

by Randy Alley

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### Phrenology Considered

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For the next several issues, The REALL News will be featuring articles based on longtime member Randy Alley's research into two pseudosciences from the 18th and 19th centuries. Later articles will also discuss the way an early skeptic, Dr. Michael Kreider, dealt with these. Randy recently received his Masters Degree in history from the University of Illinois at Springfield, and this research was part of his thesis.

We may often forget that pseudoscience has been around for a long time — we are by no means the first to have to address such issues. The first, phrenology, appears in this issue. The second, mesmerism, was most likely the first scientifically tested pseudoscience and will be discussed next issue. We at The REALL News hope you enjoy this small departure from our usual articles.

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Although phrenology is often considered part of the basis for modern neurology and psychiatry, for the most part it is a discredited pseudoscience that provides chuckles to museum patrons.<sup>1</sup> They look at the phrenology busts with the lines showing the organs of personality and intelligence. Various traits, like destructiveness, ideality, and friendship, are traced upon the bust. A person merely had his or her skull measured and performed the proper mental exercises. After a period of time the organs would strengthen or atrophy, depending on the exercises, and the patient would improve. Wealth and fame could be achieved through a few simple exercises. Anyone could equal the strongest, smartest, or the wealthiest.

Phrenology was the latest rage during the 19th century as thousands of people subscribed to its ideas. It fit with the psyche of popular culture; expansionism, imperialism, capitalism, the industrial revolution all were supported by phrenology's idea that all people were equal. In America, where men were individuals who could make themselves, these ideas took on special meaning. Men only had to identify their strengths and weaknesses and then improve on them. Perfection, wealth, and power were all within their reach.

Modern phrenology was proposed by Franz Joseph Gall (1758-1828), a German physician. While working at the Lunatic Asylum in Vienna, Gall made observations on patients by studying the development of the human head. From these observations, he determined that mental powers were indicated by configurations visible upon the head. By observing the patients and performing autopsies after their deaths, Gall decided that the brain, covered by the dura mater, presented a form corresponding to that which the skull had exhibited in life. Using this knowledge in conjunction with the philosophies of great metaphysicians, such as Pythagoras, Plato, Galen, and Haller, who placed the sentient soul or intellectual faculties in the brain, Gall developed the theory of phrenology. Using his techniques, he was able to identify 27 organs, though he did not classify them.

By 1800, Gall had his first disciple. Dr. Johann Casper Spurzheim (1776-1832) began assisting Gall, and adding to his theory. Soon, 35 different organs had been identified and divided into faculties.<sup>2</sup> The faculties were classified into three categories: propensities, sentiments, and intellect. The propensities existed in man and animals and were products of specific nature, such as the desire to kill. The sentiments were the faculties which provided emotions. All of the sentiments were present in man, but only some were present in animals. The intellects were present in both man and animals and were what made man and animal aware of their own existence and that of other people.

Phrenology was an old idea even at this time. Aristotle considered the brain a multiplex organ and assigned to each part its appropriate function. The Bishop of Ratisbon divided the head into three regions based upon 13th century writings. A similar plan was published in 1491 by Petrus Montaguana. But this history was not an issue for Gall. He readily admitted that he had used these ideas and provided a history of the philosophy of the brain with his treatise on phrenology. Spurzheim did the same and presented his address in the Phrenological Journal, No. VII. Art. 8, "An Historical Notice of the early Opinions concerning the Brain." This article was accompanied by a plate, dated 1562, showing different organs marked on a head.

The theory of phrenology consisted of six underlying principles. The first principle simply stated that the brain is the organ of the mind. Phrenologists philosophized that without the brain there is nothing. The brain must be in a healthy state to be effective and to exercise its power.

The second principle stated that the brain is a congeries of organs, containing a distinct organ for each faculty, sentiment, or propensity. Each organ that makes up the brain is separate and distinct. Each has its own function to perform. These separate organs allow man to perform different functions simultaneously.

The third principle stated that in the brain, vigor of function is in proportion to size, other conditions being equal. Without other influences, the ability of an organ to perform was directly related to its size. Just as an exercised arm gets larger and stronger, the exercised organ would do likewise. The size of the organ would then be indicative of the strength of the organ.

The fourth principle stated that the strength of each faculty, sentiment, or propensity when compared with the other faculties of the same individual is proportionate to the size of its particular organ, compared with the other organs of the same brain. This principle dictated that organs had to be exercised in a similar fashion. A person could not exercise and fully develop his organ of hope while ignoring his organ of locality. This idea was similar to the idea that to produce a strong arm you have to exercise the tricep as well as the bicep. Without the strength of one, the other will never achieve its potential.

The fifth principle stated that the brain, or particular organs within the brain, are increased in size and power by exercise or stimulation. If you exercise a muscle, it becomes stronger. By exercising the organs of the brain, they would become stronger.

