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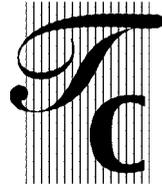
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The murderous Dutch fiddler: *Criminology, history and the problem of phrenology*

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Abstract

To form a clear view of the origins of criminology and present-day practices in criminal justice, criminologists need to recognize phrenology as one of their progenitors. Although phrenology is dismissed as a 'pseudo-science' and mocked as 'bumpology', it in fact constituted an important early science of the mind, and the theories that phrenologists generated in the fields today called criminology, criminal jurisprudence and penology influenced those fields long after the phrenological map of the brain had been forgotten. Coming to terms with phrenology requires rejecting simple distinctions between 'science' and 'pseudo-science'. It leads to a better understanding of the scientific project of criminology and, more broadly, to a better understanding of the nature of social-scientific knowledge.

Key Words

biological theories of crime • history of criminology • history of science • phrenology • prison history • pseudo-science

Phrenology—the early 19th-century system of reading character from the contours of the skull—produced one of the most radical reorientations in ideas about crime and punishment ever proposed in the Western world. In the area of jurisprudence, its practitioners worked to re-establish criminal law on a new philosophical basis; to overhaul ideas about criminal responsibility; and, in a retributivist age, to develop a rehabilitative rationale for sentencing. In the area of penology, phrenologists opposed capital

punishment and proposed innovations in prisoner management that influenced criminal justice for the next 150 years. But it was in the area of criminology that phrenologists proved themselves most innovative, as they developed the first comprehensive explanation of criminal behavior.

On the basis of their understanding of the brain as an aggregation of independent organs or 'faculties', phrenologists could explain every form of criminal behavior, from petty theft to wife-beating to homicide. They had guidelines for distinguishing between sane and insane criminals; they introduced the idea that people vary in their propensity to crime; and they could account for differences in crime rates by age, nationality, race and sex. Phrenologists could even explain the behavior of criminals whom we today would call serial killers and psychopaths, as in this case from one of phrenology's basic texts:

At the beginning of the last century several murders were committed in Holland, on the frontiers of the province of Cleves. For a long time the murderer remained unknown; but at last an old fiddler, who was accustomed to play on the violin at country weddings, was suspected in consequence of some expressions of his children. Led before the justice, he confessed thirty-four murders, and he asserted that he had committed them without any cause of enmity, and without any intention of robbing, but only because he was extremely delighted with bloodshed.

(Spurzheim, 1815: 308)

At a time when most people would have explained the Dutch fiddler's behavior in terms of sin, phrenologists attributed it to innate biological defect. Their criminological ambition and scope—their desire to develop a science of criminal behavior—excited progressive thinkers on both sides of the Atlantic.

Phrenologists' writings on criminal jurisprudence, penology and criminology were part of a much broader, all-encompassing biosocial system that aimed at scientifically explaining not only criminal behavior but *all* human behavior (and a great deal of animal behavior as well). Their system rested on five fundamental assumptions:

- (1) The brain is the organ of the mind.
- (2) The brain is an aggregation of about 30¹ separate organs or faculties, such as Combativeness, Covetiveness and Destructiveness, that function independently.
- (3) The more active an organ, the larger its size.
- (4) The relative size of the organs can be estimated by inspecting the contours of the skull.
- (5) The relative size of the organs can be increased or decreased through exercise and self-discipline.²

These fundamental ideas, all but the last of them formulated about 1800 by the Viennese physician Franz Joseph Gall, became the basis of an international movement to develop a science of phrenology and spread its

gospel. The movement fell into two stages: a scientific phase, from about 1800 to 1830, when the phrenological system was developed, mainly by physicians and psychiatrists; and an overlapping popularizing stage, from about 1820 to 1850, during which phrenology became a fad, complete with marketers, clubs and hucksters. But the timing and duration of these phases differed by place. Although phrenology itself underwent little development after the 1840s, its ideas segued into the theory of degeneration that underpinned concepts of deviance into the 1920s. Moreover, some phrenological societies remained active into the 20th century.

Like other very early students of social behavior, phrenologists adopted the previously developed methods of the natural sciences, assuming that the social world could be studied using the same procedures. They collected data, formulated hypotheses and made positivist assumptions about the possibility of direct, objective apprehension of social phenomena. During its scientific phase, phrenology intersected with a range of other scientific endeavors, including anatomy, anthropology, physiology, psychology and psychiatry, and it used a range of scientific procedures, including empirical observation, induction and deduction. (Some phrenologists also claimed to use the experimental method; but their failure to experiment rigorously proved to be their scientific Achilles' heel.) Phrenology constituted an ambitious and complex effort to break with older metaphysical and theological explanations of behavior and replace them with an empirical science.

Today, phrenology is remembered primarily for the popular culture of its second stage: the manufacture of inkwells and caneheads shaped like phrenological skulls, with the organs marked out for study; the calling in of phrenological experts to examine the heads of job applicants; the quackery of itinerant practitioners of 'bumpology'. It has been dismissed as a medical cult, discredited science, dead science, pathological science and pseudo-science. These refusals to take phrenology seriously as an early scientific discourse place criminologists in an awkward position. Phrenology constituted an important episode in the history of criminology and criminal justice; but to recall that history is to risk seeming ridiculous. The problem becomes: How can criminologists relate to this apparently embarrassing forerunner?

Criminologists have essentially three choices when confronted with phrenology:

- (1) *Ignore it.* Traditionally, historians of criminology and criminal justice have chosen this route. It is difficult to find an extended discussion of phrenology in any standard history of criminology or criminal justice other than Fink (1938/1962) and Savitz et al. (1977).³ Histories of phrenology itself sometimes include a chapter on penology, but even they slight what phrenologists said about the causes of crime. It may well be that historians of phrenology have simply been unaware of the doctrine's significance in

the evolution of criminology. More difficult to explain is the marginalization of phrenology by historians of criminology and criminal justice. While historians of insanity have thoroughly explored the phrenological model of mental disturbance and its impact on the development of neuroscience and treatment of the mentally ill, for crime-and-justice historians the rule has been to ignore it.

- (2) *Make it 'relevant'*. This approach would involve mining phrenological doctrine for material resembling today's research on the role of brain dysfunction in criminal behavior and then treating phrenology as a precursor science. Given phrenology's disrepute, it is unlikely that any present-day PET-scanner of criminals' brains would claim phrenological ancestry.⁴ However, an example of this approach can be found in an article on the ways in which phrenology anticipated later ideas in American psychology (Bakan, 1966).⁵ The trouble with this kind of approach is that it reduces the past to anticipations of the present, denying it value in its own right. Equally misguided would be any effort, such as that cited by Shapin (1982: 157), to fold phrenology into a sociology of error or mistake. Phrenology was indeed erroneous, but it was neither an error nor a mistake; it was an early science of the mind, and to reduce it to something else is no more respectful of the past than the first alternative of ignoring it entirely.
- (3) *Come to terms with it*. This approach would acknowledge phrenology as an episode in the history of criminology and criminal justice, evaluate its influence and significance and attempt to establish some sort of relationship with it.

Aside from the two exceptions cited above, the third approach seems not to have been tried. This article aims at implementing it.

Our attitudes toward phrenology will depend on our conception of the criminological enterprise and ultimately on how we define science. If we conceive of criminology as an independent and free-floating subject, a set of truths about crime that it is the job of criminologists using scientific methods to discover, then we must agree that phrenologists failed, and we can safely ignore them. The history of criminology will become a chronicle of the stockpiling of currently acceptable scientific techniques and knowledge (see Kuhn, 1970: 2). If, however, we conceive of criminology and other sciences as discourses formulated in time and space, shaped by their social contexts and by scientists' own backgrounds, then we can open the historical door to phrenology. We can view it as a discourse on the human brain that greatly advanced understandings of mind-behavior relationships (Carlson, 1958; Cantor, 1975; Cooter, 1976/1981, 1984; Shapin, 1982; Young, 1990), that advocated scientific methods but failed in some respects to meet the scientific criteria of its own day, and that formed the first coherent explanation of criminality.

