Isaac Ray’s Affair with Phrenology

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Abstract

In recognition of the two hundredth anniversary of the birth of Isaac Ray (1807–1881), the father of American forensic psychiatry, the author explores the influence of phrenology on Ray’s early thought. Phrenology, popular at the time of the founding of the American Psychiatric Association in 1844, was a transitional discipline between spiritually based theories of mind and the materialistic concepts that continue to dominate psychiatric thought. Ray, a vocal advocate of phrenology during his days as a general practitioner in Maine, said little about the science in his *Treatise on the Medical Jurisprudence of Insanity* in 1838. Yet, remnants of phrenology can be found in his formulations of the biological bases of behavior well into his career. The author highlights the parallels between phrenological thought and modern biological psychiatry in their potential to inform legal matters.
“The subtility of nature is far beyond that of sense or of the understanding; so that the specious meditations, speculations, and theories of mankind are but a kind of insanity, only there is no one to stand by and observe it.”

—— Francis Bacon, *Novum Organum*

**Isaac Ray’s Life and Times**

A native of Beverly, Massachusetts, Ray was educated at the Phillips Academy in Andover, where he studied classical literature and ancient languages (Hughes, 1982). He began college at Bowdoin in Maine, leaving in 1824 due to poor health. It is possible that he attended lectures on phrenology that began at Bowdoin in 1823 (Walsh, 1972). Returning to Massachusetts, he studied medicine first by apprenticing himself to physicians in Beverly and Boston, and then by returning to Bowdoin to matriculate at the Medical College of Maine in 1826. After graduation in 1827, he attempted to open a private general practice in Portland, Maine. He continued his interest in the natural sciences, publishing a book on physiology (Ray, 1829), several articles and book reviews. Unable to sustain the practice, he moved to the coastal village of Eastport, Maine, where he practiced, and studied medical jurisprudence and phrenology (Overholser, 1954).

During his time in Eastport, Ray published his *Treatise on the Medical Jurisprudence of Insanity* (Ray, 1838), America’s first dedicated book on forensic psychiatry. Ray was married in 1833 to Abigail Frothingham (1806–1885). The couple had two children, first a daughter, Abby (1831 to 1846), who succumbed to tuberculosis at 14; and a son, Benjamin Lincoln (1836–1879), a physician who assisted his father in Providence and then in Philadelphia. After losing his son, Ray became reclusive and stopped writing (Kirkbride, 1881).
Ray took his first appointment in psychiatry in 1841, when he was appointed Medical Superintendent of the State Hospital for the Insane at Augusta, Maine (Kirkbride, 1881). By then, his formulations of medical jurisprudence were gaining momentum. During M’Naghten’s murder trial and acquittal in England in 1843, Ray’s Treatise was used by defense counsel to great effect (Diamond, 1956; Quen, 1977). While in Augusta, Ray was appointed as Superintendent of the planned Butler Hospital in Providence, Rhode Island. During the building of the hospital, Ray toured Europe, visiting asylums; he recorded his observations for the American Journal of Insanity (Ray, 1846). His work at Butler began in 1847 and spanned twenty productive years. During the heart of his clinical career, he took on positions of leadership, both in organized psychiatry and in the medico-legal community (Overholser, 1944). Among his many accomplishments was his leadership among the Association of Medical Superintendents of Institutions for the Insane (AMSAII, the first name of the American Psychiatric Association), where he was vice-president from 1851 to 1855 and president from 1855 to 1859. Ill health forced him into retirement from Butler in 1867, after which he relocated to Philadelphia. There, he had a consulting practice, wrote prolifically, and participated in civic affairs. Always striving to improve conditions for the poor and mentally ill, he spoke out against the horrible care offered to the insane at the Philadelphia Almshouse (Ray, 1873c), though most of his advice went unheeded or rebuffed (Quen, 1979). In 1879 Brown University conferred upon him the degree of Doctor of Laws.

Ray left an enormous legacy of creative, innovative and insightful work. Among his many gifts to forensic psychiatry was his untiring effort to raise the level of quality of psychiatric contributions to legal matters. Overholser (1944), calling Ray “[o]ne of the
most remarkable of [the Original Thirteen], if not the giant among them all,” included the following quote from Ray in his biographical sketch: “We must look for improvement, not so much to any devices of legislation as to broader views and a firmer spirit on the part of those who administer the laws, to a higher sense of professional honor, both in the lawyer and in the physician, and to a healthier public sentiment” (Ray, 1873b, p. 432).

The interested reader will find detailed accounts of Isaac Ray’s life and work in the writings of Kirkbride (1881), Deutsch (1937), Zilboorg (1944), Stearns (1945), Pasamanick (1954), Overholser (1944; 1954), Hughes (1982) and Quen (1983).

**Brain and Behavior: The Beginnings**

The idea that the brain houses the mind can be traced to Plato, Galen, Descartes and others (Walsh, 1976a). Throughout the history of psychiatry, we see a focus on the relationships between brain and behavior; for example, in the work of Benjamin Rush, early neuroanatomists, and phrenologists (Noel & Carlson, 1970). Between Rush’s time and that of Isaac Ray, there grew a tension between clinicians, who derived knowledge through observation of the sick, and anatomists, who looked for the source of illness. Strangely, there was a dissociation between studies of normal anatomy and concepts of pathophysiology. Mental derangement was viewed as a visitation from an ineffable force. The naturalistic sciences were about to change that in the early nineteenth century. Weiner (1994), discussing Pinel’s “gesture” of removing the iron chains from psychiatric patients, notes that his best contribution to psychiatry was his careful observations on the natural history of illness. In early nineteenth century, however, Pinel’s teachings were giving way to a more modern method—analyzing tissue—which began to make Pinel
look old-fashioned (Weiner, 1994). As Quen (1964) notes, Ray cited the changes in scientific empiricism in his 1827 doctoral dissertation, “Remarks on Pathological Anatomy.” Pinel and then Esquirol were troubled by the idea that organic causes could not be found for many cases of insanity (Dain, 1964). They concluded that the disturbances were functional, in the sense that “the brain could be acted on directly by psychological means” (Dain, 1964, p. 69). The functional versus organic dichotomy continued to dog psychiatric thought throughout the nineteenth and twentieth centuries.

Ray’s thinking was not cluttered with considerations of functional and organic etiologies. To him, all roads led to the brain. As we shall see, Ray was insistent that physicians—especially those who testify in court—adhere to empirical science, especially in the comparisons of normal to pathologic anatomy. When he began his practice, post-mortem examinations were often not linked meaningfully to the diagnosis of mental disorders, making pathophysiology little more than speculation. Small wonder, then, that medical witnesses were often considered quacks! It perturbed Ray that thorough autopsies were reserved for forensic cases, whereas he believed that medical education suffered from lack of experience in differentiating healthy from morbid tissue (Hughes, 1982).