The sixth principle stated that not only the size of the brain, but the relative size of different organs, could be ascertained by the shape of the skull. This was the underlying support for phrenology. Each organ would make an indentation or protuberance upon the skull. The phrenologists claimed that by measuring the skull, they could identify the size of the organs.

Gall and Spurzheim knew and admitted that dissection could not reveal the functions of any organ. The newly identified organs of the mind were no exception. However, there was a good explanation: anatomists not using the power of metaphysical philosophy were prevented from uncovering the secret of phrenology. But phrenologists using their knowledge of metaphysics developed a system of measuring minute differences between individual organs of the brain. These differences, as small as 1/10th of an inch, disclosed the difference in development between large and small organs of the propensities, sentiments, and intellect.

The functions of the newly identified organs provided insight into a person's character. The phrenologist could identify these organs and their character traits. A patient could then identify what he wanted to improve and get specific exercises to gain the advantages desired.

Unfortunately, the exercises were usually simple, ineffective, and bordered on common sense. If a person scored high in alimentiveness it meant he would have weight problems. The organ of alimentiveness was located in front of the ear, where the top of the ear lobe meets the skull. This person was identified as "the feeder" and demonstrated certain traits about man's nature:

Appetite; the feeding instinct; relish for food; hunger. Adapted to man's need of food, and of an eating instinct. Perverted, it produces gormandizing and gluttony, and causes dyspepsia with all its evils.<sup>3</sup>

If a person measured very large they would "often eat more than is requisite." Phrenologists recommended that the sufferer "should be educated at once by omitting one meal daily" and instead "drinking abundantly cold water." He was given exercises which consisted of, "eat but seldom" and "eat slowly" while directing their attention to what they were eating. Those people who measured small in this trait were said to be "devoid of appetite." They were given exercises given to cultivate or increase this trait. These exercises consisted of "consider before you eat what you would relish best" and "indulge your appetite."<sup>4</sup>

The knowledge provided by phrenologists on the characteristics of alimentiveness was extremely limited. People knew if they were overweight. They also knew that they could control it by eating less. The phrenologist had not told the patient anything he did not know, or could not figure out by simple observation. In other words, phrenology provided no new information. Other traits were more humorous.

The organ of individuality provided the trait of "the observer." The person with highly developed Individuality possessed a desire to see and examine all that was around them, to understand "the thingness of things." If the trait was perverted the person would "stare and gaze imprudently." People who measured large in Individuality were thought to be fond of objects and take "pleasure in personifying even mere events and phenomena." This organ was located behind the root of the nose, between the eyebrows. Those people who measured small in this trait would lack the "desire to see and examine" and would "observe only what is thrust upon the attention." To cultivate this trait, the patient was told to notice whatever comes into the range of vision and to observe little details intently. For those people who desired to restrain this trait the exercise consisted of "look and stare less, and think more."<sup>5</sup>

Phrenology had many followers. Several rich and famous people were analyzed phrenologically. The list read like a Who's Who of American culture: Matthew Brady, P.T. Barnum, Horace Mann, Samuel Morse, the Wright Brothers, Andrew Carnegie, Andy Jackson, Daniel Webster, and Abraham Lincoln.<sup>6</sup> Of course, many of these people belittled the theory. Mark Twain even claimed that he submitted only to test it. Luckily, Twain's test was successful and he was able to label phrenology worthy of his scorn. As more interest was shown in phrenology, more practitioners came forward with new discoveries. New publications, like the American Phrenological Journal, touted these discoveries and spread the word that phrenology would provide a short-cut for human beings to achieve perfectibility. By the mid-19th century, more than 83 organs had been discovered.

The phrenological exam was simple. Using calipers the phrenologist would measure the horizontal circumference of the head. A ball on the end of the calipers was inserted into the ear, and measurements taken to different points of the head. The phrenologist would then physically examine the head with his hands. Specific areas were then examined. Each organ's region was assigned a measurement from one to seven. One to three indicated that the organ was small, six that it was large, and seven earned a very large. The patient was provided a chart which delineated exercises to correct

deficiencies, which could result from an organ being too small or too large depending upon whether or not the trait was desirable. Exercise would strengthen and enlarge weak organs, while neglect would allow undesirable organs to atrophy.

While phrenologists went on professing the science's tenets, other more serious men went about denouncing it as the pseudoscience it was. This group had a far easier time disproving phrenology than supporters had proving it.

The first response of critics was that upon dissection no separate organs could be found. The phrenologists were quick to argue the form and structure of an organ would not provide information about its function. But this did not answer the question. Where were the "organs"? Anatomists knew that the brain was not made up of separate organs. Furthermore, the brain is cushioned from the skull by the dura mater, pia matter and the arachnoid granulations. The presence of these three tissues prevents the direct contact of the brain with the skull and make it impossible for the brain to shape the skull. Only the surface prosencephalon, or forebrain, comes into even indirect contact with the skull. The largest mass of the brain, the mesencephalon and rhombencephalon, is beneath the surface and is in contact with only the prosencephalon.