In today's terms, phrenology was both a biological and a social science, combining the two in ways that make it a precursor of socio-biology and the new evolutionary psychology (Gander, 2003). Debates rage over how to

conceptualize the differences between the physical and biological sciences on the one hand and the social sciences on the other; over whether there are in fact any fundamental differences between the two; and indeed over definitions of science and scientific methodology (e.g. Feyerabend, 1975; Longino, 1990). Without going into these debates, we can recognize some of the ways in which the hard and soft sciences resemble and differ from one another in practice. All aim at being systematic and discovering laws or general patterns that are independently verifiable. In theory at least, most of them aim at data collection, hypothesis building and testing, confirmation and deduction. They differ, in part, in their degree of exactitude: whereas all scientific endeavors occur in socio-historical contexts, these contexts more strongly shape the work and results of the social sciences, which examine social phenomena that are difficult to define precisely and are constantly changing. As for studying the history of a science, we can use the same approach whether the science is 'hard' or 'soft'. A particularly useful model can be found in the work of Gerald Holton (1988, 1998), a historian who conceptualizes science as both a problem-solving activity and an event. Holton analyses scientific work 'as an "event" that stands at the intersection of certain historical trajectories', including the scientist's personal background and activity, the 'shared "public" scientific knowledge of the larger community' and the social and cultural contexts in which the science is developed (Holton, 1998: vii). This intersectional approach to the history of science is the one I follow here.

The primary and secondary literatures on phrenology are vast. For this study, I concentrated on English-language sources of both types. Because phrenology was mainly generated in Great Britain and the United States and had its greatest impact in these countries, I was confident that in omitting other-language materials I did not overlook key phrenological proposals relative to crime and justice. Within the domain of English-language sources, my emphasis fell on Great Britain, where I conducted my research. (Fink [1938/1962], in contrast, focuses on US sources, so readers interested in specifically American developments can supplement the present work with his.) The primary literature can be difficult to interpret when one deals with materials that are rife with phrenological concepts and were endorsed by phrenologists but that avoided using phrenological terminology, sometimes for political reasons. When I draw on materials of this type, I make note of my inferences. My aim is not to produce a comprehensive study of the influence of phrenology on criminology, jurisprudence and penology but rather to identify phrenology's major achievements in these areas, to discuss distinctions between good and bad science and to argue for more work on the history of criminology as scientific knowledge.

In what follows, I establish the socio-political context in which phrenology emerged and then summarize the doctrine, emphasizing those aspects relevant to criminology and criminal justice. Next come sections on phrenologists' explanations of crime, their criminal jurisprudence and their

penology. A summary of phrenology's achievements in the areas of criminology and social control is followed by brief remarks on reasons for the doctrine's eventual failure. I then turn to the bad science issue, arguing that if criminology welcomes its apparently disreputable forerunners into its history, it will be able more accurately to understand both its own identity and the nature of its scientific enterprise.

Phrenology: context and substance

Phrenology emerged out of the Enlightenment drive to replace metaphysical and theological explanations with scientific accounts of natural and social phenomena. 'One fact is to me more positive and decisive than a thousand metaphysical opinions', declared Johann Gaspar Spurzheim, one of phrenology's founders, in a phrase much admired by his followers (*Phrenological Journal and Miscellany*, 1834–6: title page). Whereas churchmen interpreted the world in terms of divine creation and insisted on religious authority, in the late 18th- and early 19th-centuries laymen were growing interested in less authoritarian, more rational approaches to understanding. The new emphasis on observation and human reasoning as sources of knowledge was reinforced by democratic revolutions in North America and France—vivid demonstrations of the possibility of breaking free of older systems. With democracy came the ideal of universal education and the bold notion that any educated person might at least dabble in the study of natural phenomena. Phrenology grew out of the Enlightenment's enthusiasm for scientific explanation and its democratic impulses. Insanity and criminality, previously interpreted as signs of sin, now seemed as though they might be comprehensible in scientific terms. At the same time, the fall of authoritarian regimes, their gradual replacement by bourgeois industrial societies and the growing distaste for older, retributivist punishments of the body created a demand for new methods of social ordering and discipline (Foucault, 1977; McLaren, 1981). This, very roughly, was the situation about 1800, when phrenology made its first appearance.

Two more specific developments lay in phrenology's immediate background: the science of physiognomy and the theory of moral insanity. The Swiss theologian who founded physiognomy, Johann Caspar Lavater (1741–1801), explained that 'Physiognomy is the science or knowledge of the correspondence between the external and internal man, the visible superficies and the invisible contents' (Lavater, n.d.: 27). He elaborated his theory of reading people's character from their faces in his *Essays on Physiognomy*, a work first issued in German (1775–8) but published in English on both sides of the Atlantic by 1795. The *Essays*, with their drawings of heads and claims to scientific psychology, enjoyed remarkable success, appearing in over 150 editions by 1850 (Woodrow, 2001–2). Particularly popular were illustrated pocketbook versions that readers

could use to gauge the character of new acquaintances and passers-by. (Lavater taught, for example, that long foreheads indicate comprehension; short ones, volatility; and ‘perfect perpendicularity . . . , want of understanding’ (Lavater, n.d.: 50).) Physiognomy, like its successor science of phrenology, illustrates the early 19th-century hunger for a science of human psychology. Both fields began with the assumption that outer appearances must reflect inner states. But the differences between the two are also instructive. Although Lavater hoped that physiognomy would become a full-fledged science, he did not attempt rigorous study; his assertions are based more on appeals to common sense (‘everyone knows’, ‘no one can deny’ (Lavater, n.d.)) than on systematic data collection, and he did not attempt to *explain* the correlations he observed (Cooter, 1984: 5).

The other immediate forerunner of phrenology was the late 18th- and early 19th-century theory of moral insanity, formulated by the first generation of psychiatrists in order to explain uncontrollable, undeterrable criminality (Rafter, 2004). The very earliest remarks on what became known as moral insanity appear in an essay of 1786 by Dr Benjamin Rush (1786/1947) of Philadelphia; Rush conceives of the mind as a congeries of independent ‘faculties’, thus presaging the phrenological conception of the brain as a series of autonomous organs (see, especially, Combe, 1841, vol. 2: 23–4). Rush in America, Philippe Pinel in France and James Cowles Prichard in England developed the theory of moral insanity to explain criminal behavior that seemed insane but was committed by people who, like Spurzheim’s Dutch fiddler, suffered from neither delusions nor hallucinations.⁶ They explained moral insanity as a state of partial insanity in which only one faculty of the brain stopped working—an iconoclastic idea at a time when insanity was almost by definition a state of total, unrelieved derangement.

Phrenology itself began in late 18th-century Vienna, with research in craniology by its founder, Franz Joseph Gall (1758–1828). Gall’s collaborator and most influential follower, the German physician Johann Gaspar Spurzheim, described how Gall arrived at his doctrine:

Dr. Gall, from his earliest youth, was attentive to the difference which existed between his brothers and sisters, and his school-fellows. He was particularly vexed, that while several of his school-fellows learned by heart even things which they did not understand, with great facility, he had the utmost difficulty in engraving in his memory a small number of words. On the other hand, however, he found that he excelled them in the powers of reflection and reasoning. He afterwards observed that in those individuals who had so great a verbal memory, the eyes were very prominent; and this observation was the commencement of all his future inquiries into psychology.

(Spurzheim, 1815: 257)⁷

It took years of study, however, for Gall to find the right track. For instance, he wasted time trying to correlate people’s talents with ‘the whole

form of their heads' (Spurzheim, 1815: 258). But Gall persisted, inviting people of all classes and vocations into his house, talking with them to determine their character and studying areas of their heads until he was able to correlate character traits with specific areas of the skull. Having no children, Gall was able to spend his money and spare time on research. He had casts made of people's heads, collected skulls and stopped people on the street if he noticed on their heads 'any distinct protuberance' (Spurzheim, 1815: 263). In time, he wrote up his findings in a six-volume work, *On the Function of the Brain and Each of Its Parts*, first published in French in 1825. This work was eventually translated into English, but its late date of publication (1835) and unwieldy size meant that it was not much read in Britain or the United States.⁸ (In fact, Gall (1825, vol. 1: iv) opposed a shorter edition on the ground that readers should have all the facts at their disposal.) The relative inaccessibility of Gall's work in Britain and the USA created a void filled by more timely and less cumbersome books on phrenology.

