologies (eg psi-so, depressive disorders, schizophrenia, personality disorders, etc.) will be selected or take drugs for acute or chronic therapy of the same or which may affect the normal cognitive functions (condition A).

b) An instrumental evaluation using EEG (electro encephalon-spelling), such astro ascertain any pre-entry morbid conditions, such as to interfere with normal cognitive functions. Only those who do not have over neurological pathologies (eg hematomas, benign or malignant tumors, scarring processes, vasculopathies, degenerations of the cortex, epilepsies, etc.) or physiological alterations still considered normal (eg expansion of the cistern magna without further alterations, ...) (condition B).

c) An instrumental evaluation using f MRI (functional magnetic resonance), such astro ascertain any previous morbid conditions (in a complementary manner with the results of the MRI), capable of interfering with the normal cognitive functions, studying brain function. Only those who do not present overt neurological pathologies (eg hematomas, benign or malignant tumors, cicatricial processes, vasculopathies, cortical degeneration, epilepsy) or functional physiological alterations considered normal (eg enlargement of the cistern a magna without further alterations) (condition C).

d) An instrumental evaluation using TMS (Tran's cranial magnetic stimulation), such as to as certain any functional modifications following the magnetic impulse introduced. Only those who do not have established neurological pathologies (eg hematomas, benign or malignant tumors, scarring, vasculopathies, cortex degeneration, epilepsy) or functional physiological alterations considered normal (eg extension of the cisterna magna) will be selected without further alterations) (condition D).

e) The formal written declaration in which the interested party assumes the responsibility of affirming his particular status as a "medium", that is, a personable toco-communicate with spiritist entities and to use median abilities and special psychic faculties (eg clairvoyance, levitation, reading of thought, ...). This special condition must be ascertained through the use of prior expert material (condition E).

The third phase of the project will be oriented to orderly collection and evaluation of technical data during the second phase, to then proceed to the comparative comparison with the clinical notions of official science and medical art.

The fourth phase of the project will be oriented towards the actual operational in-depth survey on each selected subject. In particular, we will proceed as follows:

I) Each selected subject, individually, will be introduced, on days other than the others, in a room properly setup, in which the experiment will take place. The room in question will also be studied from an electromagnetic point of view, before-after the experiment, to learn the empirical data of departure and evaluate the divergences;

II) The room will be monitored for the entire period of the experiment with instruments suitable for continuously and continuously recording what is happening in the surrounding environment;

III) Besides the normal photographic and audio-video instrumentation, the necessary tools will be equipped to study the environment from a thermal and electromagnetic point of view, including the study of the light range, to evaluate possible interactions external during the moment of telepathic contact;

IV) The interested subject will be invited communicate with the alleged spirit entities, during a channeling session, recording every activity that will take place. For the whole time of the experiment, the subject will be connected to an EEG that will monitor it, with an oximeter and a frequency meter.

The fifth phase of the project will be oriented to the orderly collection and evaluation of technical data during the second phase, to then proceed to the comparative comparison with the clinical notions of official science and medical art.

The sixth phase of the project will focus on the final drafting of the doctoral thesis, taking due account of the period of study a broad required by the doctoral program for the doctoral student's training.

Conclusion

Therefore, if we wanted to reason in conclusion, we could certainly say, beyond the technical criticisms, that: << [...] The most recently published works related to the "search for the spirit in the brain" can

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be schematically grouped together in two categories: 1) those with objectives related to the research of the neurobiological basis of the manifestations of faiths and religions, and 2) those aimed at isolating the functional correlates of positive experiences, extrapolating them from the religious context and using them for therapeutic purposes. The research currently conducted by Davidson's group can be traced back to the second of the two addresses, which has already achieved significant results, demonstrating the effectiveness of meditation in determining two effects: a) increase in cognitive abilities dependent on attention; b) slowing of aging. (...) Seventeen volunteers who had previously completed three months of intensive meditation training and twenty-three beginners of the meditative exercise were subjected to an attention test by the Davidson team. The test consisted of distinguishing, in sequence, two numbers included in a series of letters. Beginners have had average performance, that is, like most people undergoing this test, they did not recognize the second number because they were still focused on the first one (blinking); the mediators practiced, on the other hand, were often able to detect both numbers. The result of this experiment can be attributed to an improvement in concentration due to intense meditative practice. The work of Davidson's group, published in June 2007, can be considered emblematic in the studies that found an improvement in cognitive performance resulting from a more effective ability to concentrate due to meditative exercise. (...) Meditation seems to be able to delay the development of some signs of brain aging, as pointed out by Sara Lazar and colleagues from Harvard University; already in an article published in the 2005 Neuro Report, the comparison between wenty expert mediators and fifteen control subjects, had recorded in the former a greater thickness in various areas of the cerebral cortex. In particular, the prefrontal cortex and the anterior part of the right insular were four to eight thousandths of an inch thicker in mediators than in controls. It is interesting to note that older subjects had the greatest increases in thickness: the opposite of what usually happens due to aging. (...).

It is therefore obvious that: (...) if the "Spiritual Neuroscience" wants to claim the right to existence as a distinct branch of studies, it certainly cannot limit its interests to the therapeutic applications of meditation, but must deepen every aspect of the influence of spiritual experience on brain processes, from physiological changes in the mind-body correlation, to a different attitude towards the world. This type of research is only at the beginning and the studies conducted so far have not been under taken on the basis of programs and protocols conceived in a perspective of spiritual dimension understood as a neuro-functional reality. For example, the influence on immunological parameters of charity healing during religious ceremonies has been studied, or the effects on the immune system of a film with intense contents of faith and hope have been evaluated, but it has not yet been tried to define the scheme neuro immunological neurology that makes these experiences more effective in believers(...)>>. [20].

In conclusion, numerous studies show the direct involvement of the brain areas of the prefrontal cortex and the temporal lobes, and more generally of the circuits connected to the limbic system during mystical and extra sensory experiences. A further profile would deserve a more detailed investigation with respect to the role of the pineal gland in the processes of interaction between the human body and the electromagnetic waves present in the field [21]. On this line of thought the theoretical assumption is clear that perception depends as much on sensation as on the process of internal re-elaboration of the individual, opening the door to theories that are now closer to parapsychology than to neuroscience. And yet, with targeted studies, free from prejudices and preconceptions, one could imagine a new vision of psychic faculties, far beyond the physical body, more linked to the mental body, perhaps seven defining the states of matter in their energetic connotation. Not by chance, using the sight we cannot perceive the bacteria present in the epidermis, even if it exists: this happens because our instrument (the eyes) has a precision calibration that prevents us from wandering beyond the visible spectrum of light; and if reality were not just how we imagine it? With this question I intend to open a door to the future, orienting science towards the hypothesis that new truths can exist and discoveries also in ultraviolet or infrared light.

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