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CONVERSION THROUGH REVELATION:
An exploration of the metaphysics, epistemology, and neuroscience of divine revelation

God's divine word comes to receptive persons in order to, as *Dei Verbum* said, "enlighten their minds, strengthen their wills, and set (their) hearts on fire with the Love of God."[1] God reveals God's self throughout creation and within human conscious intentionality. The attentive person may receive this revelation, gain insight, and seek the source of Goodness and Truth through the totality of natural and supernatural meanings and values. (From Eric's presentation yesterday, if the divine Word and the Spirit are truly entering into the horizon of the human subject, this person is going to be radically changed.) At the heart of the response are the conversion experiences as religious, moral, intellectual, and psychic in which people are enabled to both undergo and undertake a process of authentic self-appropriation. This activates the full human receptivity and openness to falling in love with God and all other persons.

Pope Benedict XVI stresses the role of the interior light of faith, and act of belief within an attentive and receptive person:

> *You can have Scripture without having revelation. For revelation always and only becomes a reality where there is faith. The nonbeliever remains under the veil of which Paul speaks... He can read Scripture and know what is in it, can even understand at a purely intellectual level, what is meant and how what is said hangs together – and yet he has not shared in the revelation. Rather, revelation has only arrived where, in addition to the material assertions witnessing to it, its inner reality has itself become effective after the manner of faith. Consequently, the person who receives it also is a part of the revelation to a certain degree, for without him it does not exist. You cannot put revelation in your pocket like a book you carry around with you. It is a living reality that requires a living person as the locus of its presence.*[2]

[1] DV§23.

[2] Joseph Ratzinger, *God's Word; Scripture – Tradition – Office*, Peter Hünermann and Thomas Söding, eds., Henry Taylor, trans., (San Francisco: Ignatius Press, 2005), 52.

The purpose of this paper, which is a mere part of a total thesis, is to probe the outward complexities and internal dimensions involved in the theology of revelation that has its foundation in the converted heart of the faithful Christian person. The first part of the total thesis consisted of St. Thomas Aquinas's metaphysical analysis of the implications of the Holy Trinity's act of existence and self-outpouring into the created world through divine creative action and communication. The second part was a scriptural contemplation on the authentic conversion experiences.

What I will focus on for this presentation is the third chapter of the thesis, the parallel between the long-established epistemological understandings of the transformed person to those of the discoveries of the human brain of the person who is pulled from mindless wandering to focused mindful engagement. The radical conversion experiences taking place within a person's levels of consciousness and horizon of awareness, along with their retinue of the new insights, heightened awareness, transformed perspectives, and converted psyche, are found to correspond with physiological changes within the brain. This recent neurological research is only just beginning, but the preliminary findings point to the fact that the neural pathways and connections within the mind are re-wired through moments of growth and throughout a person's progressive development into a state neuroscientists are calling "mindfulness". Whether a person is pulled out of a long-established detrimental habit, a military personnel is able to recover quickly after a traumatic event, or a searching faithful has a powerful new insight into the divine, neuroscience research is confirming through physiological evidence that radical changes are happening within the person through memorable and conversion experiences. So, with this paper, I simply hope to "reveal" three aspects; address the problem of scientific reductionism, relate the conversion

moments to neurologic changes, and finally, point to an outlet of application for this mindfulness or self-appropriation training.

So, first, the issue of reductionism: Far from reducing the powerful reality of divine revelation and the converted human person down to these adjusted synapses and re-worked nerve cells within the human skull, an exploration of this modern research suggests the comprehensive impact –physically, mentally, and metaphysically– of divine revelation on the whole of the human person. Theology is rooted and grounded in the attentive, receptive, and converted heart of the believing Christian person. Religiously, morally, intellectually, and psychically converted persons will grow in their appropriation of both themselves and of their participation in the gift of God's love and charity.

The question remains, does observable physical effects of these conversions within the human body generally, and specifically in the brain, happen as a result of these life-altering transcendent shifts of being? Such an inquiry demands entry into the careful procedures and methods of the natural sciences, especially the neuroscience studies of the human brain. In doing so, however, the all too frequent reduction of metaphysical aspects into merely physical ones—for instance, when a scientist performs an fMRI brain scan on a human person to offer a complete account of what a person considers a significant religious conversion—must be avoided.