**Forensic Psychiatry: What’s Phrenology Got To Do With It?**

Benjamin Rush, the father of American psychiatry, a Philadelphian and contemporary of Benjamin Franklin, is remembered for publishing the first English language textbook of psychiatry and for admitting mental patients into Pennsylvania Hospital. Like his contemporaries in Europe, Rush was interested in the medical causes of mental
derangement. Noel & Carlson (1970) trace the use of the word phrenology to him, as early as 1805 in Sixteen Introductory Lectures; phrenology meaning literally the science of the mind. Rush believed in “faculty psychology,” the prevailing idea that humans were born with faculties of the mind that subserved emotions, thought and behavior. He was also familiar with Locke’s idea that the faculties were given content by subjective experience, with the Scottish school of psychology’s reaction against Locke (insisting that faculties were innate and God-given), and with Franz Joseph Gall’s “organology” (Van Wyhe, 2002)\(^3\) or “craniognomy” (Walsh, 1976). There emerges, then, a logical connection between faculty psychology and forensic psychiatry. That is, when faculties become deranged—often through no fault of the individual—the result was what would otherwise be considered culpable behavior. The actor might be considered non compos mentis or insane. Though logical, this analysis is too facile; insanity defenses to criminal acts were difficult to pull off in America, despite (or perhaps because of) M’Naghten’s acquittal.

Gall (1758–1828), a Viennese physician who settled in France, wanted to construe the faculties anatomically, though he must have known it was beyond the power of contemporaneous technology. He believed that the mind could be understood from naturalistic observations of the central nervous system. The importance of this idea cannot be underestimated. Not only did Gall’s method serve as a template for the empirical study of correlative neuroanatomy, it moved the locus of concern from the metaphysical or spiritual to the material world. Though not an atheist, Gall was looked upon suspiciously in Europe because of his secular methodology (Pasamanick, 1954). In his landmark paper on Gall, Temkin (1947) notes that Gall had a special interest in
criminals, often examining them. Whereas he did not adopt a strictly deterministic view
of the “born criminal,” he did consider a spectrum of moral responsibility, including for
those whose animal organs were overdeveloped. Phrenology, especially as it was applied
in American practice, regrettably would interpret human character by the external signs
of cranial topography—thereby insuring its place in the dustbin of the history of
medicine—instead of adhering to Gall’s loftier intent.

Rush’s usage of the term phrenology did not take root; instead it merged with
psychology, with Gall’s craniology becoming the popular phrenology by way of Johann
Spurzheim (1776–1832), his protégé. Following Gall’s death in 1828, Spurzheim
undertook a popularization of phrenology, including a visit to America, where he died in
1832 (Walsh, 1972). He made such an impression that he received honors at Harvard and
Yale; and the Boston Medical Society marched en masse at his funeral attended by three
thousand (Farrar, 1956; Walsh, 1976). Several years later, the Scottish lawyer and
phrenologist, George Combe, undertook an extremely popular lecture tour in the Eastern
United States (Anonymous, 1976). Phrenology went on to influence concepts of mental
disease, but took the trajectory of the pseudoscience or fad for which it is best known.

Phrenology: The Basics

Phrenology, at its core as a “faculty psychology,” had several premises: 1) the brain is the
seat of the mind; 2) mental faculties have specific anatomical locations, represented by
“organs” in the brain (Combe, 1853) (see Figure [Mulley & Whyatt, 1881]); 3) the
strength of each organ can be measured by its size; 4) the relative size of the organs is
appreciable on the surface of the cranium; 5) it is possible to strengthen or weaken an
organ through exercise or disuse; and 6) injury to an organ will have corresponding clinical sequelae. Unfortunately, the evidence-based approach used by phrenologists was to incorporate data that fit the theory and discard contrary facts. However, there was a heuristic component in terms of pathophysiology (explaining disease states by organology) and therapeutics (the idea that self-improvement could improve the affected organs). That phrenology was considered by some to be too deterministic, its application to medical jurisprudence was limited. That is, holding cerebral organs responsible for a person’s behavior left little room for moral considerations.

Phrenology had its heyday in the United States over several decades, beginning in the 1820s, during Ray’s developing interest in insanity (psychiatry). Gall and his successor Spurzheim, via the latter’s lectures in America, were interested in wrestling matters of the mind from religion. Gall was “a renowned neurologist and the godfather of the principle of cortical localization of mental faculties” (Temkin, 1947, p. 275). He saw the broad significance of his inquiry: “[F]or the first time, questions on mind and brain were reduced to the single domain of dynamic physiology and biology” (Cooter, 1984, p. 3). Moreover, the human being could be observed in the larger frame of life. As Pasamanick (1954) put it, “Gall destroyed the concept of complete differentiation of man from other animals, not as previously on the basis of the existence of a soul, but on the basis of comparative anatomy and physiology” (pp. 168–169).

According to phrenology scholar Cooter (1984), Gall and Spurzheim stressed anatomy, “claiming not that it was the source of their discoveries but that it strongly confirmed them [p. 109]…Gall’s strategy, if we may call it that, was to enshrine the seat of reason [in the brain] so as to discredit the institutions of power that depended on blind
faith, superstition, and spontaneous irrational behavior” (p. 111). This may seem ironic, given the image of phrenology today; but the movement from spiritualism (or vitalism) to materialism employed the midwifery of phrenology and entranced physicians such as Isaac Ray.

Phrenology was not conceived as a reckless, iconoclastic theory. In researching his doctoral dissertation, Cooter (1989) uncovered thousands of sources on phrenological thought, indicating the earnestness of the endeavor. Among its most important contributions to nineteenth-century thought—and the most overlooked—is phrenology’s liberating scientific ideas from faith-based concepts of mind. Because phrenology was naturalistic, scientists could then focus on experimentation, observation and correlations of behavior with their findings. Scientifically minded physicians such as Ray appreciated Gall’s intention that physicians “own” the brain as the seat of behavior. In doing so, clinicians could then apply a range of diagnostic and therapeutic models within the inchoate field of psychiatry. Phrenology broadened the horizon for medical science (as well as for education) by reducing knowledge to human scale.

After Continental phrenology came to America via Spurzheim in 1832, it achieved fad status, causing considerable consternation among purists (followers of Gall and of the Scottish brothers, George and Andrew Combe). Take, for example, this excerpt from an anonymous editorial in the Annals of Phrenology (Anonymous, 1835), an “orthodox” publication, expressing concern about dabblers and reckless skull examinations: “The most prevailing evil…is the practice of examining heads; not of well-chosen cases, where examinations may be of use to the science, but indiscriminately. Every head, whether common or uncommon, respectable or degraded, receives a formal
judgment. Not content with satisfying a few inquirers who may have had their curiosity excited by hearing lectures,—there are individuals who make it their business, have their shops, and receive pay for their manipulations, so much per head! This practice not only degrades the science, but gives rise to superficial converts, who will be likely to prove obstinate followers of the bad examples which were the means of their conviction. It turns a dignified science into a system of legerdemain, and those who are really able to promote the true philosophy of man will be prevented from investigating the subject, on account of the repulsive appearance of its exterior” (Anonymous, 1835, p. 131). Perhaps the author was anticipating the commercialization of phrenology by the Fowler brothers, who have been likened to P.T. Barnum (Stern, 1971); we have all seen their bisque heads with the Organs delineated. In any event, we see the author of the quote straining against the misuse of his science, trying to preserve an evidence-based approach against corruption of original intent. Alas, the horse was already out of the barn.

