

Fictions of Medical Minds: Victorian Novels and Medical Epistemology

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In most contexts, scientific or otherwise, we are likely to place our greatest confidence in reasoned thinking: controlled, sequential, goal-oriented thought can be reduplicated, articulated, analyzed, and in most cases taught to others. The lack of these qualities, conversely, tends to make us suspicious, especially when nonreasoned or non-deliberate, thinking serves as a basis for decisions and actions. Yet recent work in the cognitive sciences is giving more credence and attention to intuitive cognition mechanisms, to types of mental processing that are variously called “creative,” “quasi-rational,” “divergent,” “intuitive,” “latent,” “tacit,” and even “unconscious.”¹ These two approaches—creative versus reasoned thought—may not be as distinct as they might seem. In fact, scientists since at least the nineteenth century have been interested in whether there is a spectrum between tacit and deliberate systems of knowledge, and whether these systems may at times even work together to produce learning and action. Victorian writers, responding to nineteenth-century developments in mental science, began to take nonreasoned thought seriously and to weigh its value in medical and scientific problem solving, as well as in everyday actions and decisions.

Mid-nineteenth-century advances in physiological psychology led both scientists and nonscientists to consider whether there is a third way between reason and emotion, between thinking and feeling: Is there a type of thought, a kind of “thinking without thinking,” that can serve as an epistemological alternative to reasoned and logical thought?² The concepts of experience and habit became integral to conceptualizing an alternate epistemological strategy—one that does not rely on reason and logic, but forms a less purposeful cognitive process. Victorian novelists and scientific writers alike were engaged in probing



the possibilities, realities, and dangers of nondeliberate thought, turning to the emphasis on experience in medical practice as a possible model for integrating tacit knowledge.

In his autobiography, Herbert Spencer recounts a conversation with Marian Evans, the novelist who wrote under the name George Eliot, in order to explain a certain "habit of thought."³ Remarking on how much work and thought must have gone into his recently published *Social Statics, or the Conditions Essential to Human Happiness* (1851), George Eliot said she "was surprised to see no lines on [his] forehead." "I suppose it is because I am never puzzled," he answered, to which she exclaimed, "O! that's the most arrogant thing I ever heard uttered."⁴ Spencer sets out to redeem his startling comment, arguing:

My mode of thinking does not involve the concentrated effort which is commonly accompanied by wrinkling of the brows. . . . It has never been my way to set before myself a problem and puzzle out an answer. The conclusions, at which I have from time to time arrived . . . have been arrived at unawares—each as the ultimate outcome of a body of thoughts that slowly grew from a germ. . . . Little by little, in unobtrusive ways, without conscious intention or appreciable effort, there would grow up a coherent and organized theory. Habitually the process was one of slow unforced development, often extending over years; and it was, I believe, because the thinking done went on in this gradual, almost spontaneous way, without strain, that there was an absence of those lines of thought which Miss Evans remarked.⁵

The process Spencer describes takes place without "conscious intention" or "appreciable effort"; furthermore, he argues, this mode of thinking—what we might call "thinking without thinking"—is more likely to yield true results than would determined reasoned thought in search of a solution. "An effort to arrive forthwith at some answer to a problem," he writes, "acts as a distorting factor in consciousness and causes error," whereas "a quiet contemplation of the problem from time to time, allows those proclivities of thought which have probably been caused unawares by experiences, to make themselves felt, and to guide the mind to the right conclusion."⁶ Spencer here echoes some of the mental science of the period, which held that experience shapes the mind and leads it to perform certain functions automatically, through habit. We may be unaware of how habits of mind are formed by experience, recognizing these "proclivities of thought" only as a kind



of unarticulated “feeling” that guides our decisions and actions. It is thus that valuable insights, according to Spencer, can simply occur to us. Concerted reason, the determined action of the brain, is thereby relegated to a secondary position, especially for some sorts of innovative thinking and problem solving.

Spencer’s argument may seem deeply counterintuitive since it questions the most basic assumptions not only of how our reason works but also, ultimately, of our sense of agency, responsibility, and self-determination as an individual. One of the most provocative aspects of the kind of “thinking without thinking” that he describes is that it seems to require that one relinquish control over as well as knowledge of one’s own thoughts. This is certainly a far cry from psychological orthodoxy and its near equation of consciousness, thought, and identity: for example, in *An Essay Concerning Human Understanding*, John Locke, whose ideas laid a crucial groundwork for future British empiricists, wrote that a person “is a thinking, intelligent Being, that has reason and reflection, and can consider itself as itself, the same thinking thing in different times and places; which it does only by that consciousness, which is inseparable from thinking, and as it seems to me essential to it. . . . Consciousness always accompanies thinking, and ‘tis that, that makes every one to be, what he calls *self*.”⁷ In the nineteenth century, British mental science began to question the traditional equation of consciousness and thought, arguing that there are many mental processes of which we are not conscious that nonetheless influence our behavior.