Nonetheless, here are the observable parallels. Prior to any conversion experience at all, there is the lack of self-appropriation and intelligence. The brain's functioning has two general modes within four working phases. The first mode is the mind-wandering when the brain is considered to be in "the default mode" as it sifts through many random thoughts - mostly negative fears, concerns, worries, and anxieties. Examples of mind wandering would include

such things as a person who seems to be reading a book--the eyes are seeing the words and going down the page--but the brain is not absorbing any of the contents conveyed by the words. Or, one person could be saying something to another person but the presumed listener is clearly "lost in thought" and not listening at all because they are in the default mode. Research has found that the more time a person spends in this "default mode" of negative, unfocused, and random thinking, the greater the possibility of anxiety, stress, depression, attention-deficit disorder, and even dementia. Persons in this default mode are inattentive to the world of activities around them, unaware of the needs of others, least receptive to new ideas, and certainly more closed to the possibility of divine revelation. This is the way neuroscience might understand people who do not have minds and hearts receptive to external stimuli or revelatory insights.

Thus, neuroscience research shows that those stuck for long periods of time in this default mode are much less happy, dissatisfied with life, and more likely to fall into depression and desolation. The default mode actually produces stress inasmuch as the wandering mind, usually tends to fall into patterns of thinking that dwell on worries and ruminate on fears, suffering, and challenging situations. The human mind in default shifts to the irrational limbic system that devises worst-case scenarios so as to be prepared for either fight or flight.[3]

Studies of the brain have been done as regards the formation and continuation of habits, whether good or bad. The neuroscientists observe which parts are engaged once the activity has become a well-ingrained routine. Neuroscience almost confirms the common-sense knowledge that "the more routine a behavior becomes, the less we are aware of it. We lose the fully alert surveillance of that behavior."[4] As unawares, they weigh down the total personality. Whenever

[3] Amit Sood, Video of lecture for online course, http://stressfree.org/programs/#onlineCourse (accessed March 18, 2015).

[4] Ann M. Graybiel and Kyle S. Smith, "Good Habits, Bad Habits," *Scientific American*, 310, 6 (June 2014), 40.

an activity of the present moment is not comprehended, it is a case of missed recognition known as "attentional blinks". For example, we can sometimes completely forget that we brushed our teeth after having done so, simply because the act of brushing our teeth has become such a habitual behavior that we do not have to focus on doing it. By using brain-scans, neuroscientists are finding out why this lack of focal awareness occurs in persons deeply set in their ways.
In the second phase, the mind becomes actively aware of its tendency to wander. This happens when another person jolts it out of unfocused thinking by a shocking action, or by a loud noise, a surprising movement, or a revelation of some sort. Awareness of the distractions in which the mind had been submerged arises. This phase occurs in the "anterior insula and the anterior cingulate cortex--regions of what is called the salience network, which regulates subjectively perceived feelings and might, for instance, lead to being distracted during a task."[5]

The third phase of the mind identified by the neuroscientists has to do with the mind's working at reorienting its attention. This process engages "the dorsolateral prefrontal cortex and the lateral interior parietal lobe – that 'takes back' one's attention by detaching it from any distracting stimulus."[6] This occurs whenever an object worthy of attention, in so far as it contains meaning or value to a person, engages the person's focus and undivided active attentiveness. When thus engaged, the visual, auditory, muscular, as well as many of the brain's modes and operations are in synch, coordinated, focused. The person is able to take in specific data from the surrounding environment, suppress the distractions of doubt, fear, and worry, and become more open to receive any important information or data about a meaningful object. This is a focused, mindful, and healthy person. "The ability to quickly anticipate, respond to, and recover from recurrent stressors is fundamental to a healthy homeostatic system and essential for

[5] Ibid.
[6] Ibid.

long-term behavioral and psychological health."[7] When a person explores a new environment or tries out some new behavior, the central core part of the brain (known as the striatum) becomes highly active and works in conjunction with the prefrontal cortex, which is the brain's cognitive controlling function, "orchestrating thought and action with internal goals."[8] When certain goals are achieved in the learning and exploration process, or certain aspects of the behavior are found to be pleasing, the midbrain expels the chemical dopamine, the internal brain code that assigns value and pleasure to any activity. When the person is exploring new areas and forming new habits, these three portions of the brain are constantly active and communicate with each other through feed-back loops. Thus, the brain attentively assimilates the arrival of data from the external experiences. To be sure, the scientist may observe a measureable shift in the quiescent parts of the autonomic nervous system that simultaneously activates the hypothalamus, which is the primary pleasure center in the brain. Furthermore, it may be observed that the parietal lobe, associated with forming the person's sense of self and the sense of space and time, is either significantly less active or consumes less oxygen than a previous scan of the person's brain has indicated.

