

The science of consciousness

Of all phenomena existing in Universe, the most peculiar, yet the most difficult to understand, is the ability of the matter to self-think.

It is difficult to say how a discontinuous world is integrated as a continuous unity, how the particles in a permanent movement generate impressions, thoughts, feelings...

In the act of thinking the atoms, the biochemical reactions, the electrical impulses are not observed. It was affirmed that the brain is "the greatest defiance of biology and sciences, in general". We may ask ourselves, as Schroedinger did, whether it was possible that the act of thinking would not have appeared in the process of matter revolution. Thus, the problem of thinking, as well as that of consciousness, stands out as first class scientific problems, not at all easy.

The consciousness, different from the objects and the phenomena of the nature, cannot be studied with classical methods.

Understanding consciousness means, first of all, explaining why we have consciousness. It is generally admitted that the actions of the inferior beings are performed unconsciously. Nevertheless, there is no clear proof in this direction because the exteriorization of the conscious aspect implies a developed communication. The British ethologist John Crook has said that the human consciousness is a specific phenomenon as the man is conscious of the fact that he is conscious, that he feels he has personal power upon his own actions.

The consciousness appeared on the background of a developed sense of personal identity determined by the complex activity of the human being that uses tools and must know what belongs to him/her and how, why and with which perspectives he must take action. The man has consciousness because he is concerned with his social integration: the privileged image of selfhood is a model of what might be another person. Thus, knowing himself one may predict or even control the wishes and other persons' actions. The ancient saying "know yourself" is an urge to be aware of an action, which is naturally and unconsciously performed by the man.

The consciousness might be understood if we admit that it appeared when the simulation by the human brain of the surrounding world became so complete that it included as well a model of the consciousness itself. It is interesting to notice that the awareness of the own ego seems to have been done quite later, and it is less connected to the work and tools. Thus, the ancient Greeks and Hebrews during the time of the Old Testament did not consider themselves as thinking human beings. The verbal images were not assigned to some internal processes but to the voices of the gods. Iliad, the epic poem composed almost 3,000 years ago, do not refer at all to mental concepts such as: mind, thought, feelings or the own ego of the characters. The people were not made responsible of their actions: they were just instruments of the divine external forces.

Another example confirms this vision which was specific to human beings in an early stage of development. In the center of Brazil there is a tribe of Indians called Bororo. In the same region lives also a species of parrots called Arara. The explorers

were extremely surprised when they noticed that the Bororo Indians affirm they were the Arara parrots. Of course, we might understand, according to our mentality, that the Indians speak in a symbolical manner and that they allude to the totem of the tribe. Nevertheless, it was noticed beyond any doubt, that the Bororo Indians affirm that, in essence, they are themselves Arara parrots.

This peculiar contradiction to refer to the own ego has a completely modern analogue. It is about the duality corpuscle-wave that we encounter in physics. The matter is corpuscular and undulatory at the same time. In present, we acknowledge this without being impressed of the internal logical contradiction.

These aspects of consciousness awareness put in a new light the points of view about the selfhood.

If gods were just a theory invented in order to explain the behavior of man, maybe the modern concept of ego is another theory invented to explain the man by himself. Our modern theory about consciousness might be a better theory than that of the divine will, but it is not by all means more precise. In fact, we cannot prove either that it is closer to reality. Maybe, in fact, it is another useful illusion!

The psycho-neurological experiences recently pointed out a totally new aspect, even surprising, regarding the behavior of man by acts of will such as: even in voluntary and apparently spontaneous acts, an unconscious mental event takes place before the occurrence of a conscious will or decision. Thus, not having an immediate intention to take action, we become aware rather of an impulse or of a will to take action after the process has already unconsciously started. Because the urge goes before the action, we might have the illusion that it is the one which causes it.

If we consider that the mental models are representations of the world, which the people as well as animals (but even robots or computers!) use in order to control the behavior, then a solution of the consciousness question is that all mental models (or less mental, but those about selfhood) are conscious!

Yet, is it possible that all models built by our brain be conscious?

The humanity is populated with consciousness models in an infinite number. The persons with so-called multiple personality formed several models about themselves which are competing for domination. This situation is abnormal but it seems to be only the limit of the normality. Each brain builds several models of consciousness, but there is only one "ego".

The consciousness is not something which controls. It is not a thing, a place, a substance or a part of a system. It is a **MENTAL MODEL**.

On the evolution scale, the quality of consciousnesses depends on the type of built models. Once the voices of gods were replaced by a concept of active self, the self conscience made a step forward. In some savants' opinion, the mystical searches in the case of superior consciences (and one of these is represented by the illustrious philosopher Petre Tutea) or the Buddhist education made with the purpose to reach a superior stage of "illumination", could not be useless creations but real steps towards new mental models. Thus, at the basis of the Buddhist education stands the meditation. According to the Buddhist conception, the meditation transforms the consciences and frees the individual of suffering. Most of us, Buddha said, are permanently distracted by images, sounds, ideas. We live in a turmoil of confusion and fantasy, more in past and future than in present.

Fighting to find the happiness, the man desperately cavils at the “ego” concept and the things he thinks must make him happy. But it is this that will lead him to suffering. As an opposition, the awareness means living every moment in the present, continuously and with vivacity. During the meditation, this art of living in the present is practiced in sitting. The thoughts come, leave and come again. They do not superpose, they do not spurt, and they do not build airy visions. They run until the mind clears up.

These paths of the oriental religion can be easily understood in terms of mental models.

Normally, the attention is permanently drawn from an object to another. This is the most efficient way to use the whole capacity to process the information that we have. But, the only thing which gives a certain stability is the presence of a stable model that we refer at. During the meditation, everything becomes brighter, clearer. The faintest sound is perceived much clearer than normally. Even the heartbeats are perceived. How it happens and what are the implications? It is expected that the science develop the necessary concepts in order to understand the mystical experiences in the terms of information processing. The Buddhism preaches the non-self doctrine: we cannot say that someone is aware but we deal with the consciousness itself. The cognitive psychology shows that the self (the ego) is a mental model: there is not an ego which is aware of everything but there are a series of mental models which are in a permanent change.

The contribution of modern physics to the modeling of consciousness as process is connected to holographic phenomena and to the development of holography, namely to the formation of a three-dimensional image by two-dimensional interferences. The hologram of an object formed on a photographic plate has the property such as, by breaking it into pieces, every piece, however small, might reconstruct the image the same as the entire plate. Karl Pribram showed in the paper “Languages of the brain” (1971) that the deep structure of the brain is essentially holographic. The information is distributed in the brain so that each fragment of gray matter may reproduce the information of the whole. The laboratory experiences showed that the cerebral structures feel the information transmitted by a mathematical analysis of the temporal and spatial frequencies specific to holography. Here is that, in the mental support, we deal with holograms. But, who watches the holograms? It is the consciousness itself, the model of each person’s ego. The consciousness is an aspect, an aspect of the holographic representation. We are included in these holograms. And everything happens on the material support of a neuronal system with an activity similar to that of the analogical computers.

When does the consciousness appear? When it is applied, when the own ego must be analyzed, when we express our own way of considering the reality. The consciousness is, in consequence, a perfectible calculation program, kept into reserve.

The power of consciousness consists exactly in the aptitude to include the explanation of the consciousness itself and to grasp the laws of its evolution.