THE POSSIBILITY OF THE RELATIVISTIC UNCONSCIOUS[1]

Beatriz Breves[2]

1. INTRODUCTION

This paper is still in its embryo stage. It is an introductory note of the first report of a research that I have been working on for the last six years about the relationship between modern physics and psychoanalysis.

This research does not try to import the concepts of physics into psychoanalysis. It deals with verifying situation of similar if not identical, workings, between the nature of form as it is observed by physics and the psychic, in the way it is observed by psychoanalysis.

I realized that the phenomena observed by the restricted relativity theory, by Einstein, could be observed in the human psychic, if seen under the light of psychoanalytical theory. Therefore, I decided to bring to light this realization so that the discussion could be enlarged, but having always in mind that this is only a first step and an embryonary step.

2. A BRIEF OUTLINE OF THE RESTRICTED RELATIVITY THEORY

The restricted relativity theory was developed by Einstein in 1905. Before the restricted relativity theory if we wished to determine the place of a body in the universe we had to use three coordinates. Two points determined the plane and three the position of a body in space.

Now, if we wish to determine the position of a body in the universe we have to use four coordinates. The fourth coordinate is the coordinate of time. Time is no longer something fixed and absolute and becomes relative. Each body has its own time and its relative time. One can no longer think of time and space as two different and separate phenomena, in truth they go side by side and the correct way of thinking is space-time.

---

[1]Paper published in the Scientific Bulletin nº.11/November 91 of the Brazilian Psychoanalysis Society of Rio de Janeiro.

[2] www.bbreves.socis.net.br

Einstein discovered that the speed of light is absolute and finite (approximately three hundred thousand kilometers per second), and that no matter in our universe can exceed such a speed. Therefore, the speed of light can be used as a reference for everything else in nature. This means that when we think about a physical body we have to know the reference speed in which it is, if close to that of light or close to zero. Our material world, in relation to the speed of light, is in a speed close to zero.

Based on the relativity theory the concept of mass to be revised because, according to that theory mass changes according to its speed. In Einstein's words (1938) 'mass is energy, energy is mass'.

To exemplify the restricted relativity theory I will use 'Einstein's convoy' (a name given by Landau and Rumer to a hypothetical railway car, close to the speed of light) and the 'rocket close to the speed of light' presented by Landau and Rumer (1975), authors whom I recommend to any layman interested in the restricted relativity theory, which makes the understanding of these completely and apparently absurd new concepts easier. These two authors presented their examples based on mathematical calculations which, of course, I do not include, restraining myself only to a few numerical results that I consider important for this paper. I also tried to portray a simpler arrangement to make the language even clearer, despite the fact that the two authors objective is to reach a more lay public.

Let us suppose an Einstein convoy with a constant speed of two hundred and forty thousand kilometers per second, a straight line and uniform movement. In the middle of Einstein's convoy a lamp was installed that, when it goes on, it emits a beam of light that makes the two doors open automatically, one in front and one it the back. How will the passengers travelling in this convoy perceive the opening of the doors? And how will the passengers awaiting the convoy on the station platform perceive the opening of the doors?

Those that were in the middle of the convoy observed and were able to record that the two doors, front and back, opened simultaneously.

Those that were on the station platform at the same time as those that were inside Einstein's convoy, observed and were able to record that the front door opened twenty four seconds after the back door.

Which of the two measurements was correct? That of the people who were inside the convoy who recorded the simultaneous opening of the doors or that of those on the platform who recorded the front door opening after the back door? The two measurements were correct. The referential is what varied. Those inside Einstein's convoy were in a referential speed close to the speed of light, because they were at the same speed as the convoy, that is, two hundred thousand and forty kilometers per second. Those on the platform were in a speed referential close to zero.

In this same situation, if something would go wrong in the gears of the doors leading the passengers inside the convoy to verify that the front door opened before the back door, the passengers on the platform, as a consequence of this same malfunction of the gears, would notice the back door opening before the front one.

