

## A Perspective on Neuroscience and Contemplation

I am grateful for Andrew Dreitcer's invitation to participate in this conference and I especially appreciate his requesting us to write a paper of 500 to 2500 words. I probably would not have worked as hard to formulate my thought, had he not urged this action. My intention is to use the writing of this paper to begin clarifying my thinking on the implications of certain findings of Neurological research for the practice of contemplation. In light of this goal, I will define both neurology and contemplation. I will then set forth some general findings about the power of the mind to make changes; I will look more specifically at the changes in the brain that occur during meditation; and I will raise some questions about a couple of occurrences in meditation.

### Definitions

Neurology is the scientific study of the nervous system. This discipline underwent significant changes in the second half of the twentieth century, principally due to revolutions in molecular biology, electrophysiology and computational neuroscience. With these advances it has become possible to understand, in much more detail, the complex processes occurring within a single neuron.

With these research tools, neuroscience has expanded beyond the limited study of the brain and nervous system to include the relation of the nervous system to perception, behavior, cognition, and behavior. Of course, the ultimate frontier of the biological sciences is to understand the basis of consciousness and the mental processes by which we perceive, act, learn, and remember. (Eric Kandel, *Principles of Neural science*.)

Some researchers have sought to define religion on the basis of brain functions and changes created by certain stimuli. Although Neuroscience is defined as the study of the nervous system including the brain, which controls the nervous system, some scientists have sought to push beyond the basic functions. Using measurements and observations of brain functions, some have attempted to explain religion and religious activities from a scientific point of view.

Since our goal in this paper is to discover the relationship of brain functions to contemplation, how do we define contemplation? A definition offered by Willis Jager in *The Way to Contemplation* reads thus:

The word contemplation comes from the Latin verb *contemplari*, which means to ‘gaze’.... The goal of contemplation is to gaze into one’s own self, to gaze upon the divine in ourselves and in creation by means of an awareness or experience that transcends our intellectual capabilities. P. 3

Jager suggests that the practice of prayer is a way to contemplation; it includes awareness of one’s own being; the experience of enlightenment, and the personalizing of this experience. All persons can practice prayer and they can also become self-aware, but enlightenment and the personalization of contemplation cannot be humanly achieved. Jager states that a properly mystical (contemplative) state “is something that must happen to a person; one cannot induce it voluntarily but can only prepare the way for it by the practice of prayer.” P. 4.

Contemplation is a part of spirituality and is not only practiced by Buddhists but also by devout persons in all religions. Writers generally divide contemplation into two types: active and passive. In active contemplation the subject uses all the faculties of the mind to intuit, imagine, recall, and decide. St. Ignatius, with his emphasis on imaginative participation in the events of Jesus life and ministry, clearly represents the active type of contemplation. Active contemplation is often referred to as meditation. In contrast this form of contemplation, Jager describes a passive type of contemplation. Passive contemplation has been fully explicated by the author of *The Cloud of Unknowing*, St. John of the Cross, Thomas Merton and others. Passive contemplation is a pathway that leads the contemplative beyond thoughts, words and feelings. It awaits the incursion of the Spirit into consciousness in an unmediated experience of the Holy. Merton speaks of this as the *dark path of contemplation*. You see this same emphasis in Jaeger’s definition.

My question is, “What are the implications of the findings of Neuroscience for the dark path of contemplation?”

#### Findings of Neuroscience

In research dealing with a wide field of religious and spiritual practices studies have shown that life expectancy rises, the immune system has an up-regulation, and bodily changes occur through prayer. On the surface these findings suggest that the mind has a powerful effect upon one’s body and also beyond one’s body. A study by Koenig et al (1999), looking at a population of nearly four thousand 65 year-old people over a

six-year period, showed that those who go to church at least once a week are more likely to be alive after six years. Another study showed that persons over 65 years of age who go to church at least once a week had lower levels of interleukin 6, a cytokine involved with the inflammatory process. Lower levels of this immune protein also suggest an up-regulation of the immune system.

