

Editorial

Assad Meymandi, MD, PhD, DLFAPA
Founding Editor



BRAIN AND BEHAVIOR

This article is designed to elevate awareness of the brain, not just as an organ of mentation,

perception, cognition and memory but as a marvelous, even mysterious, complex structure. This structure being responsible for our rich repertoire of feelings such as anger, jealousy, hatred, love, fear, hostility, sadness, compassion, generosity, kindness, guilt, pleasure, altruism, peace and joy. Traditionally, science has been more concerned with understanding mechanisms than with appreciating personal meanings. However, to understand the brain in totality, we must pay attention to both. As a consequence of this attention, we have learned that the brain is also responsible for our complex spiritual and cosmological pursuits. Scholarship and literature about the brain have expanded rapidly, thanks to a federally funded, \$2 billion-per-year, research effort organized by Congress in 1990 dubbed “The Decade of the Brain.” Mind/brain exploration has also been driven by advances in basic knowledge and by new imaging and biochemical technology. This knowledge and technology allow scientists to watch the brain as it orchestrates the functions of life. Here are a few considerations:

When an outfielder leaps up to snag a fly ball, we admire the ballet-like performance and ponder it. The moment the ball is hit, the outfielder’s brain begins to receive visual inputs.

The eye tracks the ball; the brain computes its trajectory. Within milliseconds, millions of instructions are flashed to hundreds of muscles, telling each the exact degree of tension or relaxation required to move the body to the spot where the ball will descend. A flood of signals feeds back to the brain indicating whether each muscle is responding correctly. Finally, in a flurry of rapid-fire calculations that would outstrip the most powerful computer, brain orders muscles to propel the body upward and extend the arm. Gloved hand and baseball arrive at exactly the same point at the same time.

On the other hand, take the case of Rajang Srinivasen

Mahdevan, a native of Mangalore, India, who manages to remember the first 31,811 digits of the number pi. This feat is achieved through the function of hippocampus and amygdala, two anatomically small portions of the limbic system and nucleus ceruleus.

What part of the brain is responsible for the sudden and overwhelming feelings of warmth and spirituality that sweep one’s soul when listening to a favorite composer? Does the brain contain the soul? What goes wrong with the dopamine and acetylcholine neurotransmitting systems in the brain of an Alzheimer’s patient with no memory, feelings or personality, producing the unwelcome transformation of a person into a human object? What happens to the brain’s indoleamine and serotonin system in clinically depressed patients whose pain of living is so great that death is welcome?



What about the ascetic dervish who fasts for 40 days and finds ecstasy in solitude and meditation? And what goes on in the brain of the violinist Medori, (she last performed in Meymandi Concert Hall of Raleigh on Jan 16 and 17, 2009) who at age six was able to play classical music without looking at the notes?

These are but a few examples of the myriad secrets of this three-pound organ we call the “brain.” The spin-off of the “Decade of the Brain” is a better understanding of its role in healing, spirituality and wellness. For

example, meditation has been shown to enhance healing. The neurophysiology of meditation has been worked out since in studies from London’s Maudsley Hospital, Sweden’s Karolinska Institute, New York’s Columbia Hospital, and the National Institute of Mental Health. Those studies have demonstrated that meditating for 20 minutes, morning and night, decreases oxygen consumption and the heart rate below that found in sleep. It also increases the blood flow to muscles and organs, decreasing the level of lactic acid and low-density lipoproteins.

The brain--containing 100 billion neurons, 900 billion glial cells, 100 trillion branches and 1000 trillion receptors—

President's Message *continued from page 1*

The Wake County Physician is a magazine with appeal to the family of medicine in Wake County and to the larger world beyond bound together by scientific, intellectual and artistic glue. It is published with the collaboration of the Alliance, bringing together Wake County medical families through words and pictures. For fourteen years it has been a powerful instrument to attract members to organized medicine, particularly the WCMS, NCMS and AMA. It is hoped that these highlights will invite each and every one of you

to become an active, participating, dues paying member of our local organization that really makes a difference in the lives of Wake County citizens. You may recognize something that one of these programs can do to assist you and your patients. I welcome ANY advice and/or suggestions that you feel would improve our Society. Thank you for being a part of it, I look forward to 2009 being a better year for us all. §

GOOD OLD DAYS

LOOKING BACK AT NORTH CAROLINA



1944 Mary Elizabeth Hospital Operating Room



1947 Mobile X-Ray Unit Trailer



Sanatorium Fire Department (1940's)



1940 Dental care



1940 Army Nurses



1917 NC Oxypathor Exhibit (possibly at the NC State Fair)

reacts to stimuli in a series of electrical bursts, spanning a complex map of connections. To keep this fascinating machine functioning and intact, it must be constantly stimulated and exercised. Whether it is calculating an algorithm or memorizing Lorenzo De Ponte's libretto for Mozart operas or the poetry Wordsworth, or the prose of Ibn Khaldoun,

the brain must keep working to stay alert and fresh.

As physicians we are blessed with the gifts of intellect and compassion. Our patients are getting greyer. We must encourage them to continue to exercise their brains and perhaps as their role models continue to be avid "memorizers" ourselves. §