

Reading the Neurological Romance: Popular Fiction and Brain Science, 1865-1905

The late-Victorian and early Edwardian periods witnessed watershed developments in neurological science, particularly the cerebral localization experiments of scientists like David Ferrier and John Hughlings Jackson in England, Paul Broca in France, and Gustav Fritsch and Eduard Hitzig in Germany. By surgically altering or applying electrical current to the brains of dogs, frogs, cats and monkeys, these scientists established that discrete sections of the brain are responsible for specific mental and physical functions. These findings stirred controversy because they apparently challenged the possibility of free will or an extra-corporeal soul. The philosophical and psychological impact of these controversial experiments resonated far beyond the professional scientific community, infiltrating the popular press and popular literature.

Here, I explore the seemingly paradoxical fact that British popular novelists - those associated with commercially successful genres such as the romance, the neo-Gothic novel and the "shilling shocker" - were often exceptionally well informed about neurological theories and their philosophical ramifications, more so than many respected practitioners of realism. My monograph-in-progress, *Reading the Neurological Romance: Popular Fiction and Brain Science, 1865-1905*, examines the works of scientifically savvy popular novelists including Robert Louis Stevenson, Bram Stoker, H.G. Wells, Grant Allen, and Marie Corelli, some of the most financially successful and culturally influential authors of their time. Their fictions collectively demonstrate how popular developments like the late-Victorian revival of the Gothic served as an ideal medium for depicting the existential malaise spawned by cerebral localization experiments. In turn,

their fictions profoundly shaped scientific thought and influenced public opinion toward neurological innovations.

The question this paper addresses is why certain writers of fiction proved more responsive to (though hardly uncritical of) neurological theories than others. Specifically, why did Victorian Gothic works like Robert Louis Stevenson's *Strange Case of Dr. Jekyll and Mr. Hyde* (1886) and Bram Stoker's *Dracula* (1897) probe the implications of cerebral localization experiments more often and more deeply than "serious" literary modes like the realist novel? In the course of offering some preliminary answers to this query, I hope to problematize the frequently-acknowledged identification between Victorian literary realism and scientific discourse. George Levine, for instance, asserts that, "the epistemology that lay behind realism was empiricist, with its tendency to value immediate experience."¹ He further suggests that realism was "a method consonant with empirical science in that it was exploratory rather than definitive," implying that the realist novel itself could serve as a scientific experiment of sorts.² Lawrence Rothfield, meanwhile, has argued that realist authors and nineteenth-century scientists shared a common commitment to mimetic representation. In Rothfield's words, novels like George Eliot's *Middlemarch* (1871-2) approach medical objectivity with their "eschewing of supernatural explanation," "appeal to scientific standards of truth," and "reliance on empirical detail."³ The omniscient third-person narration present in many realist novels likewise resembles the objective, scientific detachment of Victorian medical writing. The realist narrator can even be likened to a physician who takes account of characters' "symptomatic" behaviors as part of a detailed character study.⁴

While acknowledging the complementary modes of representation observable in medical writing and realist fiction, I nonetheless contend that the romance and the Gothic novel possessed unique advantages in grappling with late-Victorian scientific subject matter. I am hardly the first to make such a case: Julia Reid has argued for the importance of *fin-de-siècle* discourses on evolution and degeneration to the development of late-Victorian romance, especially as practiced by Robert Louis Stevenson, while Kelly Hurley has explored the convergence between the Gothic and late-Victorian discourses on evolution and sexology.⁵ However, to the best of my knowledge, no one has yet inquired why the Gothic novel and the romance might be ideal mediums for exploring specifically neurological quandaries, the topic I address here.

To cite only two examples of this overlap between the neurological and the Gothic, I will turn briefly to the writings of Robert Louis Stevenson and Bram Stoker. Both authors received scientific training and later penned famous Gothic tales that hinged upon specific developments in cerebral localization theory. Stevenson, who briefly studied engineering before deciding upon a literary career, loosely based *Strange Case of Dr. Jekyll and Mr. Hyde* on two famous French case studies of dual personality whose “double lives” were widely discussed in French and British periodicals.⁶ In the late-nineteenth century, cases of dual personality were often attributed to bilateral brain hemisphere asymmetry. Victorian physiologists like Henry Holland, Arthur Wigan, and Charles Édouard Brown-Séquard argued that if one brain hemisphere was larger than the other, madness and criminality could result. Moral depravity and intellectual regression stemmed from an oversized right brain hemisphere, which supposedly housed primitive instincts and emotions (in stark contrast to the highly evolved left brain). While Jekyll

demonstrates rational, civilized, left-brained tendencies, his double, Hyde, exhibits atavistic traits and base passions characteristic of right-brain dominance. According to Victorian neurological thought, Dr. Jekyll would be guilty of allowing his right-brain tendencies to overwhelm his more highly evolved left-brain functions.