To propose the value of reflexive, nondeliberate thought, of “thinking without thinking,” as Spencer does, furthermore challenges the assumption that conscious reason is at the core of human identity, the highest achievement of mental evolution. The lack of effort, or work, involved in this type of thought has unsettling corollaries. One only has to think of the debate that took place later in the century, in 1878, between the painter James McNeill Whistler and the critic John Ruskin. Whistler sued Ruskin for libel, after the latter had accused Whistler in a scathing review of asking “two hundred guineas for flinging a pot of paint in the public’s face.”⁸ When the judge at the London trial asked how the painter dared ask such a large sum for a “Nocturne” that had taken him at most two days to paint, Whistler replied that the fee was not for the work of two days, but for “the knowledge of a lifetime.”⁹ Whistler’s process may indeed have been without effort, even easy, and have come to fruition spontaneously, even as it was also the product of a longer, submerged process. Whistler explains in



The Gentle Art of Making Enemies that “the work of the master reeks not of the sweat of the brow—suggests no effort—and is finished from its beginning.”¹⁰ In thus refuting the implication that his work could not be worth much if it were effortless, if in other words his brow remained uncreased, he is in effect recalling the problem that Spencer addressed in the passage quoted above. The concept of nondeliberate thought demanded a redefinition of the value of work, effort, and responsibility.

In the nineteenth century, the application of physiology to ideas of psychology helped scientists articulate an alternate theory of “thinking.”¹¹ Psychologists suggested that there are automatic and reflexive mental processes that take place independently of consciousness. Physiologists discovered that most reflexes do not have to travel to the brain to be processed, which is why they take place so quickly, often involving a very simple nervous pathway called, then and now, a reflex arc. Mid-nineteenth-century theorists applied this concept of the reflex arc to the mind. The most popular term to describe such automatic mental action was the perhaps infelicitous coinage “unconscious cerebration,” first used by William B. Carpenter in 1854.¹² Yet no one term became dominant; instead there was a proliferation of terms, including “reflex thought,” “latent thought,” “latent consciousness,” “obscure perception,” “the hidden soul,” “reflex action of the brain,” “unconscious psychical activity,” “unconscious psychical processes,” and “unconscious sensual and volitional processes.”¹³ With some minor variation in detail, these terms describe more or less the same phenomenon: mental processes that function outside consciousness.

The central claims of unconscious cerebration were (1) that it can work automatically and, above all, more quickly and efficiently than our conscious mind; (2) that it can affect our behavior in ways of which we are not aware; and (3) that it can operate in a different way from reason, taking place on a nonverbal level, prior to articulation. Many mid-nineteenth-century psychologists supported a “continuity” theory in which consciousness could be understood only as forming a continuum with emotions and, ultimately, reflexes.¹⁴ In his 1844 address to the medical section of the British Association for the Advancement of Science, for example, Thomas Laycock argued that “automatic acts pass insensibly into the reflex, the reflex into the instinctive, the instinctive into the *quasi* emotional, the emotional into the intellectual.”¹⁵ Rather than emphasizing the irrational or the pathological, as do some Romantic (and to some extent Freudian) accounts of the unconscious, Victorian mental scientists made the startling claim that the mind performs not



only mundane tasks, but also some of its most complicated work, mechanically, independent of our will or direction.¹⁶ Victorian physiological theories of “thinking without thinking” maintain that these unconscious mental processes may even be the source of some of our most complex decisions and problem-solving experiences. Throughout the writing of the period—scientific and nonscientific, medical and nonmedical, fictional and nonfictional—nonreasoned thought is described as less purposeful, perhaps more playful; as leisurely and fragmentary, rather than marked by earnest effort; and, ultimately, as taking place wholly outside of consciousness.¹⁷ Yet it was regarded as no less valuable than concerted reason, and was often considered more efficient.

At the center of most standard epistemologies, even today, is the choice-making, knowledge-seeking human agent, whose volition shapes the world, or at least the personal world. Conscious reason might be the apotheosis of the self, but Victorians grappled with its mysterious, sometimes more inspired but less controllable shadow; the idea of nondeliberate, nonreasoned thought presented a challenge to the everyday view of the mind and how it worked. What sets the Victorian concept of unconscious cerebration apart from other conceptions of the unconscious (including the Freudian) is the assertion that the unconscious is not merely a hidden impulse that influences the conscious mind in surprising ways but that it functions as an alternative to reason—it is an epistemological tool. The interest in “thinking without thinking” in the Victorian period was in part fueled by the possibility that the unconscious might offer an alternative epistemology or a new paradigm for the pursuit of knowledge. Victorian thinkers pursued this epistemology as a practice of learning and of coming to know, arguing that it could be trained, guided, and improved.

Victorian novelists worked as hard as scientists to gain some purchase on this idea. The most common use of “thinking without thinking” in nineteenth-century fiction is in instances of sudden realization. The reflexive mind pieces together facts observed, but perhaps not noticed, in a way that has eluded the conscious mind. Wilkie Collins, best known for his early detective novel *The Moonstone* (1868) and his gripping sensation novels, such as *The Woman in White* (1859), drew on this alternative model of mind in much of his work. His novels are immersed not just in psychology, but in chemistry, biology, and medicine—so much so that Henry James quipped that Collins’s novels are “not so much works of art as works of science.”¹⁸ A typical example of “thinking without thinking” occurs in his novel *No Name* (1862) when one of his characters, Mrs. Lecount, thinking back on her day



as she is falling asleep, suddenly realizes that a woman who visited her in disguise that day was someone she knows:

As soon as the candle was out, the darkness seemed to communicate some inexplicable perversity to her thoughts. They wandered back from present things to past, in spite of her. . . . At this point her thoughts broke off once more, and there was a momentary blank. The next instant she started up in bed; her heart beating violently, her head whirling as if she had lost her senses. With electric suddenness, her mind pieced together its scattered multitude of thoughts, and put them before her plainly under one intelligible form. In the all-mastering agitation of the moment, she clapped her hands together, and cried out suddenly in the darkness: "Miss Vanstone again!"¹⁹

Mrs. Lecount begins by thinking associatively, but she soon moves to unconscious cerebration, marked by the point that is described as a "momentary blank"; rather than going from thought to thought (as associative logic would have her do), her mind now seems to have a power independent of her will, creating an "intelligible form" and "put[ting] [it] before her plainly." Her thoughts move "in spite of her," actually defying her own desire. The experience is physical in its intensity, "her heart beating violently," and is accompanied by a kind of dislocation, "her head whirling as if she had lost her senses." As in many examples of unconscious cerebration portrayed in psychological studies of the time, Mrs. Lecount's experience comes "with electric suddenness"; in an "instant," her mind recognizes the right configuration of things already known.²⁰ The process is unlike rational thought, the narrator notes, since Mrs. Lecount is "quite incapable of tracing the mental processes which had led her to discovery."²¹ In other words, she cannot voluntarily, through conscious efforts of her own, follow or reproduce the steps. This is a classic example, in which a decision or recognition takes place while the mind is not aware and does not register the process until after the fact. In the popular language of our own time, we might call this kind of sudden realization or piecing together of knowledge a "eureka" moment, or, in the more vivid German formulation, an "Aha-Erlebnis."²²

It is hardly a coincidence that one of the first of Collins's characters to identify and describe the "thinking without thinking" phenomenon explicitly is deeply immersed in the medical field. Ezra Jennings, in *The Moonstone*, is a doctor's assistant who has been working for some years on "a book on the intricate and delicate subject of the brain and



the nervous system."²³ A well-thumbed copy of Carpenter's *Principles of Human Physiology, with Their Chief Applications to Psychology* among his dingy medical books shows him to be a physiological psychologist. As he watches at the bedside of the delirious Dr. Candy, Jennings is inspired by the repetition of some phrases in the doctor's febrile mutterings to put his new theories of brain disease to the test. He hypothesizes that even though Candy's ability to reason intelligently is suppressed and compromised, it is possible that some form of brain activity continues, that the brain continues to work, albeit outside of consciousness. He makes a detailed transcription of all "that had dropped unconsciously from the lips of the suffering patient."²⁴ Jennings's method, which he compares to a childlike play of simple trial and error, is certainly less systematic than the deductive reasoning of the type that is most often associated with the detective figure (a role he eventually takes on in this novel). Instead, he assumes that even nonreasoned thoughts and expressions have a logic to them, allowing him to fill in the gaps with a bit of interpretative guesswork. He takes the disconnected mutterings, fills in the blanks, and transforms them into clear narrative. What he discovers is that the patient's seemingly incoherent stammering is actually unconscious cerebration, albeit externalized and verbalized. The novel suggests that the boundaries between literary and medical ways of observing reality are not hard and fast.

"Thinking without thinking" is repeatedly shown to aid recalcitrant memory and bring to attention details and connections that the mind has initially missed. It is also portrayed as the helpmate of reason, yielding more or less the same outcome, thus playing an important role in determining the right course of action. Furthermore, it is connected with creative inspiration: the rapid cognition of the unconscious allows the artist to make a creative leap. "Thinking without thinking" is in these instances, as in Spencer, wholly positive, leading to richer, faster, less labored ideas and recognitions.²⁵

In the Victorian novel, however, "thinking without thinking" is shown as not only presenting us with fully formed and unlabored, and yet more insightful, knowledge but also to affecting our actions or decisions, often unexpectedly. James begins his novel *The American* (1876-77) with the decision of his main character, Christopher Newman, a successful businessman, to break from his financial affairs and travel to Europe. It is a life-changing decision, yet Newman seemingly makes it without premeditation and without in the least understanding his own motives. He is heading into town, bent on making a steal on a business competitor, when, in an instant, without being able to explain his reasons, he finds he has reconsidered his plan. As he recounts it:



"I jumped into a hack and went about my business, and it was in this hack—this immortal, historical hack—that the curious thing I speak of occurred. It was a hack like any other, only a trifle dirtier, with a greasy line along the top of the drab cushions, as if it had been used for a great many Irish funerals. It is possible I took a nap; At all events I woke up suddenly, from a sleep or from a kind of reverie, with the most extraordinary feeling in the world—a mortal disgust for the thing I was going to do. It came upon me like *that!*"—and he snapped his fingers—"as abruptly as an old wound that begins to ache. I couldn't tell the meaning of it; I only felt that I loathed the whole business and wanted to wash my hands of it. The idea of losing that sixty thousand dollars, of letting it utterly slide and scuttle and never hearing of it again, seemed the sweetest thing in the world. And all this took place quite independently of my will, and I sat watching it as if it were a play at the theatre. I could feel it going on inside of me. You may depend upon it that there are things going on inside of us that we understand mighty little about."²⁶

Like many instances of unconscious cerebration, Newman's takes place in an almost altered state of mind, beyond the limits of conscious control, as he is emerging from "sleep" or "reverie." The suddenness of the experience—"like *that!*"—recalls the lightning-like flashes of recognition so often described by the nineteenth-century physiological psychologists: realization "flashes out of latency into consciousness."²⁷ Newman's claim that he could "feel it going on inside" him makes it sound more like a physical process than a mental one. The decision itself is hardly rational—to think of losing sixty thousand dollars as the "sweetest thing in the world" is hardly the usual choice for a successful businessman—and he admits, even after the fact, "I couldn't tell the meaning of it."²⁸ Like the quintessential examples of unconscious cerebration offered by Victorian mental scientists, the process of Newman's change of heart defies rationalization.