Let us admit that before the convoy leaves the station one of its passengers set his watch by the station clock. The convoy travelled in a circular motion returning, after a while, to the same station. If we increase the speed of Einstein's convoy, it should be no surprise if this observer, upon his return, finds out that according to his watch only one day would have gone by, but for the clock at the station years could have gone by. Let us open a short parenthesis and assume the possibility of an astronaut travelling to a star in a rocket at a speed close to that of light, a star that to reach light would take forty years. Taking into consideration the change in time in relation to the speed, the astronaut could reach the star and come back to earth in only one minute. But, for those remaining on earth, eighty years would have gone by. Time dilated for the passenger of the convoy as well as for the astronaut in the rocket.

It can also be observed that the size of the platform is smaller for those inside the convoy and larger for those at the station. Space contracts because it is relative and is intimately associated with time.

In the same way that size of the platform was reduced for the passengers in Einstein's convoy, the latter also saw its size reduced for those passengers on the

platform. Consequently, its mass is larger that it would be if it were not moving, because mass increases as much as its length decreases. Mass increases with speed.

It should be emphasized that nothing that was described above has to do with optical illusion. Everything can be precisely measured.

It is very difficult, if not impossible to imagine the relativity theory with the addition of the fourth dimension (time) , because our symbolic capability only reaches three dimensions. Man can think only in up to three dimensions. As of the fourth we are immersed in pure abstraction. There is no way of creating symbolic models.

The relativistic effects discovered by Einstein teach us that this is one way that nature processes itself every time a matter reaches the speed of light and is compared with another matter that is in a speed referential close to zero.

3. THE PHENOMENON OF COLOR, ELECTROMAGNETIC WAVE AND THE PHENOMENON OF FORM

What is energy? Macedo (1976) defines energy as: ‘a fundamental entity in physics and that is defined qualitatively as the capacity of a system to produce work’.

What is wave? Macedo (1976) define a wave as: ‘a periodical phenomenon in which the transportation of energy occurs by the disturbance of an elastic means, or through an oscillating body... A wave is characterized by the speed of the transportation of energy..., by the frequency and extent of the periodical phenomenon’.

We now imagine a wave that diffuses itself in the speed of light, that is at approximately three hundred thousand kilometers per second. That is an electromagnetic wave.

There are several types of electromagnetic waves. These types are included in a spectrum called electromagnetic spectrum. The order of the electromagnetic waves in the spectrum is: Gamma Rays, X Rays, Ultraviolet, Visible limit - violet, blue, green, yellow, orange, red - Visible limit , Infrared, Short Wave Radio, TV and FM Bands, Medium MW Waves and Long Wave Radio.

The colors are nothing more than the electromagnetic waves. We are only capable of seeing an object because this object is capable of reflecting the electromagnetic waves inside the electromagnetic spectrum in the visible ray of light.

In a research paper only about colors Pedrosa (1982) offers us very clearly the meaning of the phenomenon of color. He demonstrates that ‘color does not have material existence... its appearance is conditioned to... the existence of two elements: light... and the eye...’. It is a sensation caused by light in contact with our eyes. He writes about two types of stimuli that create the chromatic sensations: ‘1) color-light, or radiation that has as an additional synthesis to white light... 2) pigmented-color (that) is the material substance that according to its nature, absorbs, deflects, reflects luminous ray components that suffuse over it’. The color light has as primary colors red, green an violet blue and a good example is the sunlight. The pigmented color has as primary colors red, yellow and blue. Pedrosa tells us about light: ‘Light , the means of expression of matter, is electromagnetic radiation emitted by substance’.

I can deduce, based on physics and in the studies about color that where there is color, there is electromagnetic wave. It does not matter what caused the appearance of color, if a paint, if a chemical reaction, if a biochemical phenomenon, if a biological phenomenon, etc..., color will be the result of a visual sensation produced by an electromagnetic wave.