This third phase leads to the fourth phase, the second mode of the brain, namely, focused attention. "In the fourth and last phase"—when the person is fully alive, focused, and yet still aware of thoughts, the surrounding environment, the needs of others, inner emotions, and desires, and the intelligibility of all of existence –"the dorsolateral prefrontal cortex continues to retain a high level of activity."[9] When people are engaged in the focused mode, as opposed to the

[7]Douglas C. Johnson, et al. "Modifying Resilience Mechanisms in at-risk individuals: A controlled study of mindfulness training in marines preparing for deployment", in *The American Journal of Psychiatry* 171, 8 (August 2014): 844.

[8] E.K. Miller and J.D. Cohen, "An Integrative theory of prefrontal cortex function," *Annual Review of Neuroscience* 24 (2001): 167.

[9] Matthieu Ricard, Antoine Lutz, and Richard J. Davidson, "Mind of the Meditator", 42.

internal limbic, action-oriented part of the brain engaged in inattentive and irrational activity, many aspects of the cortex are found to be activated, which induces careful, rational, intentional, and discerning actions and movements. Moreover, in those able to maintain this focused mode of mindfulness, their "brain activity diminished in anxiety-related regions –the insular cortex and the amygdala."[10] Similarly, those who habitually practice this focused mode naturally develop more empathy and feelings of unconditional benevolence, compassion, and love for others. Neuroscience research has found that with engagement in this form of self-less concern for the well-being of others, "the secondary somatosensory and insular cortices, known to participate in empathetic and other emotional responses, were more activated… suggesting an enhanced ability to share the feelings of others without reporting any sign of becoming emotionally overwhelmed."[11] In addition, they have discovered that these acts of compassion have been found to cause "more activity in areas such as the temporoparietal junction, the medial prefrontal cortex and the superior temporal sulcus, all typically activated when we put ourselves in the place of another."[12] Even more remarkable, long-term studies have discovered that maintaining this focus mode and sense of intentional loving compassion for others actually alter the structure of the brain tissues. "The volume of the brain's darker tissue, its gray matter, differed in the insula and prefrontal cortices…(and) decreased volume of the amygdala, a region involved in fear processing, for those participants who showed the most noticeable reductions in stress over the course of training."[13] In those who practice mindfulness training, are focused in the activities of life, and show compassion to others, axons, or the fibers that connect multiple regions of the brain, are found to be stronger and more pronounced. Thus, the intentional practice of

[10] Ibid., 43.
[11] Ibid., 44.
[12] Ibid.
[13] Ibid., 45.

heightened awareness, focused attentiveness, and selfless concern for other people enhances the connections within the brain and alters the very structure of the brain.

Obviously, it would be a mistake for the scientist to draw the inference that the person's supposed religious conversion is simply a matter of the activation of the hypothalamus, which allows the person to experience euphoric feelings of bliss; or that the supposed sense of "self-transcendence" is due to the deactivation of the parietal lobe. It would be very easy to reduce all experiences of divine revelation to shifts of activation in the different lobes and regions of the human brain, causing the release of various hormones through the body that make the person feel "transformed." This example, however simplistic, illustrates the danger of equating metaphysical transformational conversion experiences with the findings of neuroscience. To insist on such a reduction would destructively limit the full and true sense of person down to mechanistic properties and intermingling chemicals. This reduction would also cause a massive misunderstanding of any theological understanding of divine transcendence, which is absolutely unconditioned by space and time. Reductionism would dissolve theology into congeries of illusions concerning the utterly fabulous meaning of what are no more than altered states of the human brain.