Some twenty years after publishing the novel, James describes in his "Preface to *The American*" how he got the "idea" of the novel (what he elsewhere calls, like Spencer, "the germ"): when sitting in an "American 'horse-car'" all of a sudden, practically by "miracle," he hit upon the central question and thus the plot of his "story."²⁹ James's description of his experience in the real-life cab is remarkably similar to the fictional cab episode:



It had come to me, this happy, halting view of an interesting case, abruptly enough, some years before: I recall sharply the felicity of the first glimpse, though I forget the accident of thought that produced it. I recall that I was seated in an American "horse-car" when I found myself, of a sudden, considering with enthusiasm, as the theme of a "story," the situation . . . and I remember well how, having entered the horse-car without a dream of it, I was presently to leave that vehicle in full possession of my answer.³⁰

As in the fictional cab scene, the process described in the real-life scene is nonvolitional, not conscious, sudden, and hard to explain; jumping into a cab, James is all at once aware of having the essential components for a story. Rather than reasoning out the crux of his story, he finds himself thinking about it "with enthusiasm." The unconscious, then, is not only the novel's starting point and theme, but also the source of the novel's creative inspiration. Surprisingly, James does not in any way acknowledge the similarity between his own experience and the scene in the novel. Could it be that he draws on the same image some twenty years later through unconscious cerebration?

That James was thinking in terms of the "new psychology" becomes clear in the next, and much better known, paragraph of the preface, in which he recounts how he put the idea of the story aside to allow it to develop through the mental process of unconscious cerebration:

I was charmed with my idea, which would take, however, much working out; and precisely because it had so much to give, I think, must I have dropped it for the time into the deep well of unconscious cerebration: not without the hope, doubtless, that it might eventually emerge from that reservoir, as one had already known the buried treasure to come to light, with a firm iridescent surface and a notable increase of weight.³¹

The two main ideas in this paragraph—of a "reservoir" in the mind and of the growth of an idea to fruition in that reservoir—come directly from contemporary psychology.³² James's description suggests, as the new psychology also argued, that experiences not immediately present to awareness nonetheless linger and develop in a physical "reservoir." Carpenter, for example, maintains that in this state such experiences can still affect our actions and decisions without our realizing it; though inaccessible to consciousness, they remain central to processes that stand outside rational control, especially to artistic processes.³³



In his *Principles of Human Physiology*, Carpenter provides a number of examples of artists experiencing their creative process in terms of unconscious cerebration. He cites claims by authors such as Charlotte Brontë that the development of a story or character may occur outside the conscious efforts of the author and arise to awareness as a kind of striking revelation. He argues that composers, like novelists, also experience unconscious elements in the creation of their works. Of Mozart, for example, Carpenter writes, "The whole of a Symphony or an Overture would develop itself in his mind, its separate instrumental parts taking (so to speak) their respective shapes, without any *intentional* elaboration. In fact, the only exercise of Will that seemed to be required on his part, consisted in the noting-down of the composition when complete."³⁴

As in the example that Spencer gives, it is a question not simply of mental processes that follow a line of logic already begun or that recombine ideas already available to consciousness, but of complex and original creative products. Carpenter attempts to distinguish this sort of mental processing from Romantic ideas of intuitive genius: such a distinction seems necessary in order to preserve the ideas of volitional power and pragmatic training. He maintains that the automatic mental work "takes place on the lines preciously laid down by volitional direction; being exactly parallel, in the case of cerebral action to that secondary or acquired automatism, by which particular kinds of movement, originally acquired by 'training,' come to be performed 'mechanically.'"³⁵ This "inner life" of the cerebrum is also the source, he states, of new "creations" of the mind, a "*construction of new forms* by a process which, if it had been carried on *consciously*, we should have called Imagination."³⁶

Despite these largely positive effects of nonreasoned thought, there is something inherently disturbing about "rapid cognition" or "thinking without thinking." In general, we do not like to be subject to forces, even from within ourselves, that elude not only our control but also our awareness. We cannot simply dip into the well of unconscious cerebration when we choose. This means that whereas one of the values of reasoned decision-making is its transparency and (in today's terms) "accountability," "thinking without thinking" remains opaque and less amenable to explicit analysis. By far the most sophisticated and complex treatment of the flip side of "thinking without thinking" emerges in the novels of the latter part of the century. While there are innumerable happy instances, such as the Mrs. Lecount passage from Collins, in which a character makes a connection or recognition that had



previously eluded him or her, there are also much more probing and unsettling examples of unconscious cerebration. These more troubling instances tend to occur at crises in the plot; they mark a moment of decision, a turning point in the story that is often the basis for moral judgment and the action that flows from it.