Bram Stoker, meanwhile, came from a family of successful physicians and obtained a master's degree in science from Trinity College, Dublin. His Gothic novel, *Dracula* (1897), contains references to prominent Victorian neurologists such as David Ferrier, John Burdon Sanderson, and William Carpenter. Moreover, Stoker's manuscript notes for *Dracula* demonstrate that he sought medical advice on head injuries from his brother, the distinguished physician Sir William Thornley Stoker, then president of the Royal College of Surgeons in Ireland. This advice was used to make the death scene of the insect-eating madman, Renfield, more scientifically accurate. It should come as no surprise, therefore, that *Dracula* tackles some of the thorniest philosophical issues raised by cerebral localization debates. Stoker's famous vampire and his minions exhibit semi-conscious, trance-like behaviors that owe much to late-Victorian interest in cerebral automatism and unconscious cerebration. According to late-nineteenth-century cerebral localization theory, semi-conscious reflex behaviors such as Lucy's sleepwalking, Dracula's daytime hibernation, and Mina's increasing somnolence could be traced back to the brain stem. The horror of Stoker's *Dracula* stems not just from the Count's repellant vampirism, but also from the looming threat that human beings might be soulless machines governed solely by physiological impulses.⁷

Educated readers of Stoker and Stevenson often saw past the monstrous and supernatural aspects of their tales and grasped the science upon which they were based.

These literary works even directly influenced late-Victorian scientific discourse. For instance, Stevenson's fictional "case" colored scientific work on multiple personality disorder written during the 1880s and 1890s by psychical researcher Frederic Myers and Scottish psychiatrist Lewis Bruce.⁸ These examples readily demonstrate that physicians and practitioners of what we would now call pseudo-sciences listened intently to what well-informed literary authors had to say.⁹ Rather than a one-way exchange of information between science and literature – science influencing literature or vice-versa – Victorian intellectual culture permitted a dialogic or circular conversation in which scientific researchers and literary authors were mutually responsive to one another.

I. Neurology and the Gothic

The Gothic genre is a highly contested literary mode, particularly with regard to its relationship with science. As Robert Mighall points out, the world view presented in Gothic fiction might initially seem at odds with late-Victorian scientific rationalism. "Horror fiction has a generic obligation to evoke fear or suggest mystery," Mighall reminds us, whereas "science ... attempts to contain fear and offer a rational explanation for all phenomena."¹⁰ This remark seem applicable to some Gothic tales, like Stoker's *Dracula*, where an authorial pose of scientific objectivity allows the reader to approach horrifying supernatural subjects with relative calm.

But Mighall's commentary overlooks the disturbing and frankly Gothic nature of some late-Victorian science. For instance, *fin-de-siècle* degeneration theories, which derived from Darwinian evolutionary thought, heralded an immanent biological apocalypse that would culminate in the extinction of mankind.¹¹ One might plausibly

maintain, therefore, that Gothic fiction drew some of its horrifying elements directly from contemporary science. For example, Kelly Hurley contends that late-Victorian Gothic fiction stood in “opportunistic” rather than oppositional relation to the sciences. Gothic novels, she claims, served both to aggravate and alleviate anxieties generated by nineteenth-century scientific discourses such as biology, evolutionary theory, sexology, and criminal anthropology.¹² The combined impact of these discourses destabilized prevailing ideas about what it meant to be human.

One might easily add neurology – specifically, cerebral localization theories -- to the list of *fin-de-siècle* scientific discourses that undermined a sense of a stable human identity. By suggesting that certain parts of the brain controlled specific emotions and behaviors, cerebral localization theories contradicted the popular belief in a unified soul or mind governing human action, thus narrowing possibilities for human agency. Even within the scientific community, controversy brewed regarding this seemingly mechanistic view of the mind. French physiologist Jean Pierre Marie Flourens numbered among many scientists who felt that pinpointing the cerebral origin of movements and thoughts apparently “undermin[ed] the unity of the soul, human immortality, free will, and the very existence of God.”¹³ Three decades later, scientist William Benjamin Carpenter likewise deplored the physiological reductionism of cerebral localization theory. Carpenter lamented that dividing up the brain into functional units offended religious conceptions of humanity and contradicted “the universal testimony of experience,” which would tend to suggest “the conception of an Ego as something unconditioned by material states and physical forces.”¹⁴