This discussion does not even address that there were layers of bone, muscles, arteries, nerves, skin, and hair between the phrenologists and the brain. Also, it was known to anatomists that the actual size and shape of the brain could not be ascertained until the death of the user. By then the user does not need the information.

The anatomists searched further. Through experiments by Pierre Flourens (1794-1867) it was discovered that the brain was a complete organ with regions controlling different functions. Flourens was an eminent French scientist who served as permanent secretary of the Academy of Science. By experimenting on pigeons he demonstrated that different parts of the brain could be removed and yet the animals could still function. Flourens determined that the cerebellum served the abilities of locomotion. It did not control emotions such as anger and love as assigned by Gall and Spurzheim. Flourens' research also proved that the brain was one organ and that damage to one region would not result in a total loss of function.

Phrenologists also failed by supposing that each organ had organs which supported it. If one organ were damaged or weak, another complementary organ could replace its function. If a person had a large organ of individuality, it would support his organ of causality. The organ of causality provided man with the ability to think and plan. A person who scored large possessed the ability to deduce, reason and invent. They would "[d]esire to know the whys and wherefores of the things and investigate their laws."<sup>7</sup> This trait supported the desire to know the "thingness of things" provided by large Individuality.<sup>8</sup> But this was clearly wrong. As Dr. John Abernathy, in 1825, pointed out, these organs are not interchangeable.

The eye cannot judge sensations produced by the ear, nor the ear those of smell, taste, and touch, yet we decide on all our sensations, faculties, and sentiments; consequently, whatever exercises this power must be acted upon by all parts of the brain.<sup>9</sup>

Each organ had its own function. If one organ was lost another could never replace it. These were facts that phrenology could not address.

Phrenology also opposed popular early 19th philosophy. The tenets of phrenology stated that all animals possessed similar organs which controlled their actions. Therefore, man and animals with similar organs should behave similarly. Yet animals with similar organs could behave differently. Some animal species cared for their young, others did not. This care appeared consistent throughout the same species. Dogs, cats, birds, and horses always cared for and defended their young. Reptiles did not. Man pursued both actions. But all men possessed similar organs. Why this difference? Phrenologists did not have an answer. Killing followed the same philosophy. At the time, animals were known to kill only for self-preservation, not for fun or sport. However, man killed for enjoyment. Abernathy explained this idea by discussing the differences between man and animals desire to build things.

Admitting that man, like animals possess in various degrees a natural propensity and talent for construction, yet no blind impulse regulates his labours; he constructs what his reason directs, or his fancy suggests; he forms previous plans

or designs, and alters them till the whole seems to accord with his intentions; and yet none of his works is so unalterably perfect as are those produced by blind instinct operating according to the ordinance of overruling Intelligence.<sup>10</sup>

The brains of man and animals were different. Each man behaved differently because of social and philosophical differences, not because of differences in the organs of the brain.

Phrenology conflicted with many known scientific principles. Anatomists had proven that only one organ, the brain, appeared within the skull. The brain did not come into direct contact with the skull, so it could not cause protuberances. Further, anatomists demonstrated that the cerebellum did not control emotion, but movement. When quizzed on the anatomy of the brain, phrenologists became vague and nebulous. They accused the anatomist of not understanding this premise or that philosophy. Phrenologists could not reconcile one underlying fact: the organs that they measured did not exist. No one could find them because they were not there.

Phrenology tried to free man by placing his development under his own control. Its greatest strength was that it gave man hope. However, when examined, phrenology was revealed to be pure charlatanism and wishful thinking.

Randy Alley recently received his Masters Degree in History; this article is taken from a part of that thesis.  
References

1There is a small group of phrenologists still active in Great Britain. (See: Frances Hedderly, *Phrenology: A Study of the Mind* (London: L. N. Fowler & Co. Ltd, 1970).

2G. Spurzheim, *Outlines of Phrenology* (Boston: Marsh, Capen and Lyon, 1832), p. 24-71, Daniel N. Robinson, ed., *Significant Contributions to the History of Psychology 1750-1920* (Washington, DC: University Publications of America, 1978.)

3O. S. Fowler, *Fowler's Practical Phrenology* (New York: Fowler & Wells, 1846), pp. 90-92.

4Ibid., pp. 91-92.

5Ibid., pp. 137-139.

6 Madeleine B. Stern, ed., *A Phrenological Dictionary of Nineteenth-Century Americans* (Westport, CT: Greenwood Press, 1982), pp. v-vi.

7O. S. Fowler, *Fowler's Practical Phrenology* (New York: Fowler & Wells, 1846), p. 157.

8Ibid., pp. 137-139.

9 John Abernathy, *The Surgical and Physiological Works of John Abernathy* (London: Longman, Hurst, Rees, Orme & Browne, Reprint by Oliver D. Cooke & Co., 1825), Vol. 2, p. 77.

10Ibid., p. 51.