IV. Review. Theology of Neurology, 11-13

XI. The Association Cortex: Staging Area for Academic Understanding Summary

The cerebral cortex is the outer covering and is unique to man. Human consciousness, reasoning capacity, language abilities, and decision-making occur in this cortex. In order for decision-making to occur, all pertinent data must be analyzed and brought to the individual's academic understanding.

Making up the greatest percentage of the cerebral cortex is the association cortex. This area comprises the central processing center for thought, decision, and action.

Human volition considers the information gathered in the association cortex and is thereby challenged to act or not act, accept or reject, believe or disbelieve. The decision to accept and believe the information initiates the electrochemical process which results in the establishment of a long-term memory trace.

Conclusion

The association cortex is associated with the *nous*, the place where the Holy Spirit makes divine thought understandable to the finite human mind.

Since the believer is incapable of understanding divine thought, the Holy Spirit must make it perspicuous to him. At the point of academic understanding the believer is left free to accept or reject, believe or disbelieve the revelation.

However, even if he accepts and believes, his finite mind is incapable of processing divine thought into a memory trace. Transfer of doctrinal truth from the association cortex into a permanent memory trace must be the work of the Holy Spirit.

It is He who must initiate the synthesis of new proteins, it is He who must ignite the action potential of the first neuron, it is He who must coordinate the interconnections of the neural network which establishes the memory trace.

In short, it is the Holy Spirit who must convert *gnosis* into *epignosis* and store it in the seven compartments of the stream of consciousness.

The biblical documentation for this was noted in a brief review of the corrected translation of 1 Corinthians 2:9–1 Corinthians 2:14, developed in lessons CWL018 - CWL022 of the series The Christian Way of Life vol. 1.

XII. Facilitation: Changing the Path of Least Resistance Summary

Facilitation means to make a task easier to perform. In neurology it refers to the principle that a behavior pattern becomes more and more habitual with every repetition of the act.

We noted the technical process by which a positive charge fired from the cell nucleus causes that of a neighboring neuron to fire. This process is repeated over and over until a memory trace is created. We then noted how the repetition of this sequence causes the memory trace to become habitual and thus facilitated into a path of least resistance.

Likewise, an action is halted or even prevented from starting by the firing of a negative charge which fails to influence the neighboring neuron resulting in no action occurring.

Positive volition initiates a positive charge called an action potential and synaptic excitation. When this results in the message crossing the synaptic cleft it sets up an excitatory potential. If the signal is strong enough, the potential becomes a reality and the neighboring neuron fires.

Negative volition, on the other hand, initiates a negative charge and results in synaptic inhibition. This causes the individual to either stop an action or prevents it from ever starting.

Conclusion

A facilitated memory trace presents the volition with a path of least resistance. If that path is a wheel-track of wickedness, the likelihood of the believer doing the wrong thing is very high. If that path is a wheel-track of righteousness, the likelihood of the believer doing the right thing is very high. Under the filling of the Holy Spirit inside the Divine Power System, the believer is enabled to recall the right wheel-track and is delegated the power to choose it.

XIII. Addendum: Turning Up the Volume

Rose, Stephen. The Making of Memory: From Molecules to Mind. New York: Bantam Books, 1992. Reprint. New York: Anchor Books, 1993; pp. 259-60:

> *Learning causes changes in synaptic connectivity between one neuron and another. Dendrites increase in length, change branching patterns, and the number of spines alter. Connectivity is altered not only by increasing the actual number of synapses but also by altering the size or position of any particular synapse.*

Johnson, George. In the Palaces of Memory: How We Build the Worlds inside Our Heads. New York: Alfred A. Knopf, Inc., 1991. Reprint. New York: Vintage Books, 1992; pp. 24-25:

> *In the 1960s, Eric Kandel of Columbia University found that the synapse seemed to function like a volume control. If a synapse is turned up, the neurons on either side become more strongly connected: If the first one fires, the next is likely to follow. On the other hand, two neurons whose synapse is turned down are, in effect, disconnected. The synapses, then, seem to allow for the malleability needed for learning.*

Restak, Richard M. The Modular Brain: How New Discoveries in Neuroscience Are Answering Age-Old Questions about Memory, Free Will, Consciousness, and Personal Identity. New York: (1st ed.) Simon & Schuster, 1995; pp. 120-21:

> *... even a casual effort at introspection reveals that even the most balanced of us are often of two or more "minds." One part of us wants desperately to do something, while another part resists with a ferocity that leaves us feeling disjointed and conflicted. At such times we wonder if more than one person occupies our bodies.*

This last reference by Dr. Restak is a perfect segue into the next component of our study. We have examined the theology of neurology. Now it's time to apply the neurology to the theology of Romans 7.