The pseudoscientific forerunners of cerebral localization theory, phrenology and phreno-mesmerism, proved equally disturbing to late-eighteenth- and early-nineteenth-century views of man's place in the universe.¹⁵ Phrenology, an early and rather clumsy attempt to correlate emotions, abilities, and behaviors with specific brain regions, was invented in the late-eighteenth century by Austrian physician Franz Joseph Gall (1758-1828). Gall convinced the scientific community that the brain was the organ of mind (a previously controversial notion) and further contended that the size of different regions of the brain was a reliable indicator of an individual's talents and personality traits.¹⁶ Since the skull takes its shape from the brain, Gall surmised, the surface of the skull could be read as an accurate indicator of aptitudes and tendencies. Gall's ideas rapidly caught on in Europe and spread to England and America via phrenological disciples like Johann Gaspar Spurzheim, George Combe, and O. S. Fowler. Phrenology and related discourses like phreno-mesmerism remained popular in England until at least mid-century, while in America they held sway even longer.¹⁷

Despite the widespread popular and scientific interest generated by Gall's theories, their originator was treated as a heretic. Gall was refused a Catholic burial and his works were placed on the Catholic *Index* of forbidden works because his ideas (particularly his assertion that the brain was the organ of mind) felt disturbingly materialist to his contemporaries.¹⁸ Severe as this reaction may seem, it was a predictable response to ideologically threatening concepts. As Alan Richardson has explained, phrenology and other Romantic-era theories of brain structure and function incited controversy because they called into question "the existence of the soul, the necessity of God, and the integrity of the self."¹⁹

Like late-Victorian cerebral localization theories, phrenology was often explored and exploited in Gothic fiction, beginning with Charles Brockden Brown in the late-eighteenth century and continuing well into the mid-Victorian era.²⁰ Edgar Allan Poe critiqued phrenological theories in short pieces such as “The Imp of the Perverse” (1845), while employing phrenological description in detective stories and Gothic horror tales such as “The Murders of Rue Morgue” (1841) and “The Fall of the House of Usher” (1839).²¹ Phrenological readings also figure prominently in mid-Victorian Gothic narratives like Charlotte Brontë’s *Jane Eyre* (1847) and *Villette* (1853), not to mention George Eliot’s sole foray into Gothic fiction, *The Lifted Veil* (1859).²²

Whereas phrenology was a dubious pseudo-science whose practitioners were frequently accused of quackery, the cerebral localization experiments performed after 1860 by Broca, Fritsch, Hitzig, Goltz and Ferrier were firmly grounded in the scientific method and widely regarded as cutting-edge research. Nonetheless, cerebral localization seems to have trailed an odor of Gothic mystery left over from its pseudoscientific predecessor. Perhaps this is because late-Victorian cerebral localization theories, like phrenological discourse, challenged revered assumptions about the soul, the will and the nature of God. But the association between cerebral localization and the Gothic may also have to do with the abrupt, brutal manner in which many laypeople first confronted cerebral localization theories and experiments in 1881.

In that year, famed neurologist David Ferrier was put on trial for allegedly violating the 1876 Anti-Vivisection Act. Ferrier’s trial was extremely well publicized, drawing unprecedented public attention and scrutiny to neurological theories and experimental methods. Since 1873, Ferrier had been performing experiments in which he

applied electrical currents to the brains of live monkeys, cats and dogs. He then studied changes in the animals' behavior once they awoke from anesthesia. The cortical maps Ferrier developed as a result of these experiments proved to be medical breakthroughs. For the first time, neurosurgeons could save lives by using functional maps of the brain to locate tumors, infections and skull fractures.²³ But to many members of the public, and to antivivisection activists in particular, Ferrier's experiments seemed unimaginably cruel. One opponent was Frances Power Cobbe, the leader of the antivivisectionist Victoria Street Society (the entity responsible for hauling Ferrier into court). In *The Modern Rack: Papers on Vivisection* (1889), Cobbe described the neurologist's experiments in frankly Gothic terms: "The experiments of Ferrier on monkeys and of Goltz on the brains of dogs involve different mutilations, with scooping out of the brains, till, in some cases, they resemble, as Goltz has said, a 'lately-hoed potato-field.'"²⁴

Antivivisectionists felt repulsed not only by the visceral details of the experiments, but also by their philosophical ramifications. That human brain function could be predicted on the basis of animal experimentation irrefutably demonstrated the similarity between men and beasts, reaffirming the disturbing conclusions of Charles Darwin's *The Origin of Species* (1859) and *The Descent of Man* (1871). More troubling still, Ferrier's ability to produce complex behaviors by applying electrical current to the brain suggested, in Laura Otis's words, that "there was nothing sacred about the human will, not even human consciousness."²⁵ After the trial, neo-Gothic novels like Wilkie Collins's *Heart and Science* (1883) and H.G. Wells's *Island of Dr. Moreau* (1896) invoked the specter of the Ferrier trials to generate fascination and horror.²⁶ Although Ferrier was eventually acquitted, the legacy of his trial was the association of cerebral

localization with inhumane experimental methods and disturbing philosophical conclusions.

