Historical Perspectives on the Behavioral Function of the Insula

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The advent of functional neuroimaging technology has seen increased interest in the behavioral function of the region of cerebral cortex known as the insula. Localization of function for this brain region has been slow to develop as it is rarely affected in isolation by naturally occurring structural brain injury and many of the behaviors with which it has been associated are not measured by traditional neuropsychological tests. While it is widely acknowledged that the name originated with Johann-Christian Reil (1809), who is more famous for coining the term “psychiatry” (Binder et al. 2007) little has been written in the English language literature of historical conceptions of the function of insular cortex. One exception was the pioneering electrical stimulation study of patients treated surgically for focal seizures originating within or near insular cortex at the Montreal Neurological Institute (Penfield and Faulk 1955) that noted: “Early anatomists and physiologists regarded it diversely as a center for speech (Rose 1928), or for taste (von Bechterew 1899)” (p. 445).

Both references are to papers published in German. Rose (1928) was a comparative cytoarchitectonic study of insular cortex in several species including the bat, hedgehog, lemur, baboon, and human. It is known for the identification of so-called von Economo neurons in the insula (Šimić and Hof 2015). In contrast, the reference to von Bechterew (1899) is incorrect. As clarified by Sörös (This issue), the early conception of the insula as primary taste cortex should be credited to Gorschkow (1901) who conducted ablation studies on dogs in Bechterew’s laboratory. Primary taste cortex remains the behav-

ioral function most commonly attributed to the insula in modern neuroscience textbooks (e.g., Kolb and Whishaw 2014), even though this brain region is now considered to play a much more diverse role in human behavior (Gasquoine 2014).

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