

Issues on Interrelations of Brain and Consciousness

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T Desiraju, - *Department of Neurophysiology, National Institute of Mental Health & Neuro Sciences, Bangalore 560 029, India*

The first issue is: what is the full definition or description of consciousness? To be able to describe and define it is to know it and its extent. When we reach that stage of "knowing", that is reaching probably the end of knowledge. Till then, we can only conceptualize and discuss alternatives and concepts hoping to arrive ultimately closer to the true understanding. To achieve this progress, we have to learn as to how to remove the limits impeding the brain to search into itself and to describe its "self".

One view has been to consider consciousness as one's awareness of his self and his environment. This awareness can be of different degrees. To have the self-conscious awareness, it is necessary to have the brain working in specific, but yet unknown ways. Different states of consciousness may result out of different states of working of; the brain.

Even the above limited biological view brings us to the next issue. It is a matter of current scientific discussion as to whether the brain is the source originating the conscious states, or whether it is an organ which only transforms the universally existing consciousness into that of the individual's self. There is no glimpse of an answer yet on these alternatives [1], [2], [3], [4], [5].

How the universal consciousness pervades into and modifies the working of the brain? And, can the working states of the brain in turn direct the occurrence of the states of consciousness?

What is it of the matter which enables the brain to manifest the property of consciousness, whether it is generated within or whether it is a transformation from without?

According to one hypothesis, the nerve cell networks, by virtue of forming intercommunicating systems, would acquire new properties which might not be available in the individual units, thus becoming the sources for states of consciousness. Any one nerve cell may not be aware of its self. It is the "whole", the brain together with the body, that displays the conscious capabilities of perception of the self and of the extrapersonal environment. It is not known whether a brain separated from the body can in its mass generate thoughts, although "sensations" may not be in it because of disconnections of nerves bringing sensory inputs from body and environment.

It is generally conjectured that the most important region of brain for subserving conscious experiences and expressions are the so-called association areas of the cerebral cortex. Interactions among the ensembles of neurons of these areas are somehow thought to be responsible for the functional states of consciousness. The neurons of these areas, are, therefore, the "conscious neurons" probably endowed with some most unique molecular organization, the secrets of which have yet to be discovered. These systems of neurons have the ability of "knowing" about their expressions and "experiences". What an extraordinary evolution of the matter!

The working properties of the systems of conscious neurons can be changed considerably, within the limits of genetic potentialities. This change provides the basis for "learning". The conscious neurons learn "values", "interests" and to survive. They develop signals and mechanisms for communication also with the other brains.

How much change by learning is possible for a brain to acquire the capabilities of the best of thoughts, feelings,

experiences and expressions, and for the "knowing" of the "self" which may underly all these?

In the present state of knowledge, the brain science can only tell us that by disrupting what of its parts in cerebral cortex or in other areas can lead to what kinds of disruptions in its learning capabilities, perceptions, thoughts, feelings, symbolic expressions and actions. But we do not know what is it that gets disrupted, or by what manner of functioning of nerve cells, the higher cerebral functions are produced, or developed.

It is as though there are two categories of matter in this universe: one kind of matter with which the brains are made up of is endowed with consciousness to "organize" itself by utilizing the means of consciousness and striving to enslave and "live" on the second kind of matter which is probably not so well endowed with the organization of consciousness.

Consciousness and brain form an interrelated unity. Can the consciousness tell about its "self" without the brain, and can the brain tell all about the consciousness without its "self"? Yoga proclaims that through certain practices of yoga, one will be able to acquire the capacity of knowing the "self". This is a very difficult problem for the science to study, because of the lack of approaches available in the present state of science to tackle to answer such problems.

- 1.Desiraju T. (Introduction), *In: Desiraju T. (Ed.) Mechanisms in Transmission of Signals for Consciou*
Page: pp. 7-9. Elsevier: Amsterdam/Oxford/New York, 1976
 - 2.Desiraju T, Recent Insights into Understanding the Problems of Pattern Generation and Pattern Recognition in the Communication of Coded Information across Nerve Cells of Brain. In: Dutta Majumdar (Ed.)
Recent Developments in Pattern Recognition and Digital Techniques. Indian Statistical Institute, Calcu
Page: pp.269-287, 1977
 - 3.Desiraju T, Mechanisms of Cerebral Functions and Principles of Organization of Primate Brain. In: M R N Prasad (Ed.)
Use of Non-Human Primates in Biomedical Research. Indian National Science Academy, New Delhi
Page: pp.288-309, 1977
 - 4.Popper K R & Eccles J C, *The Self and its Brain. Springer International, New York*1977
 - 5.Sperry R W, Changing Priorities
In: Annual Review of Neuroscience Page: 4: 1-15, 1981
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