Phrenology existed amid competing notions of the mind-brain connection. Serious theoreticians readily acknowledged multiple etiologies of mental illness. Take, for example, Andrew Combe’s (1831) cautionary statement on assessing “proximate causes” of insanity: “Disturbances of the mental functions may arise from various affections of a different nature; and, if we do not adapt our treatment discriminatively to the case before us, we shall do serious mischief, instead of that good which we intend to effect” (Combe, 1831, p. 304). Though phrenology is remembered only for “bump reading,” Gall’s intellectual legacy included the differentiation of white and grey matter, demonstrating the decussation of the pyramidal tracts, and roughly identifying the location of speech decades before Broca (Overholser, 1962; Temkin, 1947). Contemporary phrenology
scholar John van Wyhe (2006) notes that it prefigured modern neuroscience. For example, many brain functions can now be localized, though others are distributed; areas of the brain that are more frequently used (as the right hippocampus of experienced London taxi drivers) may become enlarged with use (Maguire et al., 2000); and paleontologic evidence of the skull casts of early hominids tracked the evolution of speech centers (Van Wyhe, 2006).

Phrenology in Mainstream Psychiatry

Some of the early asylum superintendents, especially Amariah Brigham, were partial to phrenology; indeed, Brigham, in the first volume of the American Journal of Insanity, praised the science (Anonymous, 1976; Carlson, 1958; Walsh, 1970). Brigham met Spurzheim during the latter’s American tour and edited books by Spurzheim and Andrew Combe (Walsh, 1970). His influence flourished as editor of the Journal, especially since he wrote many of the articles himself (Dain, 1964). Brigham, however, wrote to colleague Pliny Earle that he was not “confident that the organs can be ascertained by external examination” (Dain, 1964, Note 20, p. 227). According to Dain, “[Samuel] Woodward and Ray shared Brigham’s reservations about the popular phrenologists’ faith in craniology” [also called cranioscopy, the practice of taking measurements of the cranium] (Dain, 1964, Note 20, p. 227). Brigham’s ex-protégé, Horace Buttolph, did not show misgivings when he wrote, “Phrenology bears the same relation to insanity, that physiology does to pathology” (Buttolph, 1849, p. 128). There was no universal endorsement of phrenological practice; as Carlson (1958) notes: “[The founders of the American Psychiatric Association] admitted the value of phrenology as a form of mental
philosophy or science of the mind, or at least as a stimulus to their thinking thereupon. There was almost complete rejection of the craniological aspects and much skepticism about the organology” (p. 535). This is a key analysis: for the first time, asylum doctors had a link between brain and behavior, without having to buy into its popular applications. Yet, there were other efforts to construct a phenotype of insanity; for example in the study of physiognomy, the study of human character through facial configuration (Carlson, 1976). Popular in Gall’s early career (Temkin, 1947), it reached its height in the mid-nineteenth century, when Hugh Diamond catalogued mental states by way of photography (Gilman, 1976).

By 1860, in the post-Brigham era of the American Journal of Insanity, the tide was clearly turning against phrenological explanations and methods. For example, in an anonymous review of the lectures of Sir William Hamilton (Anonymous, 1860), the author recounts Sir William’s “experiments” that could not confirm phrenological assertions. Regarding the relationship of Organ of Destructiveness to criminal behavior, it is noted: “A comparison of all the crania of murderers preserved in the Anatomical Museum of the Edinburgh University, with about two hundred ordinary skulls indifferently taken, was decidedly favorable to the criminals; showing their destructiveness and other evil qualities to be less than the average, while their moral and intellectual qualities were above it” (p. 253). Too polite to trash completely the system of phrenology, Sir William concludes with some faint praise: “…I am prompt to acknowledge that the sect comprises a large proportion of individuals of great talent; and I am happy to count among these some of my most valued and respected friends” (p. 259).
Though phrenology was based on false premises and self-fulfilling “evidence,” it provided clinical and forensic psychiatrists with a timely heuristic. As Kuhn (1996) pointed out, a wrong science is not necessarily a bad science: “Out-of-date theories are not in principle unscientific because they have been discarded” (p. 3). This is not to say that phrenology was good science; only that it was a springboard for modern thinking about mind-brain issues. Pasamanick (1954) noted the importance of phrenology despite its errors: “It was, however, in the true tradition of science. It presented its theses in the form of hypotheses which could be tested and not as dogma” (p. 170).

Phrenology had mostly dwindled by the time of the trial of Charles Julius Guiteau for the assassination of President Garfield in 1881, the year of Isaac Ray’s death in Philadelphia (Rosenberg, 1968). Guiteau’s defense included evidence of heredity, irrational acts throughout his life, as well as his being delusional at the time of the shooting. One defense expert, Dr. Edward Spitzka, delivered an analysis based on what he considered correlative neuroanatomy. He testified that Guiteau had “asymmetry of the face, and pronounced deviation of the tongue to the left; those were the evidences that I found that he was born with a brain whose two sides are not equal, or are so much more unequal than the normal difference between the two sides as to constitute a diseased difference” (Pollack & Wiley, 1944, p. 127). A phrenological/physiognomical analysis of Guiteau was attempted from a photograph, the cover of which is illustrated in the Figure (Mulley & Whyatt, 1881). Of more historical significance, however, was the testimony of prosecution witness John Gray, Ray’s nemesis, who continued his rejection of “moral insanity” (irresistible impulse) (Quen, 1983; Tighe, 1983). Guiteau was convicted and hanged; moral insanity discredited.
It would appear that nineteenth-century notions of criminal behavior were wedded to anatomic analogies if not to pathophysiology as we construe it (Dain, 1964). In phrenology, cause-and-effect was not as important as the idea that there were correlations between brain and behavior that were discoverable by scientific methods. The search for a credible science of mind-brain continued to consume the imaginations of neurologists and psychiatrists. At the end of the nineteenth century, Sigmund Freud’s (1895) “A Project for a Scientific Psychology” struggled to establish neuroanatomical correlates, but was not published until after his death. Perhaps it embarrassed him that scientific methods would not permit him to flesh out the details of the inchoate neuroscience. Later, his “topographical” (conscious-preconscious-unconscious) and “structural” (id-ego-superego) theories presented concepts of the mind that addressed the dynamic relationships within mind-brain. However, that dynamism was limited to the formulation that neurons were a passive recipient of the energy of the instincts (McCarley & Hobson, 1977). One hundred years after Freud’s Project (during the “decade of the brain”), psychoanalysts still talked about a rapprochement between psychology and biology (Schore, 1997). Though there was nothing distinctly phrenological in Freud’s concepts, he, like Ray, was likely frustrated by the shallowness of contemporary neuroscience.

**Ray’s Career and Phrenology**

The relationship between organ structure and function is evident early in Ray’s professional development, including his medical school dissertation as a 20-year-old graduating from the Medical School of Maine at Bowdoin College (Quen, 1964). Ray’s
adherence to *mechanist* (or *materialist*), as opposed to *vitalist*, principles is characterized by Quen: “[Ray] states that death or illness, with few exceptions, cannot be the result of anything but *structural* change” (Quen, 1964, p. 117, italics added). Ray was clearly evidence-oriented, for example, in his insistence that medical expert witnesses be familiar with normal and pathological anatomy before expounding theories of causation.

