

Sound Neuroscience: An Undergraduate Neuroscience Journal

Volume 1

Issue 1 *Historical Perspectives in Neuroscience*

Article 16

5-17-2013

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Recommended Citation

Aston, Selena (2013) "History of Phrenology," *Sound Neuroscience: An Undergraduate Neuroscience Journal*: Vol. 1: Iss. 1, Article 16.
Available at: <http://soundideas.pugetsound.edu/soundneuroscience/vol1/iss1/16>

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History of Phrenology

Selena Aston

Phrenology was a pseudoscience practiced in the early nineteenth century that involved judging a person's character by the bumps on his or her skull (1). This may sound like a superstitious practice such as palm reading and other forms of divination, but it was actually grounded in early studies of anatomy and physiology (2). Though the practice of phrenology has long since been disproven, this early science involved the idea that different parts of the brain have different functions, a phenomenon often referred to as localization of function. Furthermore, phrenology raised some important questions that are still relevant in the field of neuroscience today.

Phrenology was based on the idea that the brain was the center of thought and will power in the human being. Franz Josef Gall, who established phrenology as a science, argued that the brain was made up of 27 organs each of which was responsible for a different personality trait or "penchant" (2). The size of these organs determined the strength of the trait. Because phrenologists in this time period were not able to see the brain of a living human being, they determined the size of each organ by examining bumps on the surface of the skull. The size of the organs was not determined in any systematic way, and might be referred to as "very small" or "very large." A well-trained phrenologist was said to have been able to tell a person's personality by looking at the skull. To get a more detailed reading, phrenologists would brush their fingers across the surface of the scalp to measure the bumps (2).

Gall's associate, Johann Caspar Spurzheim helped create a map of where different Penchants are located. He grouped the penchants into two categories: feelings and more primitive qualities, and knowing faculties. Knowing faculties were involved with sensation and perception and were located towards the top of the head. This category included the perception of weight, color, texture, locality and number order. The other group of penchants concerned emotional and animalistic properties, such as physical love and destruction. These were located at the back of the brain. An individual's personality was a product of the combination of these parts (1, 2).

Intro

Gall's pseudoscience was partially inspired by the writings of the philosopher Johann Gottfried von Herder. Herder rejected the idea of mind-body dualism, and argued that the soul can be studied through the nervous system (3). Both Herder and Gall believed that spiritual energy needed to work through physiological organs. This idea that the mind and soul were located in the brain helped spur Gall's study of the brain. Furthermore, Gall argued that the brain operated in distinct parts, which contradicted Albrecht von Haller's assertion that the brain functioned as a whole.

In the early 1790s Gall claimed that he had found discrete areas in the brain that were associated with certain personality traits. He conducted research by studying animal skulls and making wax and plaster molds of human skulls. He was a distinguished scientist, and his relationship with the minister of police in Vienna allowed him access to the skulls of criminals. These were particularly useful to Gall, as he was interested in studying people with extreme personality traits. At one point he had over 300 human skulls and 120 plaster casts (3). Gall's extensive research demonstrates

that despite the superstitious reputation of phrenology, the practice grew out of a somewhat scientific process.

Gall's practices gained widespread acknowledgement in Europe, but even at the time his findings were very controversial. Phrenology was banned in Vienna for a variety of reasons, including the overenthusiasm of Gall's followers, and the treatment of women. The ban seemed to make phrenology more popular, and it spread to other European countries. Methods and validity aside, the emphasis that this practice put on the brain as the seat of intelligence and the human experience spurred new questions regarding human nature in general (3).

One of the more interesting of these questions that phrenology raised was whether an individual has control over their qualities, or if their entire personality is predetermined by their physiological makeup (2). With the neuroimaging techniques in the field today, the same question is raised, and there doesn't seem to be any one answer. The issue of choice the mind/brain problem has been explored for hundreds of years, and will probably continue to inspire neuropsychological research in the future.

Another point of controversy over phrenology was the issue of whether the brain functioned as a whole, or if different parts had different functions. Phrenology argued that the brain had independent regions. Other scientists studied this particular concept in depth in the years to come. Brain ablation studies with primates provided additional support that certain areas of the brain work independently (4). The double dissociation of Broca's and Wernicke's areas proved localization of function further (5). The notion that different parts of the brain are responsible for different functions and operate independently partially inspired further research on the matter. This research resulted in groundbreaking discoveries concerning the function of the brain.

Phrenology was a fairly primitive and simplistic study of the brain that is no longer viewed as valid. However, this practice helped publicize the idea that the brain has different parts with specialized functions. The theory that the brain is the seat of the mind challenged people to think of mental processes as physiological in nature. It also caused people to question how much control an individual has, and if the structure of the brain alone determines a personality. Though the science was of phrenology was not particularly accurate. It did contribute to the field of neuroscience today.

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