If, as Hurley argues, the Gothic mode helped authors and readers come to terms with disturbing implications of scientific discourses, it makes sense that writers like Stoker and Stevenson turned to the Gothic while grappling with the fallout of neurological experiments. But these authors' contemporaries pointed out additional, equally plausible reasons why the Gothic should be the preferred mode for probing the uncharted territories of the human brain. Perhaps surprisingly, one argument in support of the Gothic came from the pen of psychologist William James, whose brother, arch-realist Henry James, famously contended with Stevenson over the relative merits of romance versus realism.²⁷ William James felt that nature was too baroque to be fairly depicted by linear narratives: "Nature is everywhere gothic, not classic. She forms a real jungle, where all things are provisional, half-fitted to each other, and untidy."²⁸ Scientific writing, he suggested, could force nature into uncomfortable linear narratives that seemed, at best, an imperfect fit. This tendency could be especially problematic when science treated tangled subjects like human psychology and brain function.

Along these lines, it is helpful to consider James's distinction between "classic-academic" and "romantic" types of imagination, both of which, he argued, were necessary to adequately describe human psychology:

The [classic-academic imagination] has a fondness for pure clean lines and noble simplicity in its constructions. It explains things by as few principles as possible and is intolerant of either nondescript facts or clumsy formulas. The facts must lie in a neat assemblage, and the psychologist must be enabled to cover them and

'tuck them in' as safely under his system as a mother tucks her babe in under the down coverlet on a winter night. Until quite recently all psychology, whether animistic or associationistic, was written on classic-academic lines. The consequence was that the human mind as it figured in this literature, was largely an abstraction. A sort of sunlit terrace was exhibited on which it took its exercise. But where the terrace stopped, the mind stopped...

But of late years the terrace has been overrun by romantic improvers, and to pass to their work is like going from classic to Gothic architecture, where few outlines are pure and where uncouth forms lurk in the shadows. A mass of mental phenomena are now seen in the shrubbery beyond the parapet. Fantastic, ignoble, hardly human, or frankly non-human are some of these new candidates for psychological description. The menagerie and the madhouse, the nursery, the prison, and the hospital, have been made to deliver up their material. The world of mind is shown as something infinitely more complex than was suspected; and whatever beauties it may still possess, it has lost at any rate the beauty of academic neatness.²⁹

Here, James was specifically discussing psychical researcher Frederick Myers, whose "romantic improvements" to the science of psychology included systematic inquiries into the possible existence of ghosts, spirit rapping, telepathy, and other forms of extrasensory perception. But James's Gothic or romantic imagination could just as easily be ascribed to writers of fiction like Stevenson or Stoker, who explored the human mind in all its troubling complication, without the artificially imposed linearity of mainstream scientific discourses. The monstrous creations of these authors numbered among the "Fantastic,

ignoble, hardly human, or frankly non-human” subjects that mainstream science approached obliquely, if at all. Writers of horror fiction, like psychical researchers, unearthed the dark, tangled corners of the human mind that seemingly had no place on Ferrier’s maps of the cerebral cortex.

Victorian Gothic fiction, then, could serve as a corrective to the overly streamlined world view of mainstream neurology. In contrast to the over-simplifying linearity of science, Gothic prose is snarled by multiple narrators, embedded texts, instances of doubling and mistaken identity, and numerous indications of narrative instability and unreliability. The realist novel, like a scientific narrative, typically adheres to a linear plot structure and employs a distancing, purportedly objective omniscient narrator; whereas the romance or Gothic opens up more immediate, sensational, and baroque possibilities.³⁰ In other words, it may be no coincidence that the convoluted narratives, subterranean passages, and involved storylines traditionally associated with the late-Victorian Gothic subtly remind us of the convoluted surfaces of the brain.