Overholser (1954), Quen (1964) and Hughes (1982) were impressed by Ray’s indignant remarks about the sloppy and unscientific expert opinions expressed in a case of death during pregnancy (Ray 1833c). In the case report he critiques, a woman had died from a botched abortion, but none of the experts could say if the wounds were self- or physician-induced. It incensed Ray that medical colleagues could be giving expert opinions on causality without so much as a proper post-mortem. Not one to conceal his feelings, the young Ray described one of the medical witnesses, Dr. Siah Fuller: “[H]e is a man of repute in his neighborhood…His testimony opens with a flourish of trumpets, the like of which for asinine tones, was never before heard, we will venture to say, since the world began” (Ray, 1833c, p. 23).

*Ray Explains Phrenology to a Child*

As noted, Ray became interested in phrenology, a secular, pre-Darwinian “science” aiming, among other things, to resolve mind-brain problems (Cooter, 1984). Ray’s interest in phrenology can be seen in his early writings (Hughes, 1982; Quen, 1964; Ray, 1829; Ray, 1838). Indeed, he translated some of Gall’s books from French into English (Kirkbride, 1881; Pasamanick, 1954). While the firmness of his belief in the applications of phrenology is arguable, he was not a dilettante, and the science doubtless captured his
imagination and permitted him to consider brain-behavior relationships that informed his forensic ideas.

In his first book, *Conversations on the Animal Economy*, Ray (1829) gives an impressive discussion of anatomy and physiology in the form of a conversation between a teacher and student. Stearns (1945) notes, that here “Phrenology is mentioned with sympathy” (p. 576). In the book, Ray, as “Dr. Benjamin,” provides a succinct version of psychology to his imaginary student Emily:

“Dr. B.—…As for the source of volition, we know no more than about that of sensation….As for the intellectual faculties, modern physiologists have been fond of assigning them distinct seats in the brain, and lately this view of the matter has been extensively developed and wrought up into a regular system which is exceedingly plausible and has been received by many—and some very distinguished—physiologists.

Emily.—O, you allude to phrenology.

Dr. B.—… According to phrenology, the brain is an aggregate of several organs of a conical form, originating by their apex from a common point in the centre of the brain, and terminating by their base on its circumference. These organs are the seat of the various moral and intellectual faculties, which are distinct from, and in some measure independent of each other. Those to which the intellectual faculties belong, occupy the front part of the head, while the moral and animal passions are exercised by the middle and posterior portions. The strength or capacity of the faculties, is in a direct proportion to the size of these
particular organs, and that of the whole brain. The relative size of any particular organ, and the strength of its corresponding faculty may be estimated by examining its termination on the surface of the brain. If it swells above the rest, appearing like a bump or protuberance, the organ is large and well developed, and the faculty will form a prominent feature in his moral, or intellectual character” (Ray, 1829, pp. 144–145).

Dr. Benjamin then admits that there is no anatomical basis for this belief: “[A]s to the form, size, or even existence of these organs, anatomy gives us no light whatever” (Ray, 1829, p. 145). Ray equates the size of the head with the size of the brain and the intellect, though it is not a perfect correspondence (Ray, 1829, p. 146). Ultimately, he overreaches, reverting to an impressionistic principle: “It is every day recognized to a certain extent, by the most ordinary observers, for he who should be liable to mistake the head of an idiot, for that of Bacon or Shakespeare, would be considered almost an idiot himself” (Ray, 1829, p. 146). This type of loose logic, I believe, would fall short of Ray’s ultimate standards for expert witnesses (Ray, 1851a; Ray, 1873a; Ray, 1873b), though he was never shy in speaking his mind.

**Defending Phrenology**

Phrenology’s influence is apparent in Ray’s writing from his Portland and Eastport days, during which he published his *Treatise*. Hughes (1982), who carefully studied Ray’s professional life, does not consider him a phrenology zealot, though Ray’s writings were sometimes frankly a defense of phrenology. In 1832, Ray published a laudatory review of an 1829 book by the Scots lawyer/phrenologist George Combe (*The Constitution of Man*...
considered in relation to External Objects) (Ray, 1832). He begins by critiquing metaphysics and philosophies of mind advocating a mind-body dichotomy. For example: “That the mind depends on the body for its manifestations, is a fact too obvious for even a child to overlook…” (p. 392). He decried the superstitious reluctance to dissect the human body as a prelude to praising phrenology’s adherence to material considerations. Regarding phrenology, Ray is not excessively sanguine, admonishing the reader to keep an open mind about it. Combe, he says, while not an original thinker, is to be credited for his systematic reduction of the work of Gall and Spurzheim. Ray concludes that the natural laws that govern brutes as well as humans compel us to cultivate the higher intellectual and moral faculties. In this way, humans will retain their place in the order of the universe as intended by the Creator.

Ray responded to an 1833 attack on phrenology in a prestigious journal, the North American Review (Bradford, 1833); here we see a different side of him. The uncited writer, Gamaliel Bradford,6 under the guise of reviews of three works by Spurzheim and two by Dr. Charles Caldwell, begins with the premise that no “individual, at all acquainted with physiology or mental philosophy, can seriously believe [the doctrine of phrenology]” (p. 59). It appears that the critic condescended to discuss the subject “for the purpose of showing our colors” (p. 59). Ray, obviously agitated by the tone and content of the article, in several publications defended the morality, and to a lesser degree the content, of phrenology (Ray, 1833a; Ray, 1833b; Ray, 1834a; Ray, 1834b). For example, in a direct response to the North American Review author (Ray, 1833a), he pulls no punches in his rejoinder, expressing “feelings of surprise and mortification. We are surprised to find a writer manifesting the grossest ignorance of a subject on which he
undertook to inform others, and mortified that such deplorable trash should be sent to the public…” (p. 241). Continuing, “The walks of literature and science are infested by a pestilent set, who are in the habit of gathering up the most commonplace ideas, and after disfiguring them sufficiently to prevent their being recognised, pass them off upon people more ignorant, if possible, than themselves, as the fruit of strict and original observation. The unruffled complaisance with which the Reviewer parades his little stock of anatomical learning…proclaim him, beyond all doubt, a member of this worthy class” (p. 242). Then Ray addresses the critic’s attacks point by point. His defense of the moral/philosophical aspects of phrenology, to my mind, is more convincing that that of the scientific evidence. Discussing the contributions of Gall and Spurzheim, he notes, “The results of Gall and Spurzheim’s labors on the nervous system, whether they shall be proved true by the consenting voice of after times, or merely serve others as materials for the attainment of truth, will ever endure as monuments of extraordinary genius and industry…” (p. 247). But he also gets a bit grandiose: “Important scientific discoveries do not grow on bushes, as the Reviewer would have us believe, to be had merely for the trouble of plucking them. It is a great pity that this new doctrine [phrenology] could not have been promulgated one or two centuries ago, and thus spared our author the mortification of seeing such names as Newton and Laplace, consecrated to an immortal memory…” (p. 245). Ultimately, Ray makes a sensible statement about the importance of phrenology irrespective of whether its anatomical findings are sound: “[A] knowledge of the structure of an organ does not of itself, impart a knowledge of its functions, but is only one of the means, in conjunction with physiology and pathology, by which these are to be learned. If the existence in a part of specifically distinct functions, be established by
physiological and pathological proofs, the inference is a perfectly philosophical one, of specifically distinct structure in that part. It was never pretended to base phrenology on anatomical facts, for whether they support it or not, is a question entirely irrelevant to that of its truth. It has been merely shown that it is not contradicted by anatomy, but is in accordance with all its facts. We do know, for instance, that the fibres which form the anterior lobes of the brain, have not come from the same primary bundles in the medulla oblongata...as those which form the posterior lobes, and so on” (p. 251).