Form is intimately associated with color. Nature, with the natural selective process, proves this very convincingly. As it was described by McAlester (1968), in England in the last century, there were two types of moths. The light-colored moths and the dark moths. The proportion between them was that for every ninety nine light-colored moths there was one dark moth. With the increasing industrialization process soot darkened the tree trunks. The result is that nowadays for every ninety nine dark moths there is one light colored. This is due to the fact that with the light tree trunks the light-colored moths camouflaged themselves against them and were not subject to the predatory birds, in contrast to what happened to the dark moths that were easily seen by their predators. With the tree trunks darkened by the soot that process was reversed. Now it is the dark moths that are not easily seen and the light-colored moths,

previously camouflaged, have become a target easily seen by the predator birds. McAlester assures us that this phenomenon was verified with seventy other species and in different areas. This phenomenon received the name of Industrial Melanism.

Thus, form can only be seen through the contrast between colors. If it were possible to paint a whole environment in such a way that everything within this environment could be exactly the same color, it would not be possible to identify even one form. We would identify a whole plane in the color in which it was painted. Likewise, at night, as we turn out the lights in one room, we are unable to identify any form because there is no light, a visible electromagnetic wave to be reflected.

4. RESONANCE

Macedo (1976) defines resonance as 'the phenomenon that occurs when an oscillating system (mechanical, electrical, acoustic, etc.) is triggered by a periodical external agent with an identical frequency as one of its own frequencies. Under these circumstances, there is an easy transfer of energy from the external source to the system, the oscillations of which can have a very wide amplitude. If there is no buffering, the amplitude can reach, in principle, any amount, however large it is; in practical cases the buffering limits it'.

A simple test in Resonance:

- a guitar and a tuning fork (preferably a metallic tuning fork);
- the guitar is positioned at a right angle with the tuning fork so that the strings are parallel to the tuning fork;
- a tread is put with each string of the guitar;
- any note is played by the tuning fork.
- Result: one verifies that the guitar string corresponding to the note played by the tuning fork vibrates without being touched. It is easy to see why the thread of the corresponding note will vibrate while the other threads of the other strings will not.

- Interpretation of the experience: when a note is played by the tuning fork there is an emission of a wave in a certain frequency, with transfer of energy that, as it reaches the guitar string with the capacity of emitting the same frequency, made it resonate, enter into resonance with the frequency emitted by the tuning fork.

5. THE RELATIVISTIC UNCONSCIOUS

Presenting the Unconscious system in 1915 Freud writes: 'The Unconscious nucleus consist of instinctive representatives that seek to unload their cathexis; that is, it consists of impulses charged with wishes... In this system there is no place for denial, doubt or any degree of certainty: all this is only introduced by the work of censure between the Unconscious and Pre-conscious... The cathectic intensities are much more mobile. By the process of displacement one idea can lead to another in its quota of cathexis; through the process of condensation all the cathexis of several other ideas can be appropriated... I proposed that these two processes be considered as distinctive landmarks of the so called primary psychic process. In the Pre-conscious system, the secondary process predominates... The Unconscious system processes are atemporal... Likewise, the Unconscious processes do not pay much attention to reality'.

Presenting the Pre-conscious system in 1915 Freud writes: 'The processes of the Pre-conscious system exhibit an inhibition of the tendency of the cathectic ideas to discharge... The displacements and the considerations, as they occur in the primary process, are excluded, or very restricted. That circumstance led Breuer to presume the existence of two different states of cathectic energy in mental life; one in which energy is stimulatingly 'bound' and another in which it is freely mobile and exerts pressure in the direction of the discharge. In my opinion, that difference represents an insight deeper than we have so far reached in relation to the nature of the nervous energy and I do not see how we can help doing it... Furthermore, it falls to the Pre-conscious system to establish the communication possible between the different ideational contents so that they can influence one another, so that they have an order in time and can establish

a censure or several censures; the ‘reality test’ also, as well as the reality principle are in this domain’.

We can understand those two systems as each of them is within their own referentials, different one from the other. And when we analyze the unconscious system we do it always under the referential of the conscious, that is, we are observing the unconscious with the conscience. Thus, the unconscious, as of the referential of conscience shows itself condensed, dislodged, atemporal, etc., apparently absurd.