II. Neurology and the Romance

While the Gothic thus presented certain advantages in grappling with *fin-de-siècle* neurological subject matter, so did the romance, the favorite genre of Stevenson and H.G. Wells, among others. The romance, with its associations of “wish-fulfillment,” escapism, and fantasy, has typically been viewed as the polar opposite of the realist novel, with its emphasis on truthful representation.³¹ The late-Victorian romance exploited exotic settings, fast-paced, plot-driven narratives, and motifs of imprisonment, mazes, or entrapment. Additionally, romances often invoked some sort of “break in ordinary

consciousness” signaled by a shipwreck or quasi-magical transformation.³² Critics have tended to overlook the late-Victorian romance as a serious art form, possibly due to the perception that this genre, particularly in the hands of lesser practitioners like H. Rider Haggard or Anthony Hope, could serve as a vehicle for misogynist or imperialist sentiment.³³

But for a skilled and scientifically educated author like Stevenson, the romance bodied forth elements of late-Victorian evolutionary psychology, as Julia Reid demonstrates in *Robert Louis Stevenson, Science, and the Fin de Siècle*. In contrast to W.D. Howells and Henry James, who lauded realist novels for their intellectual sophistication, Stevenson celebrated the romance for its appeal to ancestral memory and its evocation of atavistic instincts and pleasures that are too often suppressed by modern living. The romance, Stevenson argued, spoke to the savage within us whose “nerves still tingle with . . . rude terrors and pleasures.”³⁴ While critics then and now have frequently dismissed Victorian romances as one-dimensional adventure stories for boys, Reid demonstrates how Stevenson's romances expressed the author's nuanced engagement with late-Victorian evolutionary psychology.

The romance resonated not just with Victorian evolutionary ideas, I suggest, but also with neurological concepts. Stevenson's arguments in favor of the romance hinge partly on its nervous impact on the reader, whose “nerves still tingle . . . with rude terrors and pleasures.” Like the Gothic novel or the sensation novels popular in the 1860s, the appeal and the controversy surrounding the romance had much to do with its possible effects on the nervous system.³⁵ The sensation novel, for instance, was frequently criticized for arousing distressing (or inappropriately pleasurable) somatic responses in

the reader, such as “Making the Flesh Creep, Causing the Hair to Stand on End, [and] Giving Shocks to the Nervous System.”³⁶

The romance, Stevenson contended, likewise involved the reader in “an unbroken round of pleasure and suspense” that could, and should, have an immediate and lasting nervous impact.³⁷ In “A Humble Remonstrance” (1884), Stevenson’s rejoinder to Henry James’s “The Art of Fiction” (1884), Stevenson described the emotional and physiological effects of the “novel of adventure:” “Danger is the matter with which this class of novel deals; fear, the passion with which it idly trifles.”³⁸ The novel is successful, he argued, “if our pulse be quickened.”³⁹ In “A Gossip on Romance” (1882), meanwhile, Stevenson described how a successful romance should arrest and hold our attention via arousing sensory stimuli:

We should gloat over a book, be rapt clean out of ourselves, and rise from the perusal, our mind filled with the busiest, kaleidoscopic dance of images, incapable of sleep or of continuous thought. The words, if the book be eloquent, should run thenceforward in our ears like the noise of breakers, and the story, if it be a story, repeat itself in a thousand coloured pictures to the eye.⁴⁰

In other words, late-Victorian romances, with subject matter ranging from adventure on the high seas to spine-tingling monstrosities, aimed to provoke an immediate, visceral reader response – specifically a *nervous* response appropriate to the neurological subject matter these romances often addressed.

The affinity between neurology and the romance emerges clearly in *Strange Case of Jekyll and Hyde*, Stevenson’s most profound engagement with late-Victorian cerebral localization theories. Not only does the 1886 “shilling-shocker” pleurably jangle

readers' nerves, it also immerses us in a detailed exploration of bilateral brain hemisphere asymmetry and its possible effects. Moreover, this particular Gothic romance became a means for Stevenson to at once mimic and critique the apparent objectivity of the medical case study. The typical Victorian case study commenced with an ostensibly objective third-person narrative, written by one or more scientists, with anecdotal and numerical evidence and illustrations appended toward the end of the piece. Stevenson's "Strange Case" begins with a third-person narrator writing mainly from the point of view of Gabriel John Utterson, the lawyer whose rational detective work resembles the research of a scientist author. The letters by Hastie Lanyon and Henry Jekyll at the end of the novella take the place of the concrete data placed toward the conclusion of the traditional nineteenth-century case study. In this instance, then, the fragmentary, epistolary structure of the Gothic romance neatly coheres with the traditional components of the case study. The difference between Jekyll's "Case" and a traditional case study, however, lies in the rapid breakdown of objectivity apparent in Henry Jekyll's letter, which reveals his descent into insanity and suicide. The rapid transformation of the objective doctor into abject patient allowed Stevenson to satirize the pose of objectivity beloved by nineteenth-century scientists.⁴¹

H.G. Wells, meanwhile, viewed the romance as an imaginative means of testing scientific hypotheses. In the introduction to a 1933 edition of his so-called "scientific romances," Wells described his method of focusing on scientific "impossibilities" played out in realistic, everyday settings.⁴² In works like *The Island of Dr. Moreau* (1896) and *The Time Machine* (1895), Wells concentrated on one hypothetical proposition, such as "how would you feel and what might not happen to you... if for instance pigs could fly

and one came rocketing over a hedge at you? ... or if you became invisible?"⁴³ Wells then isolated this imaginative "what if" question and made all other aspects of the story as realistic and commonplace as possible:

For the writer of fantastic stories to help the reader to play the game properly, he must help him in every possible unobtrusive way to *domesticate* the impossible hypothesis. He must trick him into an unwary concession to some plausible assumption and get on with his story while the illusion holds... as soon as the magic trick has been done the whole business of the fantasy writer is to keep everything else human and real. Touches of prosaic detail are imperative and a rigorous adherence to the hypothesis. Any *extra* fantasy outside the cardinal assumption immediately gives a touch of irresponsible silliness to the invention.⁴⁴

Wells's distinctive manner of crafting a romance strikingly resembles the scientific method, wherein one variable is tested against a series of controls. Perhaps this likeness should not surprise us, coming from an author who studied under Darwin's apologist, Thomas Huxley, at the Normal School of Science in South Kensington (later absorbed into the University of London).

In early scientific romances like *The War of the Worlds* (1898) and *The First Men in the Moon* (1901), Wells tested a specific neurological hypothesis with results both comic and terrifying. Wells was fascinated by the Lamarckian idea of unchecked brain evolution occurring at the expense of bodily strength and stamina. According to Lamarck's first law, expounded in *Zoological Philosophy* (1809),

Use of any organ gradually strengthens, develops and enlarges that organ ... while the permanent disuse of any organ imperceptibly weakens and deteriorates it, and progressively diminishes its functional capacity, until it finally disappears.⁴⁵

This logic still resonated with many *fin-de-siècle* scientists, for whom Darwin's theory of natural selection had not entirely supplanted the earlier Lamarckian concept of inheritance of acquired characteristics.⁴⁶ Wells imaginatively brought this Lamarckian evolutionary hypothesis to life in top-heavy creations like The Grand Lunar of *The First Men in the Moon*, whose enormous cerebrum dwarfs his stunted body, and the large-brained, merciless aliens of *The War of the Worlds*. These extraterrestrials' brains have rapidly evolved at the expense of their dwindling bodies – an evolutionary future Wells likewise envisioned for mankind, as he hinted ominously in *Man of the Year Million* (1893).⁴⁷

Though Wells and Stevenson employed the romance form quite differently, they both found it congenial to exploring neurological ideas, especially those derived from cerebral localization experiments. Both writers situated themselves in opposition to realism as practiced and theorized by Henry James, who argued that the aim of the novelist was to “compete with life” by offering a complex, painterly rendition of the social universe he observed around him.⁴⁸ Paradoxically, Wells and Stevenson found that departing from such truthful representation into the realm of fantasy allowed them greater freedom to ferret out scientific “truths” about the structure and function of the human brain. For these authors, Gothic romances that tested the limits of perception and imagination proved best suited to exploring the unmapped territories of the cerebral cortex.

In conclusion, the engagement with cerebral localization theories in late-Victorian Gothic novels and romances should not strike us as surprising or out-of-place. While the labyrinthine contours of the Gothic novel proved an ideal medium for exploring the brain's convolutions, the spine-tingling terrors and pleasures of the romance prepared readers to encounter the neurological subject matter these tales frequently broached. The historical associations between phrenology and the Gothic, the journalistic frenzy surrounding David Ferrier's 1881 trial, and the frighteningly atheistic philosophical ramifications of neurological discoveries likewise paved the way for a natural association between the late-Victorian Gothic and cerebral localization theory. Most importantly, perhaps, the convoluted narratives of the Gothic and the fantastical elements of the romance served as a corrective to the linear world view and inflexible objectivity of science. While scientists rigidly excluded subjective elements and inconclusive data from their studies, authors of Gothic romances freely explored the dark territories and uncharted regions of the brain.