Spurzheim (1776–1832) compressed, systematized and extended Gall's system in a single, English-language text, *The Physiognomical System of Drs. Gall and Spurzheim*, that along with his other books became the basis for the phrenological movement in Britain and the United States. Spurzheim identified six organs in addition to Gall's original twenty-seven and, ingeniously, developed an easy-to-follow and easily reproduced head chart indicating the organs' locations. (Gall seems to have done much of his instruction from actual skulls on which he penned the outlines of the organs (van Wyhe, 2002).) While Gall believed that climate, food and drink can modify the faculties, and in fact used such changes to explain racial and ethnic differences in body build and character, he had only long-term modifications in mind (Gall, 1825, vol. 1: esp. 150–1). Spurzheim, in contrast, taught that individuals' faculties can be modified in the course of a lifetime. '(B)ring men into favorable situations calculated to call forth their feelings, and these will be strengthened', Spurzheim wrote. 'In order to cultivate benevolence, one should not frequent only the society of rich and opulent persons, and learn by heart descriptions of charity; he must experience misery himself' (Spurzheim, 1828: 187). Thus Spurzheim gave the essentially deterministic doctrine an optimistic twist, adding the possibilities of self-help and treatment. In his view, the 'inferior faculties'—those most responsible for crime—'stand in need of constant regulation' (Spurzheim, 1828: 187; see also Spurzheim 1825/2001: 182).

Spurzheim settled in England, where he gave compelling anatomical demonstrations to illustrate Gall's system. His proselytizing efforts eventually carried him to the United States, where he was lionized by East Coast intellectuals and invited to lecture on anatomy at Harvard medical school before dying of exhaustion and illness in Boston in November of 1832. Thousands attended the funeral (Walsh, 1972), a sign that the doctrine was already becoming a cause.

While the social identities of phrenology's supporters differed over time

and by country (sometimes by city), the first-stage advocates seem generally to have been middle-class reformers. Among the most enthusiastic were George Combe (e.g. 1841) and his brother Andrew Combe (e.g. 1831), residents of the Scottish city of Edinburgh, where, for reasons that historians have explored extensively (Cantor 1975; Shapin, 1979; Cooter, 1984), phrenology took its strongest and deepest hold. The substantial literature on the subject identifies phrenology's advocates as liberals, some with a radical and utopian bent, most of them anti-metaphysical and, in France, also anti-clerical (Carlson, 1958; Dain, 1964; Cantor, 1975; Cooter, 1976/1981, 1984; Shapin, 1979, 1982; McLaren, 1981). They tended to be, not members of social elites, but up-and-coming young Turks. The early 19th century was in any case a period of aspiration and widespread optimism. ('The most important way of preventing crime', wrote Spurzheim (1828: 280), 'is that of improving mankind'.) In this context, phrenology provided a philosophical basis for those who hoped to rationalize governance and institute new means of maintaining order in the democratic state.

Phrenology's appeal lay partly in its implicit hierarchies. The doctrine naturalized the idea of social hierarchy through its division of labor between the head and lower parts of the body; it also taught the importance of harmony, balance and cooperation among the parts, and of obedience to natural law. Gall's system, as Cooter (1984) and others have noted, not only put the topmost part of the human form in charge but also organized the faculties into a hierarchy. It located the lower propensities, which man was said to share with animals (Amativeness, Combativeness, Destructiveness), on the lower section of the skull. Even more ignominiously, it relegated some of them to the back of the head. (Thus Amativeness—sexuality—was to be found in the back and at the base of the skull.) Gall's intellectual faculties lay more toward the front and center of the skull, while at the top, crowning the whole, lay the moral faculties of Benevolence, Veneration, Firmness, Hope and Conscientiousness. Here was a model of order and control for, not only society, but also the individual, one in which goodness, rationality and intelligence would control the impulsive, animalistic and criminalistic (see also Smith, 1992: 12–13). Toward the 1850s, as the century's early optimism faded into middle-class apprehension about the dangerous classes, the hereditarian ideas implicit in phrenology (e.g. Spurzheim, 1828) become more prominent, and phrenology began to look more like a system of inherited ability. Sir Francis Galton's research on the inheritance of ability (1869) and the possibility of breeding better humans (1883/1907) were but a step away.

Spurzheim's *Physiognomical System of Drs. Gall and Spurzheim* (1815) remains an impressive book: clear, well organized, comprehensive and closely argued. The first section, on the structure of the brain and nervous system, serves a credentialing function: based on dissections and other direct observations of the brain, it shows itself to be the work of careful anatomists. Spurzheim enumerates past obstacles to scientific study of the

brain and nervous system, including 'the mania of forming systems upon a few solitary facts' and metaphysical assumptions.

The schoolmen . . . say, the soul is simple, and therefore its material residence [the brain] must be simple also, and all the nerves must end in one point; in other words, the nerves can have only one origin, because each individual has but one soul.

(Spurzheim, 1815: 6)

Deriding this kind of reasoning as 'frivolous speculation', Spurzheim calls instead for close observation of 'natural facts'. We should 'forsake hypothetical reasoning in order to follow the simple methods of experience . . . [We must adopt] a rational mode of judging from experiment and observation' (1815: 10). Later in the book, having explained the phrenological system in detail, Spurzheim proudly claims that 'We never venture beyond experience [direct observation]. We neither deny nor affirm any thing which cannot be verified by experiment' (1815: 250). John Abernethy, a London surgeon who rejected phrenology but knew and admired Spurzheim, reported that 'Dr. Spurzheim . . . [said] to me that it matters not how many coincidences we may observe [between character and cranial protuberances]; one contradictory fact must disprove them all' (Abernethy, 1821: 5). Moreover, Spurzheim made a point of displaying his evidence for all to see. To some laymen and physicians thirsting for scientific understanding of human behavior, phrenology seemed to unlock the secrets of the human soul.

To understand why it was phrenology and not some other science that became the basis for the first fully developed theory of crime, we need to look at the way the personal interests and research skills of phrenology's founders intersected with the scientific context in which they worked and the social and cultural contexts in which their doctrine took root. The scientific context was one of widespread interest in applying scientific methods to the study of social phenomena, and researchers had no reason to doubt that natural science methods would also work for the investigation of social and psychological events. Earlier, the utilitarians Jeremy Bentham and Cesare Beccaria had offered a rational choice framework for explaining criminal behavior, but utilitarianism was hardly a full-blown psychological or social theory, and in any case crime rates cast doubt on its sidecar theory of deterrence. The work of A.M. Guerry (1833), Adolphe Quetelet (1835) and Siméon-Denis Poisson (1837) on crime statistics—another sign of the hunger for social science—lay in the future (albeit the very near future), and none of these men was particularly interested in the causes of crime.⁹ However, Lavater had recently elaborated his system for reading the face for signs of trouble; and moral insanity theorists, drawing on faculty psychology, were already starting to develop a biological-fault theory of criminality. Thus the very first efforts to study deviance scientifically had already set this type of work on an explanatory trajectory heading toward the brain.

This was the general scientific situation in which Gall and Spurzheim undertook their search for an explanation of human behavior. Their anatomical skills and empirical approach satisfied scientific requirements, but their doctrine's radical materialism—its reduction of free will and human nobility to bundles in the brain—meant that at first phrenology had few followers. Indeed, it might have sunk without a trace had Spurzheim not serendipitously (Merton and Barber, 2003) found a receptive social and cultural context in Edinburgh and the United States; had he not softened the doctrine's determinism to make phrenology palatable to reformers; and had the doctrine not attracted the superb publicist George Combe. Moreover, as the next sections show, phrenology provided middle-class reformers with exactly the science they needed to fight their jurisprudential and penological crusades. Similarly, specialists in mental disease and other fields discovered a scientific friend in phrenology. Through this fortuitous, stochastic process, then, phrenology found receptive constituencies—and thrived until changing circumstances made a successor science appear more persuasive.