In 1834, Ray, in the form of book reviews of George Combe and Charles Caldwell (Ray 1834a; Ray, 1834b), proceeded to praise phrenology, especially in its cleaving away from metaphysics. 7 At this time, Ray was convinced that any well-rounded physician would be conversant with phrenology, stating it virtually as a standard of care: “...[F]or a physician to be ignorant of it will soon be deemed as discreditable, as it would be to be ignorant of the circulation of the blood” (Ray, 1833b, p. 1). He was unhappy, however, with the degree to which American physicians accepted phrenological principles: “Hence, far from studying it, they listen to its name but with a frown or a sneer” (p. 2). To ignore phrenological knowledge, according to Ray, was tantamount to ignoring the brain itself, since phrenology “embraces the union of matter and mind” (p. 3). In an analysis of the causes of mental derangement, endorsed by Ray, Combe lists such factors as heredity, endowment of “organs,” poor air quality, liquor and starvation. During his career, Ray wrote about many of these points, though without specific reference to phrenological underpinnings. For example, he, like Kirkbride, was quite concerned with proper ventilation of hospitals (Ray, 1875). Combe’s issue with air quality was that, without proper ventilation, patients would not have enough
“arterialized” blood to the brain, causing derangement. Reviewing Combe’s concepts of mental disease, Ray took the position that the functional-organic dichotomy was false, that all mental disease was attributable to the brain: “Terror is not a moral but a functional cause, and affects only the brain, without touching the mind. It consists in excessive excitement of the organ of cautiousness, producing derangement of function or structure, or both. The complaint, therefore, is as strictly a cerebral one, as if it had been produced by mechanical violence” (Ray, 1833b, p. 66). This formulation was well in advance of Cannon’s (1932) description of the “fight-flight” phenomenon, and the implication of the nucleus locus ceruleus in panic disorder (Gorman, et al., 1984).

During his time in Eastport, Ray developed his interest in medical jurisprudence alongside his fascination with phrenology (Overholser, 1954). He tried out some of his ideas in advance of publishing his Treatise. His paper “Criminal Law of Insanity” in the American Jurist, for example, had been given to a group of lawyers in 1835 (Ray, 1873); it was during the time Ray was advocating phrenology overtly. Though he was critical of insanity jurisprudence, he did not name phrenology as a remedy. This kind of circumspection in his advocacy of phrenology is seen in contrast to his vigorous defense of it in his earlier writing.

Ray at Arm’s Length from Phrenology

It appears to be characteristic of phrenologists’ thinking that they can be preoccupied with the size/power of the brain’s “organs” from the contours of the cranium, on the one hand, while disregarding the absence of neuroanatomical correlates, on the other. In my view, Ray sensed that his agenda of professionalization of expert testimony would be
impeded by unsupportable data. In any event, he did not need phrenology, because he had already extracted from it principles of natural observation that would inform his psychiatric and forensic practice. After Spurzheim’s American tour, the popular applications of phrenology overshadowed its deeper significance. Thus, Ray, I believe, having derived great intellectual benefit from phrenology, made the decision to keep it in the background, lest he be tainted with the science’s sensational applications. For example, in the second *Christian Examiner* article (Ray, 1834b) reviewing George Combe’s *A System of Phrenology*, Ray predicted the fleeting nature of phrenological theory: “It must also be remembered, that these results are not necessarily dependent on any theory of the structure of the brain, but may stand, though every anatomical doctrine of Gall and Spurzheim should be swept away before the progress of discovery” (Ray, 1834b, p. 227). He also was careful to assert that phrenology was not the foe of religion and morality, calling its detractors bigots. In almost all of Ray’s writings that followed his *Treatise*, therefore, he eschewed a blithe approach to the relationship of form to function, not mentioning phrenology by name (Hughes, 1982). In Overholser’s (1954) analysis, Ray retained an interest in phrenology throughout his career, though much attenuated in later years.

In 1834, Ray was drawn into a juvenile case of, Major Mitchell, 9, who confessed to the beating and mutilation of an 8-year-old boy in Durham, Maine. Walsh (1979) studied the case extensively; I have reviewed the details of the trial elsewhere (Weiss, manuscript submitted). The doctors who examined Mitchell thought there was something odd about his account of the incident—rote, exaggerated and unreliable—and questioned his mental capacity. Seeing this as an opportunity to secure a place for phrenology in the
courtroom, John Neal, a literary critic and lawyer from Portland stepped in as Mitchell’s defense counsel (Neal, 1835). Phrenologists were called in to examine the boy’s head, finding, among other things, enlargement of the Organ of Destructiveness. Isaac Ray also came to the Portland jail to examine him, but his measurements differed from the others’ (Ray, 1835). During the trial, Neal managed obliquely to insinuate testimony about phrenology, but failed to make a meaningful connection between Mitchell’s alleged brain lesion and his behavior; Ray did not testify. The boy, held responsible as an adult, was convicted and sentenced to nine years in prison. In the judge’s view, Neal had failed to make a case for the admissibility of phrenological testimony, which had not achieved scientific acceptance. Though Ray (1835) overtly applauded Neal’s efforts, he was careful to distance himself from the case, conceding that its facts were not conducive to introducing phrenology into a trial. This case, I believe, was a watershed in Ray’s directing his career away from the idealism of phrenology and toward what we might consider an evidence-based approach to forensic psychiatry.

Ray and Phrenology: A Lasting Affair?

Isaac Ray was well aware of the controversies surrounding phrenology, but held a place in his heart for it, as it was a touchstone in the development of his ideas. Pasamanick (1954), citing the publisher Capen (Capen, N. [1881]. Reminiscences of Dr. Spurzheim and George Combe. New York: Fowler and Wells) quotes a nostalgic Ray writing to Capen in 1879: “Phrenology was to me, in those days, a revelation of new truths and especially of a philosophy that shed a marvelous light on the whole field of mental science. I never received much belief in organology, but it gave a turn to my inquiries
which I have never ceased to follow, and for which I can never cease to be thankful. No storybook was ever devoured with such abandon of every other thought as was Gall’s great work, *Sur les Fonctions*\(^8\) (Pasamanick, 1954, p. 165). Despite his apparent devotion to—or romance with—phrenology, Ray was circumspect in his writings, careful not to distract the reader from his principal messages of moral care and reliable testimony. It is as if phrenology represented one of Ray’s intellectual “parents,” just as Bacon had been with scientific methodology and the Europeans with moral treatment. Extending that analogy, Farrar (1956), noting that phrenology lived—in attenuated form—into the twentieth century, quoted Edwin G. Boring (*A History of Experimental Psychology*, 1929): “It is almost correct to say that scientific psychology was born of phrenology, out of wedlock with science” (Farrar, 1956, p. 480).

According to Hughes (1982), Ray was critical of the courts’ use of precedent to hold back new medical theories; and the failure of the law to acknowledge partial insanity. Hughes observes that while phrenologists did not *originate* moral insanity, they wholly *accepted* it. To them moral insanity was a derangement of an organ of the brain. Hence, it is logical that a phrenologically based theory of insanity would reject an all-or-none approach to criminal responsibility à la the M’Naghten Rule, in favor of something like the New Hampshire Rule, which permitted juries to define insanity based on the evidence (Quen, 1974).

