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Bringing the Heart to Mind:
A Neuroscience Perspective of the Jesus Prayer

One of the most important prayers in the Greek Orthodox tradition is the Jesus Prayer. It is also referred to as the Prayer of the Heart, and it is the most popular form of the unceasing prayer. The Jesus Prayer is a line asking for God's mercy, and some people who have practiced the Jesus Prayer with particular devotion speak of its rewards. Neuroscience research helps explain why people may find formalized prayer, such as the Jesus Prayer, rewarding. Neuroscience research allows a more empirical and biological explanation of a subjective experience. Neuroscience may further help to explain why people find prayer a rewarding and motivating experience, especially formalized prayer. This paper will utilize neuroscience research; however, it is written in a way so that a layperson can understand it. The paper will thus minimize technical language and nuances in results.

The Jesus Prayer is the most common form of unceasing prayer. In the Orthodox tradition, one of the most important prayer practices is the unceasing Prayer of the Heart. The idea that one should pray unceasingly comes from two of Paul's letters. Paul writes, "to be constant in prayer" (ESV, *Romans* 12:12) and to "pray without ceasing" (ESV, *I Thessalonians* 5:17). There are two dominant strands of interpretation within Orthodox Christianity of these verses. One way, espoused by John Chrysostom, Dimitry of Rostov, and John Climacus, is that Christians should have set time for prayer. For example John Climacus, also known as Saint John of the Ladder, writes, "Prepare for your set times of prayer by unceasing prayer in your soul, and you will soon make progress" (St. John of the Ladder, Step 28 qtd. in "Unceasing Prayer"). The alternative interpretation under-

stands Paul's words literally: one should pray unceasingly or continuously. One particularly well-known example of this interpretation can be found in *The Way of the Pilgrim*, which traces a Russian peasant's wanderings during which he learned and adopted the unceasing prayer allowing him to feel Jesus's warmth. Some other verses used to support a literal meaning are "I will bless the Lord at all times; his praise shall continually be in my mouth" (ESV, Psalms 34:1) and "I slept, but my heart was awake" (ESV, Song of Songs 5:2) ("Unceasing Prayer").

The most common form of the unceasing prayer is the Jesus Prayer. The prayer in its usual form is some permutation of "Lord Jesus Christ, Son of God, have mercy upon me," some add "a sinner" at the end or recite it in plural form through substituting "us" for "me." The prayer is sometimes recited with the help of a rosary and with the physical method consisting of head bowed, eyes on the place of the heart, and breathing controlled. The Jesus Prayer in its current form was first found in the Life of Abba Philemon, a 6^{th}-7^{th} century work, although there are earlier works which reference an invocation or remembrance of the Name of Jesus ("Jesus Prayer"). There are multiple ways people say the Jesus Prayer. One can concentrate one's attention fully and constantly repeat the words to the exclusion of all other activity for long periods of time. One can repeat the prayer for short periods of time, or one can say the prayer at all times even while doing other work (Rogers). In *The Way of the Pilgrim*, the author relates how the Jesus Prayer became such a part of the rhythm of his life that with each breath he would say the prayer regardless of what other activity he was partaking in. He was trying to perfect the art of unceasing prayer, and finally met a spiritual father who taught him the Jesus Prayer and gave him instructions on how to recite it continuously like a mantra. Thomas Hopka, an

Eastern European priest and theologian, praises *The Way of the Pilgrim* and emphasizes the importance of the Jesus Prayer as "life itself." He also points out that the story illustrates the rewards that the Jesus Prayer can offer.

Although there have been many accounts of the impact the Jesus Prayer and other formalized prayers have had on the practitioner, these are all subjective, personal narratives. Neuroscience research is able to provide some empirical evidence to support the impact prayer has on the individual on a biological level. It also provides some insight into the brain areas underlying the experience of prayer and thus the unrealized experiences of prayer.

Two papers that are important in thinking about the functions of the brain and their connection to religious experiences are Albright and Ashbrook (2001) and Ashbrook and Albright (1997). These papers explore brain functions such as empathy, agency, and intentionality and place them in the context of religion. They find two brain areas, which are especially linked to religious building blocks, the frontal lobe and dopaminergic circuits. The frontal lobe is associated with higher-level cognition, such as planning, short-term memory, attention, and motivation. For example, when there is damage to the frontal lobe, people have trouble staying on task and planning. When someone prays they need to be able to concentrate and focus. The other brain area is the dopaminergic circuits, which are important for reward processing (McNamara). Rewards are the impetus for all activity, and are therefore the motivation behind all practices, including religious ones.