Explanations of crime

Spurzheim's chapter on 'The Organ of the Propensity to Destroy, or of Destructiveness', illustrates both his methods and phrenology's applicability to the study of crime. He begins by observing that animals vary in their propensity to kill, even within species and breeds.

Gall had a little dog which had this propensity in so high a degree, that he would sometimes watch several hours for a mouse, and as soon as it was killed he left it; notwithstanding repeated punishment he had also an irresistible propensity to kill birds.

(Spurzheim, 1815: 305)

In man, too, Spurzheim continues, the destructive propensity manifests itself with different degrees of intensity: some people are merely indifferent to animals' pain; others enjoy seeing animals killed; and still others experience 'the most irresistible desire to kill' (1815: 306). Spurzheim gives many examples, including that of the Dutch fiddler, and explores their implications. The examples seem to demonstrate that 'the propensity to kill is a matter independent of education and training' (1815: 310), a function of mental organization alone. Spurzheim also reports on the related research of Philippe Pinel, the French psychiatrist who at about the same time was observing in madmen a similarly 'fierce impulsion to destroy', and he gives many of Pinel's examples (1815: 312–15).

To Spurzheim, the conclusion seemed inescapable: there must be an organ of the brain that determines the propensity to kill and it must function independently of other propensities, which continue to work normally even in extreme cases like that of the Dutch fiddler. Gall (1825, vol. 4: 64) had earlier identified an organ of Murder, having found a well-developed protuberance at the same spot in the skulls of two murderers.

However, Spurzheim objects to naming an organ ‘according to its abuse’ and therefore changes the name of Murder to Destructiveness, attributing to it the propensity, not only to kill, but also

to pinch, scratch, bite, cut, break, pierce, devastate . . . We are convinced, by a great number of observations, that the seat of this organ is on the side of the head immediately above the ears . . . It is commonly larger in men than in women; yet there are exceptions from this rule.

(1815: 317–18)

In sum, on the basis of numerous examples, Spurzheim has identified the primary cause of homicide: overdevelopment of the organ of Destructiveness, which is the seat of both negative and useful forms of destruction.

The other faculties most relevant to criminology in Spurzheim’s organology are Amativeness, Combativeness, Covetiveness and Secretiveness. (He presents his commentary on Amativeness in Latin, a linguistic forerunner, perhaps, of television’s anti-pornography filters.) In these instances, too, Spurzheim insists that no organ is in and of itself evil; rather, the disproportionate enlargement of a faculty is the factor that leads to imbalance in a person’s mental system and hence to criminal behavior. Covetiveness, for example, can be useful; we desire money and thus work for it. But when the organ of Covetiveness becomes overdeveloped, it leads to a propensity to steal:

Another individual of good breeding was from infancy given up to this inclination; betook himself to the military service in hopes of being restrained by the severity of its discipline; and, as he contrived to steal, was in danger of being hanged: struggling still against this propensity, he studied theology and became a Capucin; his propensity followed him into the convent, and he took trifles, such as candlesticks, snuffers, scissars [*sic*], drinking-cups and glasses; but not concealing the stolen objects, he acknowledged that he had taken them home that the proprietors might have the trouble of carrying them to their houses again.

(Spurzheim, 1815: 320–1)

The organ of Covetiveness is located a bit above the ear, toward the forehead. It, too, is usually more developed in males than females.

A deterministic doctrine, phrenology attributed criminal behavior not to free will but abnormal brain organization.¹⁰ The fault might lie in poor heredity, poor environment or a disease that had damaged the faculties—but not in individual choice. Yet phrenologists did not preach a gloomy, predestinarian message. Most people, they believed, are born with their faculties in harmonious balance; normality is the standard, and normal people, having been born responsible, do not commit crimes. ‘(T)he functions of a well formed and healthy brain’, wrote the English phrenologist Marmaduke Sampson, ‘must always be consistent with virtue. From this you will see at once that all acts of an opposite nature must be attributed to a corresponding unsoundness in [an] organ’ (Sampson, 1843:

9). Moreover, because post-Gall phrenologists conceived of the brain as plastic, malleable and capable of change, they were able to combine their determinism with an optimistic, rehabilitative approach to crime and other social problems without a sense of contradiction. Conceiving of character traits as heritable but not fixed, they could simultaneously argue that criminals are not responsible for their crimes *and* that, with treatment, they can be cured of criminality. Sampson (1843), who tended to take extreme positions, viewed *all* criminals as ‘patients’ who should be sent to moral hospitals.¹¹

In practice, most phrenologists dodged the full implications of their doctrine for free will by developing a typology of mankind according to degree of criminal responsibility. For example, the Edinburgh lawyer George Combe, the third most influential proponent of the doctrine after Gall and Spurzheim, delivered a lecture on ‘Human Responsibility’ in Boston in the late 1830s in which he explained that ‘Men may be divided into three great classes. The first comprehends those in whom the moral and intellectual organs are large, and the organs of the propensities [lower impulses] proportionately moderate in size.’ These men have free will and should be punished if they commit crimes. Members of the second class, whose organs are all large and about equal in size, have stronger criminal impulses but are still responsible. In members of the third class, the propensities are large and the moral and intellectual faculties small. These are the ‘habitual criminals’, the ‘incorrigibles’; ‘they are moral patients and should not be punished, but restrained, and employed in useful labour during life, with as much liberty as they can enjoy without abusing it’ (Combe, 1841, vol. 1: 204–7). In effect, Combe recommended totally indefinite sentencing for criminals in the third group, predicating release on their reformation (Combe, 1841, vol. 2: 9–10, 16). His typology reflected ideas about social worth as well as about degrees of criminal responsibility: those in the first class were, by implication, most fit to govern, and those in the third class most in need of governance.

Other phrenologists, too, created typologies based on the idea of biological variations in degree of criminal responsibility. Like Combe, James Simpson, an English lawyer, ranked humans into three classes according to their criminal propensities:

First, those whose criminal appetites or propensities are so powerful as to overbalance the restraining force of their moral and intellectual faculties . . . The *second class* of mankind are very numerous, those whose *animalism* is nearly as strong as in the first class, but whose moral and intellectual powers of restraint are . . . much greater . . . External circumstances in such persons turn the scales . . . The *third class* are the good ground . . . It is *physically* possible for such men to rob, or steal, or torture, or murder, but it is *morally* impossible.

(Simpson, 1834: 281–2, emphases in original)

Simpson's divisions, more clearly than Combe's, illustrate phrenological thinking about the relative impact of nature (biology) and environment ('external circumstances') in crime causation. Biology determines the behavior of both law-abiding men and law-breakers. Environmental factors have their strongest impact on members of the 'very numerous' second class—those most improvable by education in the free world and treatment in prisons. While phrenologists' classifications of criminals by degrees of responsibility and free will differed in their particulars, together they formed the nucleus of the idea that later flowered in Lombroso's hierarchical typology of *Criminal Man* (Lombroso-Ferrero, 1911/1972).

Although the major phrenological texts on issues of crime and justice were produced by professional men like Simpson and George Combe, anyone could add to the store of phrenological knowledge about crime. From Sydney to Stockholm, York to Heidelberg, and Rochester, New York, to Lexington, Kentucky, amateur phrenologists studied the heads of living and dead criminals, mailed their findings to phrenological journals, and reported them at meetings of phrenological societies. The 1834–6 volume of the *Phrenological Journal and Miscellany*, for example, included a reader's article on a tame ram with unusually well-developed Destructiveness who violently butted adults and terrorized children. The same issue carried speculations on the relation of Benevolence and Destructiveness in a certain pirate (he had become a buccaneer to revenge himself on Spaniards for some cruelty) and character analyses of the head casts of recently executed murderers. Relatedly, when in 1848 an explosion sent a metal rod flying through the head of a Vermont railroad worker named Phineas Gage, the local physician wrote up the case in such a way as to support phrenology, and on the basis of hearsay the *American Phrenological Journal* reported that:

after the man recovered, and while he was recovering, he was gross, profane, coarse, and vulgar . . . Before the injury he was quiet and respectful . . . (T)he iron rod passed through the regions of BENEVOLENCE and VENERATION, which left these organs without influence in his character, hence his profanity, and want of respect and kindness; giving the animal propensities absolute control in his character.