To take just one such example: at the beginning of *The Mill on the Floss* (1860), George Eliot repeatedly calls attention to the way in which involuntary thoughts turn the mind into a passive spectator of its own operations. The main character, Maggie Tulliver, experiences her own actions as if they take place independently of any active will or intentional direction; she only gains full consciousness of them after the fact. When, for example, she forgets to feed her brother's rabbits as she has promised, she is certainly sorry, but does not take full responsibility for her absentmindedness. Told that the rabbits have starved, she exclaims, "Tom told me to be sure and remember the rabbits every day—but how could I, when they did not come into my head, you know?"³⁷ By means of several instances like this early in the novel, George Eliot outlines some key problems for individual responsibility that result from our lack of control over the thoughts that do or do not enter our heads. The implication is that our actions may at times not be guided by conscious thoughts at all.

Nonetheless, many nineteenth-century thinkers emphasized that the mind is not captive to its mechanisms, but can gain a measure of control over its reflexive actions through the training of habit and attention. The Victorian psycho-physiologists argued that good intuitions, even reflexive moral judgments, can be acquired by years of training.³⁸ In his memoir, Frederic Harrison recalls George Eliot jumping up on one occasion and saying, "Yes! the day will come when it will be a natural instinct to stretch out a hand to help one who needs support, as automatic and irresistible as it is now to use our hands to keep ourselves from a fall."³⁹

It is this interest in assimilating nondeliberate thought into a pragmatic guide to moral action that sets the mid-nineteenth-century idea of the unconscious apart from what many have come to identify as the Freudian unconscious—namely, a sort of dungeon of the mind that threatens reason and control. While Freud emphasized the importance of conscious or unconscious impulses, wishes, and desires (and the reception of Freud perhaps seized especially on the sexual and taboo aspects of these impulses), the Victorian new psychologists sought to maintain the purity of that inner world. They argued that unconscious cerebration is the source not only of some of our most



sophisticated thinking but also of some of our most moral behavior. Whereas psychoanalytic theory tends to minimize the physiological aspects of mental phenomena and processes, the Victorians viewed the physiological concept of reflex as offering a model of mental processing that can function automatically and yet be influenced by education, control, and guidance.⁴⁰ Another important distinction between these two views rests upon whether “thinking without thinking” can or should be made conscious. Most post-Freudian psychology believes that the path to self-knowledge leads inward, penetrating the haze that obscures our true motives and feelings and bringing into consciousness that which is unconscious. While the means of gaining access to the unconscious from a Freudian perspective is not a simple process—it requires, for example, an analyst and sophisticated dream work—the assumption is that insight into the self is possible: “It is the task of the analyst,” writes Anna Freud, “to bring into consciousness that which is unconscious.”⁴¹ The mid-nineteenth-century concept of unconscious cerebration, by contrast, does not aim for the retrieval or the making conscious of the unconscious processes of the mind, but rather aims at learning to heed the knowledge and insights that it yields and to use them to advantage.

The Victorian idea of “thinking without thinking” has perhaps more in common with today’s interest in rapid unconscious thought within the cognitive sciences. The nineteenth-century concept of unconscious cerebration is a portmanteau term that describes a group of nonanalytic decision methods, including, in today’s terminology, mental short cuts, internalized skills, what Gerd Gigerenzer calls “fast and frugal heuristics,” and what Antonio Damasio refers to as “somatic markers,” a sort of “gut feeling” or emotional encoding in the brain.⁴² These ideas have led to a redefinition of the role of rationality within cognitive science, treading a path between irrationality and reason much like the one the Victorians sought. Nineteenth-century literature, both scientific and nonscientific, reflects an interest in articulating a way of knowing that transcends the limits of conscious knowing and the directed pursuit of knowledge. Victorian writers such as Laycock and Carpenter advocated training and improvement of the mechanisms of “latent thought” in much the same way that cognitive scientists today are working toward articulating practical “heuristics” and theories of decision making that capitalize on the adaptive unconscious.

Discussions of “thinking without thinking” in the nineteenth century might be said to have laid the foundation not of a science but of a practice, since an epistemological paradigm of nondeliberate thought,



what we might call a “conjectural paradigm,” is by its nature not the systematic sorting through of information in pursuit of a solution and theory.⁴³ Given the emphasis on practice, it is perhaps no coincidence that some of the earliest articulations of unconscious cerebration in the nineteenth century came from the medical community. Clinical medicine offered novelists what Laurence Rothfield in *Vital Signs: Medical Realism in Nineteenth-Century Fiction* calls an “epistemic orientation.”⁴⁴ Yet while Rothfield maintains that realist authors modeled themselves after doctors, borrowing cultural authority from the distanced, all-seeing gaze of the clinician, I believe that Victorian novelists drew on a conception of the doctor that, by contrast, emphasizes the integration of nonreasoned thinking into medical practice.⁴⁵ The difference lies in understanding the role of the “clinician” less as implying a scientific detachment, as Rothfield views it, than as referring to the daily practice and experiential basis of the art of medicine. Both of these views of the medical practitioner were under debate in the nineteenth century: as Rick Rylance argues, the nineteenth-century medical practitioner’s ability to sort enormous amounts of complex data, not dissimilar to the method of “literary practitioners,” was under siege as an ideal of medicine.⁴⁶ Tacit knowing, or “thinking without thinking,” was not only an object of medical inquiry, but also came to be a model through which to understand the methods of medical practice itself.