What is not studied or stated in this research is the world created in the minds of worshippers through the preaching of scripture, litanies, liturgies, prayers and creeds. This world created by worship is further sustained and nurtured through fellowship with other members of the church. A healthy view of the world and life's purpose surely can be the outcome of church attendance and worship.

The world created through church attendance and worship, when complemented by a strong faith, positive relationships and positive thinking, also up-regulates the immune system, reducing the risk of cancer, improving general health and protecting the cardiovascular system. These findings all suggest that the mind can powerfully affect the functions of the body.

Other studies have sought to determine the effect of intercessory prayer of one person or group on the lives of people distant to them, and in some instances, not even known to them. Cha et al. (2001) from the department of obstetrics and gynecology at Columbia Hospital New York carried out a controlled trial on the effects of intercessory prayer on in vitro fertilization and embryo transfer in a group of patients in Seoul, Korea. Patients in the clinic were randomly divided into a control group or a prayed for group. Names of the patients were sent to prayer groups in Australia, the USA and Canada. The study continued over four months. Two important points about this study should be noted: first, nobody in the clinic in Seoul, patients or staff, knew that the study was taking place; and second, those praying were widely separated from their subjects and no physical contact occurred. The results were striking. The "prayed for group" showed higher implantation rates of 16.3% against 8% for the control and higher pregnancy rates were 50% against 26%. The higher percentages again suggest that prayer is effective. This study is thus a parapsychological study on healing and suggests the possibility of direct effects of mind and spirit beyond the brain.

These studies seem to suggest that individual practices do affect the immune system, life expectancy, and generally better health. The intercessory prayer study seems to indicate that one group of persons praying for other persons is effective. The operations of the mind have an effect both within the person and between persons. While these various studies indicate that the mind is very powerful in effecting change, what happens spiritually in the person who spends time regularly over a period of years in contemplation?

I want to point to a couple of ideas about what happens in the brain during meditation (contemplation) and how it affects the individual. Studies have shown perfusion in the left frontal lobe to be enhanced during meditation, which is related to a cognitive attentional component. There was hypo-perfusion of the superior parietal lobe, and they argued that this was related to attentional processing and altered sense of space.

I have wondered what is happening in my brain, when I am in a contemplative mode of consciousness. Andrew Newberg attempted to answer this question by using the latest brain imaging technology with a group of experienced Buddhist–meditators. He imaged their brain, both before and during their peak period of meditation. By comparing the differences in the images, Newberg found increased activity in the frontal lobe of the brain and decreased activity in the parietal lobe. The frontal lobe is associated with attention and the parietal lobe is associated with orientation; and it is also involved in a three-dimensional sense of self. When the frontal lobe is activated and the parietal lobe inactivated, the meditator enters a state of enhanced concentration, but will feel as if he or she is losing the sense of self. Persons who meditate often describe their experience as ‘losing their sense of individual existence and begin to feel inextricably bound with the universe’. This experience could probably be contributed to the decreased activity of the parietal lobe.

Early in my contemplative journey I made notes of what occurred in my meditation immediately after emerging from the silence. On one occasion after a half-hour of deep silence I wrote:

The contemplative way leads through the land of mystery and surprise. Today I had set out on the road hoping that it would lead me to silence and that in the silence I would perhaps hear the wordless Voice speaking to me in a manner that engaged me without informing me. Suddenly, I came to the land of surprise.

In the unfathomable silence at the Center, I noted that I seemed to be sitting above myself. It was as though I had a spiritual form exactly like my physical form and this copy of the original was sitting in the same manner as my physical self, except about twelve inches above it. My feelings lay somewhere beyond relaxation and numbness. I noted my location without experiencing feelings of exuberance.

I don't know how to estimate time in a period of intense encounter like this.

Perhaps my awareness lasted sixty seconds or just a fleeting moment. How can I estimate this kind of time?

According to Newberg's findings my parietal lobe was being inactivated and my sense of location was being affected.