Ray persisted in his idea that the question of insanity should be one of *fact*, rather than one of *law*. That is, he rejected formulaic and narrow definitions of insanity developed by legislatures, advocating extensive use of expert testimony to assist juries in determining who was insane. Ray developed a relationship with Charles Sumner, an
editor of *American Jurist* and later a U.S. Senator, who supported Ray’s opinions. According to Hughes’ (1982) account of the Ray-Sumner correspondence, Ray admitted a phrenological theory of insanity. Later, in the first edition of the *Treatise* (Ray, 1838), we see his wistful remarks on phrenology and its detractors: “The only metaphysical system of modern times which professes to be founded on the observation of nature and which really does explain the phenomena of insanity with a clearness and verisimilitude that strongly corroborate its proofs was so far from being joyfully welcomed, that it is still confined to a sect and is regarded by the world at large as one of those strange vagaries in which the human mind has sometimes loved to indulge. So true is it that in theory all mankind are agreed in encouraging and applauding the humblest attempt to enlarge the sphere of our ideas, while in practice it often seems as if they were no less agreed to crush them, by means of every weapon that wit, argument, and calumny can furnish” (Ray, 1838, p. 56). Overholser (1962), editor of the 1838 facsimile edition of the *Treatise*, and Pasamanick (1954) note that this discussion was progressively dropped from later editions; the word *phrenology* appears in the index of the third edition only (Overholser, 1954). There is no evidence that Ray ever introduced frankly phrenological testimony into a case in which he testified.

Ray’s interest in phrenological explanations gave way to more mainstream formulations of behavior that had the potential to be palatable to triers of fact in criminal cases. For example, Ray’s (1862) article in the *Atlantic Monthly* discussed hereditary influences, but did not put excessive weight on them: “A judge might not be justified in favoring the acquittal of a criminal on the ground of his having inherited a brain of vitiated quality; but, surely, it would not be repugnant to the testimony of science, or the
dictates of common sense and common justice, if he allowed this fact to operate in mitigation of sentence” (Ray, 1862, p. 282). Then nearly giving in to a phrenology flashback, he states, “In the brain, as in other organs, size is to some extent a measure of power…The relative size the different parts of the brain may have something to do with the character of the function, but this is a contested point. Education increases the mental efficiency, no doubt, but it is too late in the day to attribute everything to that. So that we are obliged to resort to that indescribable condition called quality, as the chief source and origin of the differences of mental power observed among men” (Ray, 1862, p. 273).

Here we see Ray’s acknowledgment that phrenological explanations were antiquated and not evidence-based. A forceful and dynamic man, Ray was likely unhappy with the state of knowledge in psychiatry that could support expert testimony, resigning himself to a Je ne sais quoi formulation of interindividual differences. But instead of seizing heredity recklessly to fill phrenology’s vacuum, he gives the modest advice that such scientific information may best be reserved for sentencing—as true today as it was then. Ever optimistic, however, he foresaw the possibility that scientific evidence—coming from things beyond his power to see—would ultimately inform psychiatry: “Behind and beyond all this, in that intimate constitution of the organic molecules which no instrument of sense can bring to light, lies the source of mental activity, both healthy and morbid. There lies the source of all cerebral dynamics. Of this we are sure, as we are, to demonstrate the fact to the senses” (Ray, 1862, p. 274).

Ray was also interested in the interaction of education and brain health. A lecture given to the Rhode Island Institute of Instruction in 1850 (Ray, 1851b) was entitled “Education in its relation to the physical health of the brain.” Foreshadowing his larger
interest in mental hygiene, he discussed the importance of nurturing young minds and the dangers of youthful indiscretion. Regarding teenagers, he expressed the same concerns parents do today: “The larger license allowed to the young at this period in the indulgence of their appetites, passions, and caprices, errors of diet more serious and prevalent than in any other country in the world, together with the usual countless indiscretions of this age, deteriorate the physical health and diminish the power of the brain” (p. 25). Not content to prescribe a course of education that included reading fine literature, he attacked the habit of reading books focusing on “love and adventure,” suggesting an etiology of insanity: “I repeat it with unmistakable plainness, that in every hospital for the insane there may be seen a form of mental disease preeminently loathsome and incurable, many cases of which, I have no hesitation in saying, may be traced to the perusal of this yellow-covered literature” (p. 50). Though one might suspect he was playing to the audience, it is clear that Ray understood the developmental importance of learning in the growth of the brain.

In 1863, Ray published *Mental Hygiene* (Ray, 1863). By then he had developed a perspective on phrenology: “Deficient as it is, as a theory of the mind, it is nevertheless valuable as having indicated the true mode of investigation, and especially for the light it throws on the whole process of education and development” (p. 10). Several years later, he wrote more forcefully about the importance of heredity in mental disorders and the interplay between innate characteristics and acquired diseases (Ray, 1869). I will reserve a full discussion of Ray’s views on heredity and mental illness for another occasion.

As a *coda* to the discussion of Ray’s “affair” with phrenology, I would like to cite the work of Pasamanick (1954), who undertook a close reading of Ray’s correspondence
with Nahum Capen, Gall’s American publisher. Though Kirkbride (1881) had noted Rays partial translation of Gall’s *On the Functions of the Brain*, Pasamanick uncovered the proof. Ray, who took no credit for the work, took a back seat to the principal translator, Winslow Lewis, whom Pasamanick implies was narcissistic. Ray, in an 1879 letter to, Capen, seems to shrug off phrenology’s application to clinical psychiatry: “I do not think Phrenology throws much light on insanity, nor upon the received theories of cerebral pathology; could it be expected to?” (Pasamanick, 1954, p. 165). In the letter, Ray goes on to critique George Combe, saying, in essence, that it had been folly to believe that a psychiatric formulation could be made from an examination of the head. Stressing the point of view he had adopted since the beginning of his career, Ray notes, “Had [Combe] known as much of insanity as he did of the brain and mind in the sound state, he would never have adopted this notion” (Pasamanick, 1954, p. 166). In a succinct *reductio ad absurdum*, Ray reasons that mood disorders are the most common mental disturbances; if they represent a derangement of (the Organ of) Hope, we are saddled with the puzzle of why “that one particular organ, and that a small one, should become diseased, so much oftener than any others. You must conclude, of course, that I am unable to commend Phrenology for any signal service it has rendered in the treatment of insanity” (Pasamanick, 1954, p. 166).

**Discussion**

Phrenology raised awareness of the mind-brain connection, forming a temporary basis for Ray to advocate for a scientific approach to testimony. Gall had solidified in the minds of nineteenth-century scientists the idea that, not only was the brain the seat of the mind, but
that the workings of the mind were discoverable. This was most likely what excited Ray and his peers—not that reading cranial bumps was a billable procedure. Despite his outward enthusiasm and advocacy, Ray was not wedded to phrenology. His sights were set higher—on the capacity for forensic psychiatrists to make a difference in the courtroom. He realized early in his career that phrenology would not, by itself, help him achieve his quality goals. Nevertheless, phrenology should be credited with having opened nineteenth-century scientific minds to the intuitively appealing question of localization of brain functions—a persistent and growing concern in neuropsychiatry—obviously not reached by Gall, despite his many achievements.