In some ways today’s debates over the nature of medical knowledge as it relates to other kinds of knowledge and practice are more complex and contentious. In the nineteenth century, medical knowledge of disease was largely rooted in experience and practice; it was often conjectural and only began to aim at the exactness of the natural sciences of today. The current medical field—with its emphasis on epidemiological and statistical methods and its adherence to randomized controlled trials—is nonetheless debating the priority given to research-based evidence over clinical knowledge. “Evidence-based medicine,” defined as “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients,” has been heavily criticized as representing a narrow reductionism that ignores clinical judgment and experience.⁴⁷ Critics argue that it is important to include other dimensions of clinical practice, such as narrative-based medicine and tacit knowing.⁴⁸

At the heart of this debate is the question of the nature of medicine. Is medicine simply a branch of the human sciences?⁴⁹ Or is it strictly speaking not a science, but a practice of applied knowledge—what some call an “art of medicine”? The conception of medicine as an “art”



rather than a “science” appeals to the importance of hard-to-quantify elements such as the role of individual experience, the clinician’s empathetic understanding, and the value of nondeliberate thought. Research in cognitive science on nonreasoned thought is increasingly giving more legitimacy to these aspects of medical practice, which are hard to duplicate, quantify, and analyze. Certainly, as soon as clinical or experiential knowledge—rather than research-based knowledge—is acknowledged as playing a significant role in good medical practice, we are taking one step closer to the kind of conjectural paradigm that “thinking without thinking” suggests. The understanding of thought processes involved in medical practice and decision making, what we might call “medical epistemology,” is thus increasingly being brought into conjunction with theories of nonreasoned thought. Bolstered by work in cognitive science on the central role of “thinking without thinking” in complex as well as everyday decisions, the concept of nondeliberate thought is today gaining traction in terms that echo the nineteenth-century insistence on unconscious cerebration as a positive and pragmatic problem-solving mode.

While “thinking without thinking” may be an integral part of a healthy mind, one of the most intriguing aspects of the phenomenon is that some individuals appear to do it better than others. Indeed, one of the main qualifications of nondeliberate thought as an alternative model of knowledge is that it is a knack that can be acquired and practiced. Tacit knowledge, and learning to heed it, has become an important value in the training of experienced doctors. Psychologists and cognitive scientists today are trying to chart the nature and power of this intricate and ill-defined mode of thought; they have found that it can recognize and learn patterns of a degree of subtlety that normal consciousness cannot even see. It can make sense of situations too complex to analyze. It can detect and respond to subtle meanings that cannot be articulated.⁵⁰ Current discussions of the nature of medical practice have seized on this recent work to give increased support to a conceptualization of medical knowledge that is based on both experience and practice.

For the most part Victorian novelists were not concerned with making new contributions to psychological theory—they were more concerned with exploring the social, the ethical, the philosophical, and the narrative implications of the new science of mind. Nonetheless, they worked in concert with medical and psychological writers in expanding and recasting the idea of the nature of “thought.” Janis McLarren Caldwell has convincingly used medical case histories of



the first half of the nineteenth century to show the complicated ways in which narrative and scientific forms of knowledge are brought in contact with one another. She argues that literary and medical writers were allied in one project, “that of negotiating between two distinctly different ways of knowing—between, that is, personal experience and scientific knowledge of the natural world.”⁵¹ While Caldwell does not address this aspect of nineteenth-century medical psychology, the debates over the potential for tacit systems of knowledge and the legitimization of intuitive cognition mechanisms are certainly part of the larger project that she describes. Cutting across different modes of investigation—literary, medical, and scientific—nineteenth-century writers worked in tandem to explore specifically the potential for models of nonreasoned thought.

The central question is perhaps whether Victorian narrative fiction not only puts the epistemology of the new psychology and its interest in “thinking without thinking” to the test, but also operates in a similar epistemological mode, and whether, to take it one step further, fiction becomes for readers a way of practicing and training lateral thinking.⁵² Ezra Jennings’s method, for example, which in fact solves the mystery of the moonstone, is certainly both that of the novelist, who creates a coherent narrative, and that of the physician, whose experience enables him to hit upon a diagnosis. The similarity is not so much a strict homology between clinical medicine and fictional realism in the Victorian period, but rather an overtly close resemblance between the epistemological modes of doctor and novelist that arises from the interplay of disciplinary discourses in the nineteenth century. Both modes “thread the hidden pathways of feeling and thought,” as George Eliot’s narrator in *Daniel Deronda* aims to do, and through a process of “thinking without thinking” end up “thinking with stories.”⁵³ The engagement of Victorian novelists with problems of nonreasoned thought offers a fruitful basis for rethinking questions of cognitive science and clinical medicine today.

NOTES

1. Michael Polanyi first popularized the term *tacit knowledge* in 1966 (see Polanyi, *The Tacit Dimension*). The term *quasi-rational* has taken hold particularly in the field of economics (see Thaler, *Quasi Rational Economics*) and in work that engages both economics and cognitive research. For an overview of recent cognitive studies on quasi-rational thought processes, see Lee, “Neural Basis of Quasi-Rational Decision Making.”