What this is showing, however, is how different components of the brain are activated for each mode of thinking, and the evidence that focused engagement is found to be the most rational, productive, stress-releasing, and happy. 'Mindfulness' is the term used in neuroscience for the "mental mode characterized by full attention to present-moment experience without judgment, elaboration, or emotional reactivity."[14] Acquiring "mindfulness" will result in fuller attentiveness, inquisitiveness, deeper insight into the nature of one's own being and one's

[14] Amishi P. Jha et al., "Examining the Protective Effects of Mindfulness Training on Working Memory Capacity and Affective Experience" *Emotion* 10, 1 (2010): 54.

presence in the world, as well as optimal states of psychological well-being and consciousness. Mindfulness is more formally defined as "open-monitoring meditation, (which) requires the meditator to take note of every sight or sound and track internal bodily sensations and inner self-talk."[15] There are two general assumptions associated with the understanding of mindfulness. The first is what William James referred to as potential mental states and human developmental stages that go beyond a person's seemingly "mindless" habitual mental patterns. The second is that discipline and training using the practices of psychological, focused-based, and even spiritual methods are normally needed to attain these higher stages. Yet, higher states of consciousness and full-brain activity may also be precipitated when one is confronted with moments of extreme stress or exuberant joy, either of which may jolt a person out of automatic and habitual motions into a state of heightened awareness, action, and reasoning. Thus, can we say that neuroscience's understanding of the development of the optimal state of human functioning is analogous to the epistemological processes of self-appropriation and conversion? Hold off on that judgment until I get through this third part on the practical applications of the techniques used for mindfulness training in a variety of settings.

This third section explores how training programs help individuals strengthen and cultivate mindful-attentiveness. The broad goal of mindfulness training is to "help people to become free of a limited egocentric perspective and to develop greater empathy, compassion, awareness, and insight."[16] Sadly, most people are so taken up with their own habitual patterns and self-absorbed thought processes that they end up going through life without attending to the fullness of inner or external reality. It may be that previous experiences of trauma repressed by

[15] Matthieu Ricard, Antoine Lutz, and Richard J. Davidson, "Mind of the Meditator" *Scientific American* 111, 5 (November 2014): 42.

[16] Shauna. L. Shapiro and Linda E. Carlson, *The Art and Science of Mindfulness; integrating mindfulness into psychology and the helping professions*, (Washington, D.C.: American Psychological Association, 2009), 120.

the unconscious mind still are present within the body. However, the resulting and lasting effects on persons going through this training may be suggestively compared to the four conversion moments. To demonstrate the transformational effects of an individual who intentionally develops enhanced states of attentiveness to the self and the surroundings as well as a receptive and un-resistant attitude to the inflow of meaning and value found in the experiences of everyday life, military personnel are now going through mindfulness based practices prior to their deployment to war situations of high trauma. The program is called "M-Fit" Mindfulness-based mind fitness training program. The military sees this as a "performance enhancement system" for their personnel. It is probable that only through intentional mindfulness exercises and focus-training can a person gain heightened awareness that breaks through distracting memories and random thought-processes. These mindfulness training programs based on multiple spiritual and secular traditions help persons become more attentive, intentional, intelligent, reasonable, responsible, and ultimately more compassionate and loving once they achieve more advanced levels of mindfulness. There is much more that can be said about this, but the results are powerful. The military personnel have higher resiliency, lower rates of PTSD, and recovery from traumatic experiences happens quicker.

In conclusion, this neuroscience research confirms what we might expect from metaphysical and epistemological accounts of the effects of revelation. Real physiological effects occur whenever people receive a transformational insight and go through conversions, religiously, morally, intellectually, or psychically (as discussed above). The brain material changes itself with the broadening of the person's awareness of reality, the extension of care for others, the deepening of yearning for the transcendence, and the strengthened understanding of the self's meaning and purpose. Conversion moments do happen. If these transformational

experiences pull people out of the default mode of mind-wandering, anxiety-producing, fearful, self-doubting, closed, lifeless existence; and activate attentive, focused, mind-full, engaged, intentional, selfless, intellectual, moral, religious, and happy living, it makes sense that such moments have concomitant changes in the brain matter, in personal mindfulness, as well as affiliated actions and way of life.

The neuroscientists call the brain "nature's most complex machine". The theologians consider the human mind as that which most reflects the image of the God in the created world. Either way, the neural networks woven through the human mind are an intersection of the physical and the metaphysical, the created and the transcendent, the human and the divine.