If we refer to the relativity theory, an observer in the referential of the speed close to zero, our referential, will verify the phenomena at the speed of light, space is contracting, time is dilating and mass increasing. Theoretically, for one that is like the astronaut in the speed close to that of the light, presented as an example in this paper, no relativistic effect will be felt, just as when we are in an airplane, albeit the high speed, we can eat and drink because in relation to the airplane we are not moving.

At the level of symbolic representation, the restricted relativity theory with mass dilating, space contracting and time dilation places us close to the symbolic representation which brings us close to the perception of the unconscious as the latter is represented, for example, in dreams. In Einstein’s convoy, the reversal of the order of the occurrences in accordance with the observer’s referential, the increase in the convoy’s mass with the contraction of the space making everything become compressed, is similar to our internal contents when the unconscious comes to the surface and everything seems to us a large understanding of facts in an altered order of occurrences. When for the astronaut in his rocket, only one minute passed and for those remaining on Earth eighty years went by, anyone who said that inside that rocket there was no referential time, that nothing was changed by time, the reference to time was on Earth, would not be saying anything absurd, if not aware of the restricted relativity theory. Exactly as Freud when referring to the atemporality of the unconscious.

It is not hard to perceive that the relativistic effects that come before our perception with a logic similar to that of the unconscious effects presenting themselves to our conscious perception.

We can very well deduce that our conscious, because it is subject to a symbolic capacity, is inside the three-dimensioned context, and all else of the psychic that has its effects, but are not subject to a symbolic construction, would be included in the four-dimensioned context. The psychic equipment would, therefore, be in four dimensions where time is varied and is the fourth dimension. Therefore, it is impossible to create a symbolic model for the mental apparatus; it is unimaginable. Consciousness would be only an instant in this total in which time became fixed making the symbolic capacity possible.

All of this would be an analogy, if it were not possible to demonstrate that the unconscious processes itself at the speed of light. And to do this we have to refer to our dreams.

During dreams, only during dreams, while we are sleeping, our eyes move. The cones and the rods are the only receivers of our bodies electromagnetic waves and according to Guyton (1981) 'despite the extreme inhibition of the peripheral muscles, some irregular movements may occur. Among them, we can mention, particularly the movements of the eyes; consequently, the paradoxical sleep has been frequently called REM sleep because of the 'rapid eye movements''. With this phenomenon we can go to Scherner's and his pupils hypothesis with reference to the internal stimulation sources presented by Freud in 1900. 'Scherner (1861) assumes that, when dreams occur the visual elements are particularly vivid or abundant, a state of visual stimulation is present, that is, an internal stimulation of the organ of vision'. In this same paper, Freud goes on, 'we do not need to discuss the hypothesis, but we can content ourselves in presuming that the state of stimulation applies only to the perceptive visual organ; we can, however, indicate further that the state of stimulation was created by a memory, that it is a revival of the visual stimulation that was originally immediate'.

Sometime ago I undertook a research with people that had become blind. I observed that out of thirty seven blinds that I interviewed thirty four had kept the images of the dreams at the time they could see and only three updated their images. In others words, for the thirty four that had kept their images in dreams, the people who

appeared in their dreams did not age. This research shows the use of the memory in the dream process. Another point of view of this research was to find out that the blind do not see ‘black’, total absence of light; they ‘see’ a white mist and therefore, with light present.

When I described what color was and its direct relation to form, and I stated that it there is the vision of form there the color phenomenon exists compulsorily, it was also possible to verify that color is an electromagnetic wave. Consequently, the cones and rods located in the eyes are the only receivers of our body electromagnetic waves and the dreams being colored, that is, electromagnetic waves, we can come to the conclusion that our eyes move during our dreams because they are receivers of the electromagnetic waves emitted by the dreams.

Based on what I described above we can arrive at a conclusion: dreams are processed as electromagnetic waves, therefore, in the speed of light. Therefore, as it happens with everything in the speed of light, it produces relativistic effects.