In addition to this experience of bodily orientation, after about two years of practicing meditation, I began experiencing a softening of my theological structures. I don't have the language to fully express this occurrence, but I felt as if the scaffolding around my soul was melting or dissolving. Many of the absolutes of my previous history seemed not to matter as much, but my sense of God grew stronger.

Some persons probably cannot appreciate this inward transformation, but my background makes it rather odd to me, to say the least. I am seventy-six years old; I was converted at the age of seventeen and at that time I was influenced by conservative members in my church; my education was at a conservative, evangelical college and seminary; for seventeen years I directed a non-profit evangelical organization and, for twenty years I taught at Columbia Theological Seminary – fifteen years I taught evangelism and church growth and five years I taught spiritual formation. Eight years ago I retired from teaching at the seminary.

Shortly thereafter I had several providential encounters that led me to believe that I was being called to the contemplative path. As I journeyed with *The Cloud of Unknowing*, the writings of Thomas Merton, Teresa of Avila and Carlo Carretto, I figured that God was taking me down this pathway in preparation for my death. I followed this path with great seriousness

After a couple of years practicing meditation, an idea came into my mind rather powerfully: the 21<sup>st</sup> Century will be a Religious Century and it will be between Christianity and Islam. I agreed with that idea and in a few days the Inner Voice spoke: "And, you don't know anything about Islam!" I agreed. I then began to read about Islam

with a passion; I met Muslims and got closely associated with them. The full story is too long to tell here, but suffice it to say, without the dissolving of the barriers and melting of my elitism, I would never have been able to engage these beautiful Muslims or conduct a seminar on Understanding Islam.

Again, I think that this dissolution of the hard binding around the soul (or mind) can, in part, be explained by Newberg's thesis that in meditation the parietal lobe is deactivated and this led to the loss of my previous orientation and the re-visioning of my place in the world and my place with God.

Sam Sehyuk Lee in an article about T. Murphy's claim (How the brain creates the experience of God, 1999) that the brain can create the experience of God, he arguably defines the self as 'what we experience when a specific pattern of brain activity is happening'. He states that we have two senses of self: a left-sided sense and a right-sided sense. The left-sided sense is the dominant one across the general population. In contrast, the right-sided sense is considered to be the more dormant of the two. However, occasionally, the right-sided self becomes so strong that the left-sided self can consciously experience the right-sided self." Murphy labels these 'visitor experiences'. These experiences can be visual, olfactory, or vocal or a combination. The response may be bliss or terror.

I have no doubt that people can and do create their own god. Most of us have created or inherited an image of God with which we have lived for most of our lives. My trek down the contemplative path has made me tentative about imaging God. In fact, when you walk the "way of unknowing" which is getting beyond words, images, and feelings, the relationship with God shifts rather drastically. God is not Something "out there" or Someone "out there." God seems to be more "in here" without a strong differentiation between God and the Self. This does not mean that I am god, but that I experience God as part of me, yet always beyond me. God is infinitely more than my tiny self but to name God seems to border on idolatry. God is the "I AM." Being, that is God's name.

### My Commitments

Obviously, I write as a Christian. The Neuroscience research that I have read is not invalidated by the belief that we humans have been created with a capacity for the

Transcendent, and that this Transcendence can be experienced by us in a variety of ways. The God experienced by mystics is not “wholly other,” with the result that God is an occasional visitor. Though God cannot be named, God can be loved and trusted. To claim that humans create their own experience of God takes as much faith, or more, than to claim that God creates the experience of Godself in us. I have no argument with the discoveries of Neuroscience, but I do have reservations about some of the conclusions that some of the researchers draw.

#### Some Questions

1. Is the brain part of the mind or do the functions of the brain combine to create the mind?
2. Cannot God speak to our minds by intuition and imagination? Or, cannot God become known through a simple awareness?
3. What really happened to me as the rigid beliefs of my past began to melt? How did this create in me openness to diversity and equality?
4. How do we speak about God without making God into Something Out There or Someone Up There?
5. How are we to respond to the artificial creation of spiritual experiences such as the magic helmet, hallucinogenic drugs etc.?