2. I borrow the phrase “thinking without thinking” from Malcolm Gladwell’s book *Blink*.

3. Spencer, *An Autobiography*, 1:462.

4. *Ibid.*

5. *Ibid.*, 1:462–3.

6. *Ibid.*, 1:465.

7. Locke, *An Essay Concerning Human Understanding*, Book II, chap. 27, §9, 335 (Locke’s italics).

8. Ruskin, *The Works of John Ruskin*, 29:160.

9. Whistler, *The Gentle Art of Making Enemies*, 5. This is a rich example of the way in which theories of science and medicine bear the signature of other cultural concerns: the debate over mental automatism not only touched on Victorian preoccupations with labor and value, as in this example, but in its interest in training the mind it also engaged the principles of the movement of self-help and self-education, epitomized by Samuel Smiles’s *Self-Help* (1859).

10. *Ibid.*, 115.

11. Thomas Laycock (1812–76) claimed he was the first to apply the theory of reflex action to the mind. Marshall Hall (1790–1857) had coined the noun *reflex* in the biological context, describing the mechanism by which a stimulus can produce a response independently of sensation or volition. Yet he specifically excluded the cerebrum from any reflex action. The *Oxford English Dictionary* lists George Henry Lewes as the first to use the noun *reflex*, in his *Problems of Life and Mind*, in the psycho-physiological sense.

12. See Carpenter, *Principles of Human Physiology*. Victorian physiological psychologists represented the most advanced psychological thought of their time, flourishing from 1850 to 1880. Although they were not a defined “school” of thought, they include William B. Carpenter (1813–85) and George Henry Lewes (1817–78), who were regarded as authorities almost to the end of the century, as well as Benjamin Collins Brodie (1783–1862), Robert Dunn (1799–1877), Henry Holland (1788–1873), Thomas Laycock (1812–76), John Daniel Morell (1816–91), Daniel Noble (1810–85), and Henry Maudsley (1835–1918). For more on British psychology, see Rylance, *Victorian Psychology and British Culture 1850–1880*, and, while it does not focus exclusively on British psychology, Robert M. Young’s excellent study, *Mind, Brain, and Adaptation in the Nineteenth Century*.

13. See Holmes, “Mechanism in Thought and Morals,” 284–5; Sully, *Outlines of Psychology*, 74, 75; and Lewes, *The Study of Psychology*, 18.

14. Some cognitive scientists today speak, similarly, of the “cognitive continuum theory,” which hypothesizes that characteristics of human cognition fall along a continuum ranging from intuitive to analytical cognition, with the middle area on the continuum termed “quasi-rational.” See Hammond, McClelland, and Mumpower, *Human Judgement and Decision Making*.

15. Laycock, “On the Reflex Function of the Brain,” 300 (Laycock’s italics).

16. Alan Richardson makes a strong case for a new approach to understanding the unconscious in the Romantic period, highlighting that in addition to scholarship emphasizing the ways in which Romantic formulations anticipated the unconscious of psychoanalysis, much work needs to be done on Romantic conceptions of unconscious functioning that, largely grounded in neurobiology, have more in common with the productive, adaptive unconscious of cognitive science. See Richardson, “Romanticism, the Unconscious, and the Brain.”

17. Physiological psychology led to a reformulation of the nature and status of reason, not only in theories of creativity but also in those of logic and problem solving. Induction and scientific method became a popular topic of discussion with the publication of John Herschel’s *A Preliminary Discourse on the Study of Natural Philosophy* (1830), John Stuart Mill’s *A System of Logic* (1843), and William Whewell’s *Philosophy of the Inductive Sciences* (1840), prompting the Mill-Whewell-Herschel debates.



The American thinker Charles Sanders Peirce (1839–1914) coined the term *abduction* for the type of thinking that lies outside induction and deduction, and that closely resembles theories of “unconscious cerebration.” See Peirce, “On Pragmatism and Abduction,” 181.