(quoted in Barker, 1995: 678)

Thus phrenology enabled ordinary people to contribute to scientific knowledge, including knowledge about the causes of crime.

Criminal jurisprudence

Phrenology took root in a period of remarkable upheaval in criminal jurisprudence, one in which revulsion against harsh punishments, especially of minor first offenders, property offenders and the mentally ill, surged through Western Europe and North America. A transnational campaign against capital punishment took hold and, as the first penitentiaries were built, citizens noisily debated the purposes of these new penal institutions.

This rethinking of fundamentals of criminal jurisprudence occurred against a background of industrialization and urbanization that pushed legislators to find new methods of assuring the survival and cooperation of the working class, including public health improvements, universal education and measures to reform criminals (see, especially, Simpson, 1834: 12–13).

Engaging widely and deeply in this movement for criminal law reform, phrenologists rejected the principles of retribution and deterrence on which this body of law had traditionally rested. ‘Convicts are almost never reformed under the present system’, Simpson (1834: 289) pointed out, voicing one common objection. George Combe found another argument in statistics on crime being published by the Belgian Adolphe Quetelet: the stability over time in Quetelet’s rates of crime and conviction seemed to prove that ‘crimes arose from causes in themselves permanent, and which punishment does not remove’ (1854: 29).¹² Since punishment makes no difference, Combe reasoned, reformation should become the goal of criminal law. Marmaduke Sampson, in turn, insisted that punishment is ‘irrational’ and deterrence impossible, since all criminals are sick and not responsible for their acts. Punishment actually increases crime, Sampson argued in an early version of amplification-of-deviance theory, by damaging offenders’ constitutions and leading to transmission of their enfeeblement to the next generation (Sampson, 1843: 6, 10).

Thus phrenologists advocated a jurisprudential overhaul to reorient criminal law toward reformation and (in the case of those who proved incorrigible) social defense. ‘There were ages when criminal legislators thought it their only duty to punish or revenge’, wrote Spurzheim, and in which

the animal powers dictated the penal laws . . . Now-a-days, it is admitted that the penal code ought to have for its objects the prevention of [offenses] . . . , the correction of those who have failed in their duty, and securing the community against incorrigible members.

(1828: 278)

Phrenologists lobbied against debilitating punishments that might brutalize the faculties: the whip, the treadmill and unrelieved solitary confinement. Some also lobbied for an end to transportation, a measure devoid of reformative value. Noting that ‘in dealing with criminals we are dealing with *mind*’ (Combe, 1854: 35, emphasis in original), George Combe and other phrenologists recommended individuation of punishment to recognize differences in capacity and predisposition toward crime. To C.J.A. Mittermaier, a law professor at the University of Heidelberg, one of the great advantages of phrenology was the way it encouraged law-makers to find ways to cultivate criminals’ Benevolence and impede ‘the undue development of those organs which are liable, through abuse, to produce evil, such as Destructiveness’ (Combe and Mittermaier, 1843: 5). Another advantage, in Mittermaier’s view, lay in phrenology’s guidance to judges

trying to determine criminal responsibility; the doctrine made it clear that 'Accountability . . . is influenced by the condition of the organs which we find in the offender' (Combe and Mittermaier, 1843: 5).¹³ *Do no harm and fit the punishment to the criminal*—these were the twin pillars on which phrenologists' programs for reformation rested.

The long-term thrust of these views was toward redefinition of the concept of dangerousness. Whereas 18th-century jurisprudence defined dangerousness in terms of crime seriousness, late 19th-century jurisprudence defined it in terms of the individual criminal's biological predisposition and capacity for crime (Foucault, 1988). Toward the century's end, the process of redefinition built up pressure for fully indefinite sentencing and eugenic approaches to crime control. Phrenology helped set this redefinitional process in motion.

Phrenologically inclined psychiatrists joined the battle to exempt the mentally ill from criminal punishment. Mentally ill offenders who committed homicide were routinely hanged in the first half of the 19th century, there being no other recourse under laws that recognized only raving lunacy as an excuse for crime. Phrenology provided a way out of this dilemma with its view of the brain as a group of independent organs, any one of which could become diseased (Rafter, 2004). Isaac Ray, an American psychiatrist who was profoundly influenced by phrenology in his youth, argued for recognition of partial moral mania, a condition in which 'the derangement is confined to one or a few of the affective faculties, the rest of the moral and intellectual constitution preserving its ordinary integrity . . . With no extraordinary temptations to sin,' Ray continued, 'but on the contrary, with every inducement to refrain from it, and apparently in the full possession of his reason', the morally insane offender 'commits a crime whose motives are equally inexplicable to himself and to others' (Ray, 1838/1962: 139–40). Such offenders should be excused from the full brunt of criminal punishment. John Kitching, an English psychiatrist more tentatively committed to phrenology than Ray, also argued that partial insanity should serve as an excuse for crime before law: 'the rope-end or cat will not cure moral insanity' (Kitching, 1857: 38). Such arguments contributed to the campaign for greater leniency for mentally ill offenders and to establishment of hospitals for members of this group.

Curtailed of capital punishment in general was another legal reform that owed its success in part to phrenologists. Public sentiment against the death penalty was growing in any case, but phrenologists brought to the cause a united and vociferous insistence on abolition. Public executions brutalize onlookers, they argued, exciting destructive propensities and deadening moral sensibilities (e.g. Combe and Mittermaier, 1843: 4). Moreover, they continued, it is folly to punish people who are not responsible (as, in the phrenological view, many criminals were by definition). Life imprisonment of murderers would satisfy the same end of social defense.¹⁴ Marmaduke Sampson, over-the-top as usual, not only argued that the death penalty stimulates crime; he offered to take members of a

gallows mob and treat them for one month to ‘the wholesome influence of moral advice, coupled with *prison discipline*, and *medical treatment*’, after which ‘it is probable that most of them would abstain from attending the execution at all’ (quoted by Wharton, 1841: 26, emphases in original). While Sampson was unusual among phrenologists in his optimism about the faculties’ pliability, he was typical in his opposition to capital punishment.

Phrenologists’ deterministic and materialistic analyses of criminal behavior, and their apparently sacrilegious recommendations for criminal law reform, scandalized traditionalists in the legal establishment. J.J.S. Wharton, an author of treatises on law, addressed a 44-page letter to Prime Minister Sir Robert Peel exhorting him to ignore Marmaduke Sampson’s proposals to abolish the death penalty and establish moral hospitals. In metaphorical agitation, Wharton blasted Sampson’s theory as ‘moral-crushing, religion-destroying . . . blighting the flourishing plant of moral accountability, withering the pure precepts of our Christianity, and howling forth in its annihilating blasts the impunity of crime!’ (1841: 32). Phrenologists’ iconoclasm on jurisprudential matters no doubt gave many people pause for thought. However, it proved attractive to those searching for a new philosophical basis for discipline and social control—so much so that, by the end of the century, the reforms phrenologists had advocated were by and large in place, though shorn of their organological language.

Penology

Phrenology, as its foremost historian observes, provided a ‘rational scientific umbrella’ for ‘a vast range of ideas and beliefs which in themselves had little need of Gall’s doctrine’ (Cooter, 1976/1981: 90). Nowhere is this truer than in the case of penology, an area in which phrenologists advocated a range of reforms that long outlived phrenology itself. To phrenologists, it seemed obvious that incarceration was the best possible punishment: prisons isolated criminals from the rest of the population, so they could not damage others’ moral faculties, while at the same time they isolated criminals from enfeebling influences in the broader society. Phrenology’s heyday coincided with the period in which American states began to build penitentiary-type prisons. Should these new institutions follow the Pennsylvania model of unbroken solitary confinement, or should they adopt the practice of the prison at Auburn, New York, of solitary cells at night and group labor during the day? In deciding this and other penological issues, Gall’s followers were guided mainly by George Combe and the American jurist Edward Livingston, the phrenologists who wrote most extensively and authoritatively on prison policy. Both began with the idea that prisons should be designed to rehabilitate, and both endorsed measures to encourage convicts to improve themselves.