- ¹ George Levine, *The Realistic Imagination: English Fiction from Frankenstein to Lady Chatterley* (Chicago: The University of Chicago Press, 1981), 18.
- ² Levine, *The Realistic Imagination*, 11.
- ³ Lawrence Rothfield, *Vital Signs: Medical Realism in Nineteenth-Century Fiction* (Princeton: Princeton UP, 1992), 120-121.
- ⁴ Jeremy Tambling fleshes out this analogy between realist narrator and physician in "Middlemarch, Realism, and the Birth of the Clinic," *ELH* 57.4 (Winter 1990): 939-960, 947-948.
- ⁵ See Julia Reid, *Robert Louis Stevenson, Science, and the Fin de Siècle* (New York: Palgrave Macmillan, 2006), chapters 1 and 2; and Kelly Hurley, *The Gothic Body: Sexuality, Materialism, and Degeneration at the Fin de Siècle* (New York: Cambridge UP, 1996), especially pages 3-20.
- ⁶ See Anne Stiles, "Robert Louis Stevenson's *Jekyll and Hyde* and the Double Brain," *Studies in English Literature: 1500-1900* 46.4 (Autumn 2006): 879-900.
- ⁷ See Anne Stiles, "Cerebral Automatism, the Brain and the Soul in Bram Stoker's *Dracula*," *Journal of the History of the Neurosciences* 15.2 (June 2006): 131-152.
- ⁸ Shortly after the publication of *Jekyll and Hyde*, Myers's article "Multiplex Personality" appeared in *The Nineteenth Century* 20 (November 1886), 648-66. Stanley Finger mentions Stevenson's potential influence on Lewis Bruce in *Origins of Neuroscience: A History of Explorations into Brain Function* (New York: Oxford UP, 1994), 396-7.
- ⁹ The word "pseudoscience" is used here with some reservations. Recent historical and literary criticism makes clear that many scientific discourses now regarded as illegitimate (such as mesmerism, phrenology, and psychical research) at one time garnered widespread support among medical practitioners. See, for example, Helen Small, Introduction to *The Lifted Veil and Brother Jacob* (New York: Oxford UP, 1999), ix-xxxviii, xviii n.20.
- ¹⁰ Robert Mighall, *A Geography of Victorian Gothic Fiction* (New York: Oxford UP, 1999), xxiv.
- ¹¹ William Greenslade, *Degeneration, Culture, and the Novel 1880-1940* (New York: Cambridge UP, 1994), 33-34.
- ¹² Hurley, *The Gothic Body*, 6.
- ¹³ Jean Pierre Marie Flourens, *Phrenology Examined* (1846), paraphrased in Anne Harrington, *Medicine, Mind, and the Double Brain: A Study in Nineteenth-Century Thought* (Princeton, NJ: Princeton UP, 1987), 9.
- ¹⁴ William Benjamin Carpenter, "On the Doctrine of Human Automatism: Part II," *Contemporary Review* 25 (1875), 941, 943. Carpenter famously invented the theory of "unconscious cerebration" that seemed to suggest that human beings were automata without free will. As one can see from this quotation, however, Carpenter remained ambivalent about the materialist implications of his own discovery.
- ¹⁵ The historical continuity between phrenology and cerebral localization theories is the premise of Robert Young's *Mind, Brain and Adaptation in the Nineteenth-Century: Cerebral Localization and its Biological Context from Gall to Ferrier* (New York: Oxford UP, 1990). Young suggests that Gall was asking the right questions about brain function, but coming up with the wrong answers since he used intuitive rather than scientific methods. Later researches like Ferrier, Goltz, and Jackson utilized more reliable experimental methods to find more accurate answers to the same basic questions about the brain (4, 9-53).
- ¹⁶ Young, *Mind, Brain, and Adaptation*, 3, 9.
- ¹⁷ Jenny Bourne Taylor and Sally Shuttleworth, eds, *Embodied Selves: An Anthology of Psychological Texts, 1830-1890* (New York: Oxford UP, 1998), 4-5.
- ¹⁸ Harrington, *Medicine, Mind, and the Double Brain*, 9n.
- ¹⁹ Alan Richardson, *British Romanticism and the Science of the Mind* (New York: Cambridge UP, 2001), 12.
- ²⁰ I am indebted to Alan Richardson for pointing out the literary connections between phrenology and the Gothic. Richardson, letter to the author, November 2, 2007.
- ²¹ Edward Hungerford, "Poe and Phrenology," *American Literature* 2.3 (November 1930): 209-231.
- ²² On phrenology in Brontë's fiction, see chapter two of Nicholas Dames, *Amnesiac Selves: Nostalgia, Forgetting, and British Fiction, 1810-1870* (New York: Oxford UP, 2001). On Eliot and phrenology, see B.M. Gray, "Pseudoscience and George Eliot's *The Lifted Veil*," *Nineteenth-Century Fiction* 36.4 (March 1982): 407-23.
- ²³ Finger, *Origins of Neuroscience*, 41, 438-9.