**Phrenology Dead?**

Phrenology may be dead, but its echoes can be heard throughout the new sciences of neurophysiology. Two major themes have survived: localization of brain functions and the idea that use or disuse of brain-based functions can cause enduring or reversible changes in brain morphology. As noted, Ray (Quen, 1964) and Freud (1895) were interested in making inroads into the functioning of the mind via anatomically based theories. During Freud’s lifetime, it was becoming clearer to neuroanatomists that there would be no one-to-one correspondence between locations in the brain and faculties of the mind. An anatomist in 1930 commented on the discovery of “associational neurons,” accounting for the difficulty of a purely anatomical approach: “Accordingly, the cortical apparatus of memory, apperception, imagination, invention and all constructive thinking cannot in the nature of the case be expected to be arranged in mosaic patterns whose boundaries can be mapped on the brain surface, like the charts of the ancient and modern
phrenologists” (Herrick, 1930, p. 648). The groundbreaking neurosurgeon Penfield (1958) elegantly described his search for a connection between brain location and function. Commenting on the state of the art in mid-twentieth century, he said, “There was little valid evidence of any localization of function within the nervous system, in spite of the amusing claims of the phrenologists, until Paul Broca, a French surgeon, proved by autopsy in 1861 that a small area of destruction in an otherwise normal brain had produced loss of the ability to speak without loss of other abilities” (pp. 52–53). Penfield’s snide reference to phrenology reinforces the thread between Gall’s aspirations and twentieth-century neuroscience.

Ray was not the originator of a theory of mind-brain. Yet, he was steadfast in his belief that the normal and pathological manifestations of mind were housed in the brain. Moreover, the relative strength of mental faculties could be improved by education and concern for one’s bodily health—core concepts in the mental-hygience movement of which he wrote at length (Ray 1863c). Quen (1977), discussing Ray’s thoughts on mental hygiene, noted Ray’s belief that a healthy mind is the result of a healthy brain. He then cited basic science work on learning and anatomy from the 1970s, to the effect that rats with an enriched environment developed heavier cerebral cortices. This would be consistent with Ray’s mental-hygienic approach and with phrenology generally, though Quen was simply making the point that modern scientific thought can be traced to Ray’s era.

Two years after Quen’s (1977) paper, Kandel (1979) elegantly described the measurable link between learning and physical change in neurons in the marine snail Aplysia californica. Here was his take on how far neuroscience had come in approaching
the mind: “The relevant branches of biology—ethology and neurobiology—were, until recently, simply not mature enough, either technically or philosophically, to address higher-order problems related to mental processes. On the appropriate level of resolution, the cellular level, neurobiology has only recently become capable of accomplishing for psychology and psychiatry what other antidisciplines have traditionally accomplished for their parent disciplines—to expand and enlighten the discipline by providing a new level of mechanistic understanding” (Kandel, 1979, p. 291 [2001 reprint edition]). This analysis is in keeping with the aspirations of Gall, Ray and Freud, who saw the limitations of their sciences. Later, Kandel (1998) furthered the rapprochement between science and the therapeutic arts. Reminiscent of Ray’s beliefs, Kandel notes as a first principle of mind-brain theory: “All mental processes, even the most complex psychological processes, derive from operations of the brain” (Kandel, 1998, p. 460).

Gall could not have said it better!

Twenty years after Kandel’s (1979) seminal paper, an opinion piece by Nemeroff et al. (1999) was entitled: “Functional brain imaging: twenty-first century phrenology or psychobiological advance for the millennium?” Here is how they viewed the contemporary mind-brain scene: “Neuroimaging offers a powerful probe of brain state, but we are now faced with metaphysical questions; i.e., what is a brain state, and how is it related to the outward manifestations of behavior? This has the potential for degenerating into the old mind-body duality of Descartes, but it is really far more complex than such dichotomous models. Neuroimaging allows the identification of brain regions in which activity is correlated with some external baseline or outcome measure…Whether a causal relationship exists remains obscure. How does this pattern of brain activity result in
behavior X? This is the ‘hard’ problem of brain imaging, and one for the twenty-first century” (Nemeroff et al., 1999, p. 672). Nemeroff and colleagues disavow a neo-phrenological inclination and actively embrace a rational approach to studying behavior. Yet, they speak as if they had to overcome a presumption of phrenology or Cartesian dualism to make their point. By 2005, we were seeing substantial bridges between neuroscience and learning, continuing in Kandel’s tradition (Etkin et al., 2005).

In today’s popular press as well, we see direct references to areas of the brain being associated with psychopathology. This too is not “neo-phrenology,” but it does underscore how entrenched the concept of anatomy and function has been since Ray’s time. For example, a recent issue of TIME ran an article on autism (Wallis, 2006). Citing the work of David Amaral of the University of California at Davis and Eric Courchesne of the University of California at San Diego, the reporter talks about anatomical correlates of autism. Noting that the following may either be a cause or result of autism, these are some differences in the anatomy of autistic brains: “The frontal lobes…are greatly enlarged, due mainly to excess white matter…The corpus callosum is undersize…The amygdala is also enlarged…The hippocampus is about 10% larger than normal…The cerebellum, like the frontal lobes, is overloaded with white matter” (Wallis, 2006, p. 45). This is serious neuroscience research digested for the general public into a model with great intuitive appeal: Where’s the lesion? In forensic psychiatry, these kinds of data are beginning to find their way into our literature. For example, Keram (2006) recently reviewed some of the links between perceived psychological trauma and measurable changes in brain and other indices, without commenting directly on their admissibility as evidence.
Conclusions

It would be a mistake, in my view, either to look askance at phrenology’s contribution to the evolution of mind-brain theory or to regard Isaac Ray’s interest in it as a passing fancy. To Ray’s credit, he extracted from phrenology a sense of hope—consistent with American physicians’ hunger for modernity—that enabled him to elevate psychiatric thought and medical jurisprudence. As I have illustrated from his writings, Ray was at home with phrenological thought in the late 1820s and early 1830s. There is no evidence that he dabbled in applied phrenology, save his furtive participation in the Major Mitchell evaluation. Like his contemporary, Horace Mann, Ray valued phrenology for its broad implications for freedom of thought in education, philosophy and moral treatment. Ray’s stint as a general practitioner in Eastport was the crucible of his involvement in phrenology, medical jurisprudence and psychiatry—though he did not begin his career in psychiatry until 1841. That gestation, happily for us in forensic psychiatry, produced his Treatise, a method of applying psychiatry to legal matters, and a prolific career in Providence and Philadelphia.

From his writings, it appears that the zenith of Ray’s interest in phrenology was around 1833 and 1834, when he vigorously defended it. Without doubting his sincerity, I find it challenging to assess Ray’s motivation. Was his interest in aligning himself with phrenologists, or was he the champion of evidence-based medical thinking? Throughout his life, his style of criticism tended to be acerbic; he was intolerant of sloppy thinking and ignorance. Perhaps, then, his defense of phrenology was an expression of his self-appointed policing of the literature, lest someone else have the last word on the subject.
We see this again in 1868, when Ray, incensed by what he saw as a misguided attempt by an author in the *Atlantic Monthly* to attack the practice of civil commitment in Philadelphia (Davis, 1868), persuaded the editor—against policy—to allow him a rebuttal (Ray, 1868). To a degree, then, his fierce defense of phrenology was a developmental step for later battles, for example, over moral insanity, treatment of the mentally ill and civil commitment: he was sharpening his battle axe. Although it would be a distortion to construe Ray’s body of work after he left Eastport as *derivative* of phrenology, it is reasonable to regard the work as *in harmony* with it. We know for sure that he did not overvalue phrenology and that in his non-critical works he took a more realistic view of its future.