These ideas animated penology on both sides of the Atlantic for the next 150 years. They had been formulated originally by Gall, for whom the goal

of criminal law should be ‘to prevent crime, to reform malefactors and to protect society against the incorrigible’ (Gall, 1825, vol. 1: 339, emphasis in original), and they became key to the international prison reform movement that started formally in Cincinnati, Ohio, in 1870 (Wines, 1871). While phrenology was but one current flowing into this reform movement, it was a strong one. The movement’s leaders had grown up steeped in the phrenological notions that pervaded early 19th-century American culture (Davies, 1955). When they formulated their Declaration of Principles in 1870, these leaders incorporated the penological ideas of phrenology but avoided the doctrine’s terminology. Some speakers avoided it just barely, as shown by examples from the keynote address of Zebulon Brockway, ‘The Ideal of a True Prison System for a State’ (in Wines, 1871: 38–65):

- ‘The science of man forms the foundation of all systems for his government’ (p. 39).
- ‘legalized degradation [whipping] . . . of any . . . criminal inflicts injury upon the whole social organism’ (p. 38).
- ‘What is the molecular condition or quality of those who gravitate to vicious and criminal society and practices? How is the mind affected by a degraded physical organism? How [is] . . . the moral sense obscured by such a mind? . . . What cures and tones up? How can a system be planned . . . to cure criminals, to stamp out crime, and to heal the social disease thus developed, without first obtaining a diagnosis of it?’ (p. 40).

Phrenological ideas lived on in works such as Brockway’s speech, helping to create the ‘rational scientific umbrella’ of which Cooter speaks.

A well-ordered prison, in the phrenologists’ view, was fundamental to the restoration of balance among criminals’ faculties. Convicts should have fresh air and decent food. Corporal punishment, which only stimulates the lower faculties, must be prohibited, as must extended periods in solitary confinement. The prisoner’s daily routine, George Combe explained in a letter to his German friend Mittermaier, must train him in ‘habits of sobriety, order, and industry, and at the same time, he must be furnished with intellectual, moral, and religious instruction’ (Combe and Mittermaier, 1843: 9). Combe was serious about educating prisoners, estimating that there should be a teacher for every eight to ten convicts (Combe, 1841, vol. 2: 19). Mittermaier himself hoped that prison administrators would ‘study the individuality of the criminals, and direct their treatment in reference to it’, diagnosing and treating offenders much as physicians diagnosed and treated patients (Combe and Mittermaier, 1843: 6). Such recommendations, seconded by other phrenologists, laid the groundwork for later prison classification schemes.

At the time, however, phrenology’s theories of rehabilitation had but spotty impact on prison practice. Mid-19th-century penitentiary superintendents sometimes gestured toward individualization of treatment by bringing in a phrenologist to study convicts’ heads, especially when an

eminent outside phrenologist dropped by for a visit. At the Melbourne Jail in Australia, an official made death masks of executed criminals, including the bushranger Ned Kelly, in the hope of contributing to penological science. A thorough-going attempt to achieve prisoner reformation occurred at the women's section of New York's Sing Sing prison, where in the mid-1840s Eliza Farnham, an important phrenologist in her own right (Farnham, 1846),¹⁵ introduced flowers, music and lecturers (Rafter, 1990). This program, while it may have developed her prisoners' moral and intellectual faculties, enraged John Luckey, the chaplain in the nearby men's division of Sing Sing, who had Farnham fired. And so died what was apparently the only overt and systematic phrenological attempt to turn a prison into a moral hospital.

The phrenological recommendation that appealed most to prison administrators was the tiered system of rewards for good behavior. Edward Livingston proposed this system in his penal code (1827, 1833), a plan that, though never implemented by Louisiana, excited enthusiasm among phrenologists in the United States and Europe. Livingston outlined a graded system through which convicts would work their way up, enticed and reinforced by improved conditions along the way. They would start their sentences in the lower tier, characterized by solitary confinement, coarse food and denial of opportunities to work. The inducements of promotion to the higher tier—books, better food, opportunities for labor—would encourage them to exercise their higher faculties. Phrenologists with little direct involvement in prisons were impressed by the way Livingston's system might encourage convicts to *choose* the path of improvement (e.g. Simpson, 1834: Appendix I). Prison administrators, on the other hand, were probably more intrigued by the system's potential for increasing control of convicts. At any rate, a graded system that could reward good behavior was soundly endorsed by the 1870 prison congress. Even earlier, it was implemented in famous experiments in prisoner reform by Alexander Maconochie at the Norfolk Island, Australia, penal colony (Maconochie, 1847) and by Sir Walter Crofton in Ireland (Wines, 1871: 66–74). Maconochie's work, in particular, may have been inspired by phrenological principles (de Guistino, 1975; but see Clay, 2001).

During his 1838–40 phrenological tour of the United States, George Combe visited prisons to collect evidence that might enable him to decide which system, the Pennsylvania or Auburn, was best (Combe, 1841). Both approaches to convict discipline seemed to have virtues and drawbacks. Under the Pennsylvania system of perpetual solitary confinement, convicts grew weak, and their organs lost their vigor. (The exception: the cerebellum or organ of Amativeness, which tended toward enlargement due to the many opportunities in the Pennsylvania system for self-abuse.) Under the Auburn system, on the other hand, prisoners were less susceptible to 'deep moral and religious impressions' (Combe and Mittermaier, 1843: 13). Thus Combe suggested combining the two approaches. Convicts should begin

their sentences in solitary, with no opportunity for labor or other distractions while their lower organs softened and became vulnerable to moral influences. The next step should be ‘a very effective course of moral, intellectual, and religious instruction’; during it, the convict would ‘be advanced to greater and greater degrees of liberty, of self-regulation, and of social enjoyment, in proportion as he shewed himself to be capable of acting virtuously and wisely’ (Combe and Mittermaier, 1843: 16; see also Combe, 1841, 1854). Next would come day release on ‘moral probation’—a presagement of the late 19th-century innovation of parole.

As they worked out the details of their penological program, phrenologists recognized a residual group of convicts who might need to be held for life, or close to it, on totally indefinite sentences. Some conceived of this group as convicts guilty of atrocious crimes (e.g. Livingston, 1827: 58). Others thought the category would consist of habitual offenders—those convicts who, by definition, would have grossly overdeveloped lower faculties and very small intellectual and moral organs. Yet others (e.g. Combe, 1841, vol. 2: 207) designated it for the ‘incurables’ and ‘in-corrigibles’ who could or would not respond to the prison’s rewards system. (Combe expected these to include idiots and the insane.) It was an incoherent group, conceptually, but it came to play a large role in later discussions of prison management, especially after eugenicists appeared to have confirmed the association of incorrigibility with hereditary feeble-mindedness.

‘(N)o sound system of criminal legislation and prison discipline’, wrote George Combe (1854: 3) ‘can be reached while the influence of the organism on the dispositions and capacities of men continues to be ignored’. This idea lay at the heart of phrenology’s program for penological reform. The specific influence of that program on subsequent theory and practice can be difficult to gauge, partly because some reformers were reluctant to identify themselves with phrenology (de Guistino (1975) puts Maconochie in this category), and partly because others had absorbed phrenological principles but dropped the nomenclature. But it is undeniable that phrenologists’ proposals to rationalize and medicalize prison management, put forth close to the inception of the prison system, and their vision of scientific rehabilitation, continued to drive western penology right through till the 1970s onset of anti-rehabilitation.