- ²⁴ Frances Power Cobbe, "Light in Dark Places," in *The Modern Rack: Papers on Vivisection* (London: Swan Sonnenschein, 1889), 210.
- ²⁵ Laura Otis, "Howled Out of the Country: Wilkie Collins and H.G. Wells Retry David Ferrier," in *Neurology and Literature, 1860-1920*, ed. Anne Stiles (New York: Palgrave Macmillan, 2007), 27-51, 31.
- ²⁶ See Otis, "Howled Out of the Country," 37-47.
- ²⁷ These debates originally took place in correspondence and essays written in the 1880s. Some of this material has since been republished in Janet Adam Smith, ed., *Henry James and Robert Louis Stevenson: A Record of Friendship and Criticism* (London: R. Hart Davis, 1948).
- ²⁸ William James, "Frederic Myers's Service to Psychology" (1901), in William James, *Essays in Psychological Research* (Cambridge, MA: Harvard UP, 1986), 201.
- ²⁹ William James, "Frederic Myers's Service to Psychology," 193-4.
- ³⁰ Admittedly, this distinction between "linear" realist narratives and "baroque" Gothic texts is something of an oversimplification. Levine, for instance, has pointed out the "underlying organicism" of the Victorian realist novel, highlighting the realist novel's concern with interrelationships both biological and social – a model more consistent with the web metaphors of Eliot's *Middlemarch* than with a more linear plot trajectory. He likewise points out the vitality and multiplicity of detail available to the realist imagination (*The Realistic Imagination*, 19, 21). Nonetheless, it still seems to me that the narrative devices employed most frequently in Gothic texts – embedded narratives, found manuscripts, multiple narrators, etc. – lend themselves more decisively to a "baroque" understanding of nature's complexities than the omniscient third-person narration typical of realist novels, which is clearly reminiscent of the detached, purportedly objective narration present in Victorian scientific writing.
- ³¹ Levine, *The Realistic Imagination*, 9.
- ³² Margaret Atwood, Introduction to *The Island of Dr. Moreau*, ed. Patrick Parrinder (New York: Penguin, 2005), xiii-xxvii, xviii-xix.
- ³³ Reid, *Robert Louis Stevenson, Science, and the Fin de Siècle*, 32.
- ³⁴ Robert Louis Stevenson, "Pastoral" (1887), qtd. in Reid, *Robert Louis Stevenson, Science, and the Fin de Siècle*, 20.
- ³⁵ Regarding the nervous impact of sensation fiction, see Jenny Bourne Taylor, *In the Secret Theatre of Home: Wilkie Collins, Sensation Narrative, and Nineteenth-Century Psychology* (New York: Routledge, 1988), especially the introduction; and Dames, *Amnesiac Selves*, 76-102.
- ³⁶ "The Sensation Times," *Punch* 44 (May 1863), 193, qtd. in Matthew Sweet, Introduction to Wilkie Collins, *The Woman in White* (New York: Penguin, 1999), xviii.
- ³⁷ Robert Louis Stevenson, "A Gossip on Romance," reprinted in *Memories and Portraits* (1887). Full text available at <http://www.gutenberg.org/dirs/etext95/mempo10.txt>
- ³⁸ Robert Louis Stevenson, "A Humble Remonstrance," in *Henry James and Robert Louis Stevenson: A Record of Friendship and Criticism*, ed. Janet Adam Smith (London: Rupert Hart-Davis), 86-100, 95.
- ³⁹ Stevenson, "A Humble Remonstrance," 90.
- ⁴⁰ Stevenson, "A Gossip on Romance," <http://www.gutenberg.org/dirs/etext95/mempo10.txt>
- ⁴¹ For more on *Jekyll and Hyde* as Gothic case study, see Stiles, "Robert Louis Stevenson's *Jekyll and Hyde* and the Double Brain," 888-891.
- ⁴² Wells referred to his early works as "scientific romances," but he was not the first to use the term, which originated with the lesser-known writer Charles Howard Hinton (Atwood, Introduction, xvii).
- ⁴³ H.G. Wells, Introduction to *The Scientific Romances of H.G. Wells* (London: Victor Gollancz, 1933), viii.
- ⁴⁴ Wells, Introduction to *The Scientific Romances of H.G. Wells*, viii (italics in original).
- ⁴⁵ Jean Baptiste Lamarck, *Zoological Philosophy: An Exposition with Regard to the Natural History of Animals* (Chicago: University of Chicago Press, 1984), 113.
- ⁴⁶ Daniel Pick, *Faces of Degeneration: A European Disorder, c. 1848-1918* (New York: Cambridge UP, 1989), 100-101.
- ⁴⁷ For more on Wells and Lamarckian brain evolution, see Anne Stiles, "Literature in Mind: H.G. Wells and the Evolution of the Mad Scientist," *Journal of the History of Ideas* (forthcoming 2008).
- ⁴⁸ Henry James, "The Art of Fiction," in *Henry James and Robert Louis Stevenson: A Record of Friendship and Criticism*, ed. Janet Adam Smith (London: Rupert Hart-Davis, 1948), 53-80, 56.