

Short Communication

Brain: A Mysterious Organ

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Commentary with historical perspective:

The brain has always remained a mystery. In 335 B.C. Aristotle thought heart as source of thoughts and sensations; and brain as a radiator for cooling. The skull was considered as a place of demons. Excavations had showed skull with trephines made for removing demons and bad spirits. In 1808, a German scientist Franz Joseph Gall gave the idea of phrenology in which persons' character and behavior was discerned by feeling lumps and bumps on skull. By the first century A. D., Alexandrian anatomists Rufus of Ephesus had provided a general physical description of the brain such as the pia mater and dura mater in addition to the basic divisions of the brain. Galen remarked brain consisting of animal soul. In the Middle Ages, the anatomy of the brain was considered as three principle divisions, or "cells" which were later called ventricles. Each cell localized the site of different mental activity. In the early 11th century, Avicenna wrote that *sensus communis* (common sense) was housed in the "faculty of fantasy", received by the five senses. Harvey gave idea of circulation and Willis injected India ink in the vessels and described

circle of vessels at the base of brain. Willis argued that the ventricles were not formed as part of God's design; and formed as accidentally from the complication of the brain. He rejected the idea the supreme seat of the Soul could hardly be there. He also opposed pineal gland as seat of soul proposed by Descartes. Paul Broca in 1862 presented case reports in anthropology conference showing that damage to left side of brain results in right sided paralysis and speech defect. Carl Wernicke pointed area behind it responsible for speech reception. Wilder Penfield in 1940 applied mild electric current while operating on awake epileptic patients and recording their experiences. He also mapped the motor cortex¹.

The plants and trees lack brain. It seems that basic purpose of brain is to move or elicit contraction of a muscle. The pattern of stimulus and response is observed same throughout the animal kingdom from amoeba to human beings. The allocation of cognitive brain is according to the need of that creature. It will be really amusing to see an ant moving with 250gram brain or a parrot flying with 1 kg brain. There is always a big question mark that animals other than humans are self-conscious or not. The sense of being conscious that is qualia is well seen in humans. A dog when placed in front of mirror may not identify himself and start barking and biting him. Consciousness in animals may be limited to one sense. Dogs are smell conscious. In snake touch, vision and taste are independent of each other.

The brain to body ratio depicts the cognition status of an animal. Human beings have brain to body ratio similar to apes but intellect wise

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human beings are far superior. This may be because of brain hemisphere differentiation. Each side of brain has been assigned different functions³.

The human brain is 3 pound jelly and represents 2% of body weight. It is the biggest computer in the world. To make a computer equal to human brain, we need an area of metropolitan city with seven storey building and to feed the data we need 100 years. It has two processors parallel and serial. Left hemisphere functions like a serial processor and right hemisphere like a parallel processor. The brain controls opposite and body parts are represented upside down. This may be due to the lens of eye focusing image upside down; and reciprocal control over the threats in the visual field⁴.

Both hemispheres of brain have different functions. They are connected together by corpus callosum. The ratio of corpus callosum to the volume of hemisphere gets smaller over evolution. The basic function of this bundle of fibers is to inhibit the other hemisphere. The left brain has narrow sharply focused attention while right brain is broadly vigilant alert and open. Left hemisphere is logical . It is egoistic and self-centered. It is eloquent and thinks in words. It always swing from past to future. The right side is mute and emotional and thinks in pictures. It thins right here right now. It is altruistic and connects to whole universe. It has a heaven like atmosphere with no worried of future and regrets about the past. We live in a world where our left eloquent brain has excessive use and lead to a selfish atmosphere strangled in worries and tension. Every body dreams and imagines but a normal person always differentiates these from reality. Someone does not separating them and start living in their dreams an dimaginations lacking insight become schizophrenic⁵.

Albert Einstein once said that there are only two kinds of people in the world, those to whom nothing is a miracle and those to whom every thing is miracle. The brain will always remain a miracle. Brain is not a product of random evolution. It is beautifully designed by the creator.

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