Modern medical jurisprudence remains—as it was during the Major Mitchell trial—a negotiation between prevailing concepts of science and admissibility thresholds for presenting data in courts of law. Isaac Ray’s career and intellectual legacy are important to students of forensic psychiatry, though little is said these days to suggest we stand on his shoulders; the exception is the Isaac Ray Award of the American Psychiatric Association and the contributions of the awardees (Overholser, 1954). Though it is safe to disregard the contributions of phrenology in everyday practice, it is worthwhile, as we review the career of Dr. Ray, respectfully to acknowledge the “interesting times” that nurtured him.
Figure. Phrenological Analysis of the Assassin Guiteau
(Library of Congress)
References


Figure. Phrenological Analysis of the Assassin Guiteau
(Source: Library of Congress)
Notes

1. Hughes, in his 1982 doctoral dissertation, devoted an entire chapter to the influence of phrenology on Ray, dating it from 1829 to 1838. The dissertation can be obtained from University Microfilms International, Ann Arbor, Michigan. Hughes also published this work as a book in 1986 through Oceana Publications, now out of print.

2. Dr. B. Lincoln Ray chose not to practice psychiatry in Philadelphia. His activities included contributions to the Board of Education and writing book reviews, 95 of which were published in the Philadelphia-based *American Journal of the Medical Sciences*.

3. Gall’s terms for phrenology were *Schädellehre* (doctrine of the skull) and *Organologie*, and later simply ‘the physiology of the brain’ (Van Wyhe, 2002, p 22).

Conscientiousness; 17. Hope; 18. Wonder; 19. Ideality; 20. Wit or Mirthfulness; 
21. Imitation. [From the Table of Contents].

5. Space does not permit a full explanation of “moral insanity” ("manie sans délire,” 
Pinel’s term), the central idea of which is that a person could lose control of 
emotion and behavior without demonstrable intellectual impairment. Ray 
endorsed this idea in his Treatise, while colleagues such as John Gray vilified him 
for using a concept that would tend to excuse the behavior of what we would call 
psychopaths. Part of Gray’s agenda was to keep spiritual concepts of morality 
alive, rather than explaining away behavior by linking it to the brain. Moral 
insanity, to a degree, was consistent with phrenology, if one considers it 
pathology of the brain’s “organs” controlling behavior.

6. The source of the author’s identity is from an Index prepared in 1878 for the 
North American Review, Volumes 1 to 25 (1815–1877) by William Cushing, 

7. In this excerpt from his article in the Christian Examiner (Ray, 1834b), Ray 
presents a beautifully worded appraisal of phrenology’s virtues: “Phrenology 
recommends itself to us, at the first glance, by avoiding the fruitful sources of 
error to which the metaphysicians have laid themselves open, in their neglect of 
the connexion between mind and matter, of the mental manifestations of the 
inferior animals, and of the special purpose of every particular power of which the 
general economy is composed. The present state of our knowledge warrants us in 
rejecting any ethical or metaphysical system, that does not recognise and explain 
the adaptation of the human constitution to the circumstances in which it is
placed, its reference, in every particular, to its sphere of action and the purpose of
its being, and furnish a clear and satisfactory theory of the varieties of individual
and national character. Phrenology, therefore, establishes the fundamental
principle, that for every special end and object of our existence, nature has
provided us with an original and distinct power, by the exercise of which this end
or object is accomplished, and demonstrates the power and its results to be
necessary in maintaining the relations of the constitution, as an harmonious and
consistent whole, to the world around it. Seeing that the bodily organs are
constituted in reference to external circumstances, it assumes also the same
adaptation of the higher powers to the objects of their activity; and, from the same
necessity that certain forms of organization are required by peculiarities of food,
climate, &c., it is inferred that the moral and intellectual conditions are
determined by the sphere and destinies of the individual. If for every and the
smallest bodily function, an organ is provided that performs its office with perfect
regularity and exactness, who, not utterly blinded by prejudice, will deny the
existence, or at least the reasonableness, of a similar provision for the due
preparation for and attainment of the highest and noblest purposes of our being?
Phrenology looks for the material instruments whereby the subtler powers of our
nature are exercised, defines their respective extent of action, examines the result
of their combined operation and reciprocal influence, and furnishes a complete
and consistent analysis of the moral and intellectual manifestations. If in a
carnivorous animal we expect to find limbs adapted for overtaking its prey, claws
and teeth for seizing and tearing it in pieces, senses for discerning it at a distance,
and a stomach for digesting it, ought we not, in consistence with the same principle, to search for that stranger power that gave the spontaneous impulse to attack and destroy? While the Phrenologist sees the smallest process in the bodily economy accomplished by powers acting independent of volition, he believes that philosophy to be dishonorable to the Builder of his frame, that would deny an equal care for the nobler processes of the mental economy. While he is as willing as his opponents to admit the effects of education and other external circumstances, he contends for some definite and original faculty to be affected in this manner, and that the influence of these agents is confined by determinate limits. The truth is, though little suspected we fear, that since Locke’s attack on the doctrine of innate ideas, people have become so accustomed to attribute the phenomena of mind to the influence of habit, association, &c., that the mind itself seems to be entirely lost sight of, and practically, if not theoretically, believed to be what Hume would make it, a mere bundle of perceptions. From such a philosophy, which makes the most wonderful phenomena of our nature the mere creature of the material world, Phrenology delivers us, and presents in its place a rational and intelligible exposition of the mental powers, and shows their relations to the moral, organic, and physical laws. That it has done all it professes to have done, we are not very anxious to contend; but that it has been successful to a certain extent, is now, we believe, denied by few who have taken the trouble to acquaint themselves with the subject, by a tolerably unprejudiced and thorough investigation. It must also be remembered, that these results are not necessarily dependent on any theory of the structure of the brain, but may stand, though every
anatomical doctrine of Gall and Spurzheim should be swept away before the progress of discovery. Striving, as Phrenology now is, for the spread of a pure, practical morality, battling manfully with the forces that ignorance and selfishness have always arrayed against the rights of humanity, and laboring with the philanthropists of every sect and nation, wherever an opening is offered, in the great cause of human improvement, neither Phrenology, nor any other science acting in such a spirit, can be pronounced a visionary speculation, worthy of utter contempt and rejection. The spirit that glowed in the heart of that founder of the science whose voice is yet ringing in our ears, and preëminently entitled him to be called the ‘friend of man,’ is the spirit of Phrenology, and this should be sufficient to protect it from the scoffs of sciolists, and the sneers of the conceited adherents of an old philosophy.”


9. Ray dedicated his 1838 *Treatise* to Mann: “To The Hon. Horace Mann; to whose persevering exertions, our country is mainly indebted for one of its noblest institutions for ameliorating the condition of the insane, this work is respectfully inscribed as a humble acknowledgment of esteem, by I. Ray.”

10. The editors, ostensibly brow-beaten by Ray, preface the article with the note: “It is not our custom to print any criticism on articles which have appeared in these
pages; but the following paper comes to us with such high claims for consideration, that we give space to it.”