18. James, “Miss Braddon,” 112.
19. Collins, *No Name*, 308.
20. The “electric” suddenness recalls not only the magnetic currents believed to be flowing in and around the body according to “electro-biology” but also the recent discovery of Emil DuBois-Reymond (1818–96) in the 1840s that nerves were electrical. Electricity thus became a common figure for the experience of emotion and the experience of thinking.
21. Collins, *No Name*, 308.
22. A term coined by psycho-linguist Karl Bühler. See Bühler, *Tatsachen und Probleme zu einer Psychologie der Denkvorgänge*.
23. Collins, *The Moonstone*, 423.
24. *Ibid.*, 424.
25. A classic description (first introduced by Graham Wallas in *The Art of Thought* in 1926) of innovative and problem-solving thought divides the process into four phases: preparation, incubation, illumination, and verification. It is the crucial moment of germination in between incubation and illumination that seems so hard to access and outside our control. For a review of recent work on creativity see Runco, “Creativity,” which identifies “implicit and explicit theories of creativity” as one of the current trends in the field (673).
26. James, *The American*, 56–7 (James’s italics).
27. Davies, “Consciousness and Unconscious Cerebration,” 210.
28. James, *The American*, 56.
29. James, “Preface to *The American*,” 21, 22.
30. *Ibid.*, 21–2.
31. *Ibid.*, 22–3.
32. The metaphor of the “reservoir” in the mind is akin to the image of the “granary” or the “deposit bank” discussed by Rick Rylance in “The History of the Case,” with the difference that presumably the latter metaphors of storage allow the items to be retrieved when wanted. These metaphors nonetheless all share the implication of an organic process of reaching fruition.
33. See Dallas, *The Gay Science*: “Strictly speaking the mind never forgets; what it once seizes, it holds to the death, and cannot let go When we think of something preserved in the mind, but lost and well nigh irrecoverable, we are apt to imagine it as dormant; On the contrary, the mind is an organic whole and lives in every part, even though we know it not” (1:216–17).
34. Carpenter, *Principles of Human Physiology*, 606–7 (Carpenter’s italics).
35. Carpenter, *Nature and Man*, 296.
36. Carpenter, *Principles of Human Physiology*, 105 (Carpenter’s italics).
37. Eliot, *The Mill on the Floss*, 82.
38. In his preface to *Principles of Human Physiology*, Carpenter writes that physiological psychology, specifically its distinction between automatic and volitional activity, has “long appeared to me the only sound basis . . . for Education and self-discipline” (ix). Recent work on related questions of modulating unconscious process through attention includes Kiefer and Brendel, “Attentional Modulation of Unconscious ‘Automatic’ Processes.”
39. Harrison, *Memories and Thoughts*, 149.
40. Sigmund Freud’s biographer Ernest Jones has shown Freud’s painful progress from physiology to psychology; in most of Freud’s writing and in most psychoanalytic theory, nonetheless, it is important that even elemental events such as slips of the tongue or dreams have psychic, rather than completely physiological, causes. See Jones, *The Life and Work of Sigmund Freud*, 195.



41. Freud, *The Ego and the Mechanisms of Defense*, 28. Furthermore, Michael Moore argues that Sigmund Freud's clinical ideal of "making the unconscious conscious" is attained only by the recapture of what was previously unconscious through the intervention of memory, rather than by inference from evidence ("Mind, Brain and Unconscious," 141).

42. See Gigerenzer, *Adaptive Thinking*, Part 3, 125–98; and Damasio, *Descartes' Error*, chap. 5, 165–204.

43. Carlo Ginzburg, in his essay originally titled "Morelli, Freud, and Sherlock Holmes," invokes the model of "medical semiotics or symptomatology," "the discipline which permits diagnosis, though the disease cannot be directly observed, on the basis of superficial symptoms or signs, often irrelevant to the eye of the layman" ("Clues," 102). Ginzburg ends his essay with a version of the "But is it science?" question, arguing that while their method may not strictly be scientific, Morelli, Holmes, and Freud nonetheless share a medical problem-solving model.

44. Rothfield, *Vital Signs*, xiv.

45. On the impact of epistemological problems in the natural sciences on the style of Victorian novelists, see Levine, *The Realistic Imagination*; and Beer, *Darwin's Plots*.

46. See Rylance, "The History of the Case." The genre of narrative medical "case studies" that he discusses is perhaps an example of the close connection between the methods of medical and literary practitioners. See also, the narrative medicine movement, which advocates that physicians must learn to become close readers of the stories of their patients. See, for example, Charon and Montello, *Stories Matter*. For treatments of nineteenth-century literature and its relationship to medicine, see Caldwell, *Literature and Medicine in Nineteenth-Century Britain*; and Davis, *Bodily and Narrative Forms*. See, also, Logan, *Nerves and Narratives*; and Vretos, *Somatic Fictions*.

47. Sackett et al., "Evidence-Based Medicine," 71–2.

48. See Greenhalgh, "Narrative Based Medicine." Following the philosophy of Michael Polanyi, Kirsti Malterud, for example, argues for the importance of the tacit dimension of human knowing, part of which cannot always be made explicit. See Malterud, "The Art and Science of Clinical Knowledge: Towards a Medical Epistemology Embracing the Art of Medicine"; Thornton, "Tacit Knowledge as the Unifying Factor in Evidence Based Medicine and Clinical Judgement"; and Henry, "Recognizing Tacit Knowledge in Medical Epistemology."

49. For recent commentaries on this question from within medicine, see, for example, Miettinen, "The Modern Scientific Physician" and "Evidence-Based Medicine, Case-Based Medicine." See Malterud, "The Art and Science of Clinical Knowledge: Evidence Beyond Measures and Numbers." See, also, George L. Engel's influential essay, "The Need for a New Medical Model." Tina Young Choi has traced the origins of aspects of this debate in the nineteenth century in "Narrating the Unexceptional."

50. Timothy D. Wilson gives a readable account for a nonspecialized readership in *Strangers to Ourselves*. For a specialized review of recent cognitive work on implicit knowledge, see Wilson and Dunn, "Self-Knowledge."

51. Caldwell, *Literature and Medicine in Nineteenth-Century Britain*, i.

52. Catherine Gallagher makes a related argument, suggesting that George Eliot uses a narrative technique that circles between type and instance and that as a consequence she demands a similar interpretive hermeneutic on the part of her readers. See Gallagher, "George Eliot."

53. Eliot, *Daniel Deronda*, 164.



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