The achievements of phrenology

Acceptance at first came slowly to phrenology. The Austrian emperor, alarmed by Gall’s radical materialism and its implicit denial of free will, expelled Gall from the country; Paris, to which Gall and Spurzheim moved to carry on their research, proved only slightly less hostile (McLaren, 1981). Breaking with Gall and relocating to England, Spurzheim again encountered skepticism and ridicule (e.g. Combe, 1831), but once he

learned how to make Gall's doctrine accessible through his books and attractive through his teaching about the potential for human change, phrenology enjoyed greater success. Lavater's physiognomy had primed the public for a theory of head-character relationships, with the title of Spurzheim's *Physiognomical System of Drs. Gall and Spurzheim* suggesting the ease of the transition between the two doctrines. Gall and Spurzheim were both outstanding brain anatomists, a skill that gave them threshold credentials and authority in their new science based on claims about the anatomy of the brain. Moreover, in a scientific age, phrenology made a show of applying scientific methods and achieving positivist results; and it had remarkable internal consistency. Such factors helped phrenology overcome the initial resistance.

Once the doctrine began to take root, its social context helped it to thrive. In a period when social reforms seemed both imperative and achievable, phrenology provided a sturdy platform on which to erect major programs of change. In a century when—to an extent difficult to comprehend today—ordinary people lived in fear of becoming insane, phrenology showed how insanity might be staved off through the cultivation of certain faculties. Equally important to psychologists and philosophers struggling to make sense of body-mind relationships, phrenology offered a way out of the mazes of Cartesian dualism by holding, simply, that the mind is not separate from the body but rather a function of the brain. And in an era of intense debate over the application of the insanity defense, the phrenological image of independent faculties in the brain offered a relatively clear way to conceptualize the new category of partial or moral insanity—a breakdown of a single organ while the rest continued to function normally.

Gall and Spurzheim had sketchily indicated their doctrine's implications for understanding and reforming criminal behavior (Gall, 1825, vol. 1: 336–69; Spurzheim, 1828: 273–327). Later phrenologists who built on this foundation worked mainly in the interstices between phrenology's two major stages, after the basics had been established but before disrepute set in among intellectuals. Catching phrenology at its peak of plausibility, they were able to achieve major reorientations in ways of thinking about social problems.

What, then, did phrenology accomplish in the area of crime and justice?

In criminology:

- Phrenology helped establish the idea that criminal behavior can and should be studied scientifically. It introduced scientific methods into the study of criminal behavior and inaugurated what became the positivist tradition in criminology.
- Phrenology produced the first systematic and comprehensive theory of criminal behavior, although it did not conceptualize its project in these terms.

- Breaking with the utilitarian model of Beccaria and Bentham, who were not much concerned with differences among criminals, phrenologists introduced the idea that people vary in their degree of criminal responsibility and in their propensity to commit crime.
- Phrenologists consolidated and advanced the medical model of criminal behavior,¹⁶ according to which criminals (or at least some criminals) are not bad but sick. This concept of crime as a disease profoundly influenced later analyses of criminal behavior.
- By explaining criminality in terms of defective brain organization, phrenology established a biological foundation on which later criminologists built, including late 19th-century degenerationists and criminal anthropologists. It also laid the foundation for eugenic criminology (Rafter, 1997). The idea that the cause of crime may lie in brain defects (or genes that lead to brain defects) seems today to be making a comeback (e.g. Raine et al., 1995).

In criminal jurisprudence:

- Phrenology rationalized jurisprudence. At the dawn of the 19th century, on the threshold of the urban industrial world, it helped reorient criminal jurisprudence away from the principles of retribution and deterrence on which it had long rested, and toward more systematic, proactive measures for reformation and social defense.
- The doctrine raised questions about criminal responsibility that in time led to new approaches to criminal insanity and new ways of conceptualizing dangerousness.
- Phrenologists proposed indefinite and indeterminate sentencing. In addition, they hinted at (without clearly articulating) the idea of sentencing according to biological fitness.

In penology:

- The first to propose a systematic program for reforming criminals, phrenologists advocated rehabilitative measures that shaped the course of 'corrections' until the 1970s.
- While rudimentary prisoner classification had been practiced in early lockups such as Philadelphia's Walnut Street Jail, phrenologists introduced the idea of *studying* convicts at the point of admission to prison and then dividing them into treatment groups according to intelligence and character. They also introduced the idea of classifying prisons and designating one for incorrigibles.
- More generally, phrenologists helped the next generation of prison administrators conceive of penology as a science that might professionalize prison management and medicalize work with convicts (Wines, 1871; Boies, 1901).

In sum, phrenology put into circulation powerful new concepts about crime and justice that eventually became part of the broader culture. The results lived on long after the husk of organology had fallen by the wayside.

* * *

By the 1830s, phrenology had begun to lose its plausibility among intellectuals and professionals. Some close students of the doctrine, like the English surgeon John Abernethy, had asked tough questions from the beginning. (How, Abernethy had demanded (1821: 66–7), were the organs coordinated? ‘By committees of the several organs, and a board of control?’ Abernethy also worried about negative labeling: ‘[S]uppose a man to have large knobs on his head which are said to indicate him to be a knave and a thief, can he expect assistance and confidence from any one?’ (1821: 8).) The social philosopher Auguste Comte, the psychiatrist Isaac Ray and others who had begun as converts to phrenology gradually lost faith (Carlson, 1958: 536; McLaren, 1981: 19–20). Still others, of course, had never seen anything in the doctrine but blasphemy and sympathy with criminals. While phrenology remained popular through the mid-century and phrenologists continued to gather empirical proofs of their doctrine, to the scientifically inclined it was increasingly clear that almost any evidence could be regarded as confirmation of such a multi-faceted theory (Cantor, 1975: 211–18). Nor did phrenologists conduct experiments to see if their doctrine could be refuted. The aspect of phrenology that may have harmed it most, scientifically, was its redundancy: even advocates eventually realized that one could reach the same conclusions about the nature of human behavior without recourse to organology.¹⁷ In any case, by 1850, social problems were starting to appear less tractable than they had seemed in the sunnier light of the century’s early decades. Alarmed, social theorists and policy makers were no longer able to start from phrenology’s premise that most people are biologically normal and naturally good. Those who had endorsed phrenology now abandoned it in favor of the newer doctrine of degeneration, with its more hereditarian cast and implications for more coercive measures of social control (Pick, 1989).

The great exception to this rule was Cesare Lombroso, the Italian psychiatrist who founded criminal anthropology with his book on *Criminal Man* (orig. 1876). While contemporaries stampeded to adopt the degenerationist explanation of criminality, Lombroso clung to his Darwinian, anthropological explanation of the criminal as an atavism or reversion to an earlier evolutionary stage. A major emerging question in Lombroso studies asks why Lombroso swam against the degenerationist current until very late in his career. The definitive answer may become clear when we gain access to all five editions of *Criminal Man* (Lombroso, forthcoming, 2005; see also Wolfgang, 1972; Pick, 1989), but a preliminary response is that Lombroso was so hugely influenced by phrenology that he found it difficult to let go (so to speak) of the cranium. One suggestive bit of evidence can be found in his office, which still exists in its original state in the Lombroso museum in Turin, Italy: on the desk, next to the skull of the brigand Villella, sits a gigantic phrenological head.

Criminology and the bad science issue

Phrenology is not the only disreputable ancestor in criminology's genealogy. Criminologists also have to come to terms with such forerunners as criminal anthropology, the feeble-mindedness theory of crime and Earnest A. Hooton's 1930s attempts to revivify eugenic criminology. To ignore a now discredited science like phrenology on the grounds that it was wrong is to miss an important opportunity to see how science is shaped by its social context and by the circumstances of those who generated it. In fact, some science historians argue that it is

almost more useful sometimes to learn something of the misfires and the mistaken hypotheses of early scientists, . . . and even to pursue these courses of scientific development which led into a blind alley, but which still had their effect on the progress of science in general. What is wrong in the history of science as in all other forms of history is to keep the present day always before one's mind as the basis of reference.

(Kragh, 1987: 81, quoting H. Butterfield, 1950)

For the study of the nature and history of science, then, discredited sciences can be especially useful.