Recently prayer has become a subject of study for the neuroscience community. It has been found that prayer has definitive effects on the brain. There is an fMRI study of

Danish Christians, which showed that the BOLD signal (the oxygen levels in the blood indicating an increase of activity) in the caudate nucleus (a part of the dopaminergic circuit) increases when they are performing silent prayer. The caudate nucleus is generally implicated in rewards (especially delayed rewards), addiction (which is related to rewards), and evaluating future rewards based on interpersonal reciprocity. This study seems to indicate that the type of prayer that these Danish Christians are performing is one based on trust in God with the hope of some future reward or answer, since the brain areas involved in their prayer are more active when performing these functions.

The study further distinguished between formalized prayer and improvised prayer. An example of formalized prayer is the Lord's Prayer and an example of an improvised prayer is a personal prayer. In order to make sure that the effects they were attaining could be attributed to the structure of the prayer, they used controls. They controlled for the effects of formalization with a well-known rhyme and for the effects of improvisation with wishful praying to Santa Claus. The Lord's Prayer was correlated with more activity in the caudate nucleus than the improvised prayer even though the Lord's Prayer is less frequently practiced, which suggests that this signal is not due to repetition. Perhaps the Lord's Prayer has more activity since it is associated with specific, habitual situations or because the people praying believe it is sanctioned by Jesus so it may illicit more hope in reciprocity than their personal prayers. A combination of these reasons is also possible. "The Lord's Prayer seems to optimally combine the aspect of habitual behavior and trust in God's reciprocity," both of which aspects are implicated in the caudate nucleus (Schjødt, et al.). This implies that people relate to prayer differently based on the struc-

tured nature of the prayer and the context in which it is said. It is also seems to be that highly structured prayer is more rewarding and based on trust in God.

Interestingly, when subjects prayed less frequently, prayer had less impact on brain activity. “This suggests that a regular practice of praying may be key to a cognitive effect of religious prayer.” It is unclear from this study whether it is the repetition or the confidence in God’s reciprocity that is responsible for the difference in the brain activity, since either one or both could have increased the activity in this area (Schjødt, et al.).

Neuroscience research is an exciting new avenue to explore the effects of prayer in general and in delineating different types of prayer with their unique effects. The research thus far suggests that formalized prayer is correlated with a different brain activity and perhaps subjective experience. It also supports the idea that habitual prayer has a greater effect on the brain, suggesting a neural correlate for the more impactful experience of habitual prayer. Praying frequently seems to make prayer have a greater effect on the brain, perhaps correlated to a more intense personal experience. Additionally, the areas of the brain associated with prayer are known to be integral to the processing of rewards and trusting in others. This may suggest an emotional undercurrent of prayer as rewarding and based on trust in God. The Jesus Prayer, as a cornerstone of Greek Orthodox monastic practice, has been found to be an enriching and rewarding experience, perhaps due to its unique formalization and basis in trust of God and expectation of reward, mercy. There is much work to be done in this area, as neuroscience research relating to prayer is still in its infancy. In particular, it would be interesting to explore the neural correlates of specific prayers and their differences as well as to create distinctions in the

brain between different categories of prayer. Also, correlating the subjective ratings of people's experience of prayer's impact to fMRI data could lead to interesting results.

Works Cited

Albright, Carol, and James Ashbrook. *Where God Lives in the Human Brain*. Naperville: Sourcebooks, Inc., 2001.

Ashbrook, James, and Carol Albright. *The Humanizing Brain: Where Religion and Neuroscience Meet*. Cleveland: Pilgrim Press, 1997.

Hopka, Thomas. Introduction. *The Way of the Pilgrim and the Pilgrim Continues on His Way.* Boston: Shambhala Publications, 2001.

"Jesus Prayer." *The Oxford Dictionary of the Christian Church (3rd rev. ed.).* Ed. F.L. Cross and E. A. Livingstone. Oxford University Press, 2009. Web.

McNamara, Patrick, et al. "The Chemistry of Religiosity: Evidence from Patients with Parkinson's Disease." *Where God and Science Meet.* Vol 2. Ed. Patrick McNamara. Westport: Praeger Publishers, 2006. 1-15.

Rogers, F Gregory. "Spiritual Direction in the Orthodox Christian Tradition." *Journal of Psychology and Theology* 30.4 (Winter 2002): 276.

Schjødt, Uffe, et al. "Rewarding Prayers." *Elsevier.* 443 (2008): 165-168.

The Way of the Pilgrim; and, The Pilgrim Continues His Way. Trans. Helen Bacovcin. New York: Image Books, 2003.

"Unceasing Prayer." *The Orthodox Church of America.* Web. 28 May 2015. <https://oca.org/orthodoxy/the-orthodox-faith/spirituality/prayer-fasting-and-alms-giving/unceasing-prayer>.