The use of memory is another conclusion about dreams. But only memory, although as a synapses process, would not be enough to produce color and form. Through an analogy we can think of the process of projecting a film on the screen. The recording is on the tape but light is necessary to make it visible.

If we accept the fact that dreams are produced by memory interacting with electromagnetic waves we come to a deduction: Man can emit electromagnetic waves. This process has not yet been detected by instruments because perhaps this electromagnetic wave has a different frequency than the one that can be measured by existing instruments. It remains for the future to discover where the band of the psychic electromagnetic wave would fit in the electromagnetic spectrum. Nevertheless, it is a fact that the psychic phenomenon reaches the visible electromagnetic wave band during dreams and this is enough for us to know that the psyche is processed in the speed of light, as an electromagnetic wave.

If we are capable of emitting electromagnetic waves we inevitably come to resonance. The phenomenon of resonance strengthens the psychoanalytical technique, because we can transfer energy to our patients that will be capable of resonating their

potential energy. The emission of a type of electromagnetic wave by Man, together with resonance bears out the fact that the presence of the psychoanalyst will always be needed. This could never be replaced by a medicine, or by a machine or something similar, for it is necessary to have the same capacity of emissions to resonate. And only a human being can make another resonate in its psychic. I also think that through further studies about the emission of a type of electromagnetic wave, by Man, together with resonance, we will be able to explain the questions raise by Freud (1915) in his work about the unconscious: 'it is an outstanding fact that the Unconscious of one human being can react to that of another, without going through the Conscious. This requires a deeper study, especially with the objective of finding out if we can exclude the pre-conscious activity of the performance of a role in this case; speaking in a descriptive way, however, the fact is undeniable'.

6. CONCLUSION

Together with the fact that we can prove that a dream is the emission of an electromagnetic wave we leave the condition, albeit in the embryo state, of a purely interpretative science to the condition of a science that is also experimental. Each person's dream will vary according to its own history, naturally, but we will all dream through electromagnetic waves and, therefore, with the relativistic effects inherent to them. We can also come to the conclusion that the unconscious, under the relativistic effects, has time, a dilated span of time if compared to the time of the conscious. To discover how this phenomenon of the emission of electromagnetic waves takes place within our body is still the source of a great deal of research.

ACKNOWLEDGMENT

I wish to thank Dr. Altamirando Matos de Andrade Junior for his encouragement to have this paper published.

BIBLIOGRAPHY

1. Einstein, A & Infeld, L (1938) . A Evolução da Física (The Evolution of Physics), p. 200, Zahar Editores. Rio de Janeiro, 1976.

2. Freud, S. (1900). Regressão (Regression). Vol. V, p. 582-583. Edição Standard Bras. das Obras Completas. Rio de Janeiro. Imago.

3. _____. (1915). O Inconsciente (The Unconscious). Vol. XIV, p.213-214, 222. Edição Standard Bras. das Obras Completas. Rio de Janeiro. Imago,

4. Guyton, A. (1981). Tratado de Fisiologia Médica (Medical Physiology Treatise), p.588, Editora Guanabara. Rio de Janeiro, 1988.

5. Landau, L. & Rumer, I. (1986). O Que é Teoria da Relatividade - a ciência ao alcance de todos (What is Relativity Theory - science within the reach of anyone), p.58-103, Ed. Mir. Moscovo.

6. Macedo, M. (1976). Dicionário de Fisíca (Physics Dictionary), p. 121, 249. Editora Nova Fronteira. Rio de Janeiro.

7. McAlester, L. (1968). História Geológica da Vida (Geological History of Life), p. 50-51, Editora Edgard Blucher Ltda. São Paulo, 1971.

8. Pedrosa, I. (1982). Da Cor à Cor Inexistente (From Color to Non-existing Color), p. 17-18, 23-24, Léo Christiano Editorial Ltda - co-editado pela FENAME - MEC, Rio de Janeiro.