Moreover, to proceed as though there were a bright line between good and bad science is to ignore the fact that social and historical factors shape the acceptance of *all* science—good, bad, anti-, pseudo-, pathological, partly right, Greek, Renaissance and presumably authoritative 21st-century science. No scientific activity occurs in a vacuum, insulated from its social context, and thus it is futile to look for a pure, totally objective science. Even if science could be vacuum-packed, one could not easily distinguish between good science and pseudo-science. Finding ways to differentiate between sound and flawed science has been a major preoccupation of recent philosophers of science. Some have challenged the Enlightenment view of science as a rational, systematic, progressive activity (Kuhn, 1970; Feyerabend, 1975; Lakatos, 1978; Merton and Barber, 2003). They do not speak with one voice, of course, but individually or collectively they have argued that the scientific method itself is something of a myth, since many scientific discoveries occur serendipitously, even anarchically, bypassing the step-by-step process enshrined in the just-so story of scientific methodology. The findings of even the physical and life sciences may be historically relative, in the view of some theorists, while others maintain that although science can produce change, it does not produce progress. One need not swallow these critiques whole to recognize what they imply: to dismiss phrenology on the grounds that it was bad science is to take a naïve, outmoded view of science. Perhaps only the passage of time can teach us which large-scale scientific research programs (and phrenology certainly fits this category) lead to truth or falsity (Lakatos, 1973; see also Lakatos and Feyerabend, 1999).

Sociologists and criminologists may continue to disregard phrenology on

the grounds that it offered a *biological* theory of crime. Whereas in actuality it offered a biosocial theory, one that pictured a constant interaction between the faculties and environment, it did have a strong biological component; and so for the sake of argument let us suppose for a moment that phrenology was an exclusively biological theory. Reflexive mistrust of biological theories per se, while it is historically and ethically understandable, is becoming increasingly suspect. As the phrenology example itself shows, biological theories are not necessary bigoted or conservative. Phrenology did biologize difference, but in its own context it was a progressive, even radical theory. One might well keep the liberalism and indeed progressivism of phrenology in mind today as biological theories make their comeback, even while we also guard against their tendency to reach eugenic conclusions. Phrenology can help us remember that biological theories are no more inherently reactionary than sociological theories are inherently bias-free.

The history of criminology is generally an underdeveloped field, one to which Americans, in particular, have paid little attention. Thanks to David Garland (1985, 2002), Paul Rock (1994, 1998) and Neil Davie (2004), British criminologists have a relatively clear overview of their own disciplinary evolution, a solid scaffolding on which to construct more detailed studies. US criminologists, in contrast, have a shakier sense of their field's origins and development, and in fact, the US-based criminologist who has produced some of the best historical work—Piers Beirne (1993, 1994)—was born and schooled in England. Americans' greater disinterest can be explained, at least in part, by conclusions reached by the historian Dorothy Ross in her *Origins of American Social Science* (1991). 'American social science', Ross observes, 'bears the distinctive mark of its national origins':

Its liberal values, practical bent, shallow historical vision, and technocratic confidence are recognizable features . . . To foreign and domestic critics, these characteristics make American social science ahistorical and scientific, lacking in appreciation of historical difference and complexity . . . What is so marked about American social science is the degree to which it is modeled on the natural rather than the historical sciences.

(Ross, 1991: xiii)

Ross ties the ahistorical nature of American social science to the experience of settling a new continent and untouched spaces; Americans 'could relegate history to the past while they acted out their destiny in the realm of nature . . . they could develop in space rather than time' (1991: 25). Ross urges American social scientists to give more recognition to history in order to relativize their work and become more keenly aware that social science developed through human choices. While Ross's analyses pertain specifically to US social science, some of her conclusions are relevant to British as well as American criminologists.

Social science, as Ross recognizes, is constituted by activities as well as findings and results. It is not a constant but rather an ongoing process. It is contingent on verification, of course, but it is also contingent on what is defined as scientifically interesting at any point in time and what methods of proof and disproof are available. Even our idea of what science *is* depends on the past. Our current understandings of the social roles of criminology, criminal jurisprudence and ‘corrections’ were shaped partly by phrenology. From today’s perspective, phrenologists were wrong scientifically—the bumps of the skull do not reflect one’s character—but they left a powerful legacy, and if we try to ignore their work, we avoid part of ourselves as well.

Notes

For enormously helpful comments on earlier versions of this article, I thank Lynn Chancer, Neil Davie, Robert Hahn and anonymous reviewers for *Theoretical Criminology*.

1. The system’s founder, Franz Joseph Gall, identified 27 organs; his closest follower, Johann Gaspar Spurzheim, identified 33.
2. It was not Gall himself but Spurzheim who introduced the hopeful idea that the faculties might be modified by exercise and other forms of treatment.
3. Both Fink (1938/1962) and Savitz et al. (1977) contain significant factual errors. The latter is particularly unsophisticated and superficial.
4. For an overview and links to detailed reports on imaging research on criminals’ brains, see Abbott (2001); for an especially derogatory comparison to phrenology, see Uttal (2001). But it is also noteworthy that evolutionary psychologists are starting to talk in terms of ‘mental modules’ and ‘mental organs’ (Gander, 2003), language that closely echoes phrenology.
5. A related example is to be found in Schlag (1997), comparing law with phrenology in order to disparage the scientific claims of both. In this instance, phrenology is invoked, not as a precursor but an analog. But again, the author is not interested in phrenology in its own right but rather in using it to make a point about another field.
6. Gall, too, discusses moral insanity (Gall, 1825, vol. 1: 434–44). However, his discussion seems to derive from previous work by Pinel.
7. Gall’s own (and almost identical) account of the genesis of his doctrine appears in Gall (1825, vol. 1).
8. So rare are copies of the 1835 English edition of Gall’s *On the Functions of the Brain* that Oxford University’s holdings include only the French edition of 1825.
9. On the history of crime statistics, see Beirne (1993), and Stigler (1986). A.M. Guerry, in his 1833 *Essai sur la Statistique Morale de la France* (Paris: Crochard), tried to correlate arrests with literacy rates and also

examined recidivism. Adolphe Quetelet's *Treatise on Man and the Development of his Faculties* (orig. Paris: Bachelier, 1835) observed that crime rates, like suicide rates and birth ratios, remain stable in large numbers over time, thus calling individual free will into question; he also developed the criminologically important concept of the average or typical man. Siméon-Denis Poisson, in *Recherches sur la Probabilité des Jugements en Matière Criminelle* (Paris: Bachelier, 1837), dealt with probability theory but also examined conviction rates and made comparisons of crimes against persons with crimes against property.

10. Phrenologists sometimes spoke of the 'will', but they recognized no faculty of the will, and the concept of volition tended to get lost in their discussions of the faculties' influence on behavior. See Gall (1825, vol. 1: 220–46 and vol. 6: 427) and Spurzheim (1825/2001, esp. 32–5).
11. This extreme version of the medical model was satirized in Samuel Butler's novel *Erewhon* (1872/1996) about a country where the sick are punished and the criminals treated solicitously until they recover. Although the novel does not speak directly of phrenology, it can be read as a satire on phrenology and related deterministic ideas about human nature and social improvement.
12. On Quetelet and the significance of his crime statistics, see note 9 and accompanying text.
13. Mittermaier could not possibly have known this at the time, but his small grandson, Richard von Krafft-Ebing (1840–1902), would grow up to be a pioneer sexologist and authority in medical jurisprudence. The grandson's interest in legal issues was probably stimulated by his grandfather's interests along the same lines (Oosterhuis, 2000).
14. Many phrenologists who advocated replacing execution with life sentences for first-degree murderers also advocated eventual release should the convict reform.
15. Farnham's additions to the 1846 edition of Marmaduke Sampson's *Rationale of Crime* were illustrated by the soon-to-be-famous Civil War photographer Matthew Brady. Farnham asked Brady to photograph prisoners so she could illustrate her text with actual examples of phrenological doctrine. The photographs were turned into lithographs for reproduction. They illustrate head shapes considered telling by Farnham, and are accompanied by her textual analyses.
16. The medical model itself had been introduced slightly earlier by moral insanity theorists.
17. For more details on the scientific failings of phrenology, see Young (1990).

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