Abstract—Background: Silas Weir Mitchell (1829 to 1914), one of the most important neurologists in American Medicine, was known for his seminal work on the phantom limb syndrome, causalgia, and nerve injuries. He was also a prolific writer of novels and short stories. The neurologic content of this fiction has not been studied. Objective: To assess the extent that references to neurologic topics were present in Mitchell's fiction, whether these neurologic references reflected Mitchell's scientific interests and contributions, and whether his fictional accounts of neurologic topics would precede those in his scientific writings. Methods: The authors read Silas Weir Mitchell's novels and short stories. Results: Seventeen (63.0%) of 27 fictional works contained neurologic references. Fifty-five (69.6%) of 79 references were brief (a single word or sentence). In two works, a neurologic theme was central to the plot. Some of the neurologic content was sophisticated (aphasia, brain laterality). Phantom limb syndrome, causalgia, and nerve injuries were not prominent in his fiction. Neurologic consequences of battle injuries were featured in 10 (37.0%) works. With the exception of “The Case of George Dedlow” (i.e., phantom limb syndrome), Mitchell's fictional accounts of neurologic topics followed his presentation of these topics in the scientific literature. Conclusions: The majority of Mitchell's fictional works contained references to neurologic topics but most contained brief references. The number of references to Mitchell's specific scientific interests (phantom limb syndrome, causalgia) was small, although more generally, references to the neurology of battle injuries occurred more frequently.

Historical Neurology

The neurologic content of S. Weir Mitchell's fiction

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Silas Weir Mitchell (1829 to 1914), the first elected president of the American Neurologic Association, is recognized as one of the most important neurologists in American medicine; several comprehensive biographies have been written. Mitchell has been credited with seminal descriptions of phantom limb syndrome and causalgia. His work on gunshot wounds and nerve injuries was well-known in his day.

Later in life, Mitchell was also a prolific writer of fiction (figure), with the bulk of this work in the form of novels. Hugh Wynne, Free Quaker became a best-selling novel in 1896; Theodore Roosevelt has been said to have noted that “I do not know when I have read a more interesting novel.”

Mitchell first described the phantom limb syndrome in the fictional literature rather than the scientific literature. Other than this well-known example of neurology in fiction, the neurologic content of Mitchell's 27 novels and collections of short stories has not been examined in detail. Our aims were to assess 1) the extent to which references to neurologic topics were present in Mitchell's novels and short stories, 2) whether these neurologic references reflected his own clinical experiences and scientific interests (e.g., phantom limb syndrome, causalgia, nerve injuries), 3) whether his fictional accounts of neurologic topics would precede, parallel, or follow his presentation of these topics in the scientific literature.

Methods. We read Mitchell's novels and short stories, beginning with his short story, The Case of George Dedlow, which was published anonymously in the Atlantic Monthly in 1866, and ending with his final fictional work, the novel Westways (1913). References to neurologic topics (e.g., symptoms, signs, diseases) were recorded. For the purposes of this study, references to neurologic topics were classified as brief (one sentence or shorter in length and often consisting of a single word), lengthy (at least three sentences in length, i.e., usually constituting an entire paragraph), or intermediate (longer than one but less than three sentences in length). Mitchell also wrote poetry, which lends itself less to neurologic reference than does prose. For completeness, we read this poetry and provide a brief comment on its neurologic content.
Results. The extent to which neurologic topics were present in Mitchell’s fiction. There were five short stories or collections of short stories7,14-17 and 22 novels.11,12,18-37 Seventeen (63.0%) of these 27 fictional works contained neurologic references. Seven of the 17 contained only one or two such references and seven more contained five or more references, including three (11.1%) that contained 10 or more such references (table).

The 17 works contained 79 neurologic references, of which 55 (69.6%) were brief, seven (8.9%) were intermediate, and 17 (21.5%) were lengthy (see appendix E-1 on the Neurology Web site at www.neurology.org). Nine (33.3%) of 27 works contained lengthy references (see appendix E-1). In “The Case of George Dedlow”7 and Westways,12 a neurologic theme was central to the plot. Much of “The Case of George Dedlow”7 is devoted to a description and discussion of the phantom limb syndrome in civil war amputees. In Westways,12 a central character sustained a head injury in battle, resulting in chronic confusion and alterations in personality; a large part of the later portion of the novel is devoted to this character’s cognitive difficulties. Neurologic references are not otherwise central to the theme of Mitchell’s other fictional works.

Mitchell’s romantic poetry frequently made use of the word “trembling” (but never the word “tremor”). On occasion, Mitchell used the word “brain” to indicate “mind” (brain also rhymed conveniently with pain, which was a frequently used word in his more lamenting pieces). In his 108 poems, he twice used the word “nerves” as a synonym for tension or stress.

On occasion, Mitchell’s references were detailed and descriptive, perhaps reflecting Mitchell’s own encounters with some of the entities about which he was writing. For example, in The Adventures of Francois,16 Mitchell wrote: “Within the tent lay Pierre on the ground, in a fit. Francois, greatly alarmed and utterly at a loss, threw water in his face, and waited. In a few moments it was over, and the man, flushed and breathing deeply, lay with red froth on his lips, as if in a deep sleep. He was no longer convulsed.”

Some of the material, in addition to being lengthy, was physiologically sophisticated. For example, in Characteristics,23 his main character, Dr. Owen North, described aphasia and amnesia as follows:

He is word deaf. He hears but cannot interpret. The connecting nerve-threads between word-memory (I mean ideas got-
ten by hearing) and his receptive organs are broken, but he has word-vision; words which he reads are still usefully dealt with by the mind. He fell a hundred feet from scaffold and broke his back. He is going to recover. It is curious that he has no memory of the events which preceded his fall for two hours. It seems as if time were needed to fix the records of memory. I have seen this often. Some physical shock interferes with the permanence of the delicate impression made on the brain-cells.

Later in that same book, Dr. North noted: “Some people explain these strange facts by our having two hemispheres in the brain; but the power to write and to speak are the function only of the left side of the brain, and speech is lost but in part, and writing altogether, or not at all in other instances.” In When All the Woods Are Green, one of the characters noted that

There is a disease or disorder called “mind-blindness,” about which the doctor was telling me a few weeks ago. People who have it see things only as a mirror sees, and cannot give them names; but if they touch or handle them, are able to say what they are, or to tell their uses. Think, now, of a baby. It merely sees things as a mirror sees. Later, it learns the qualities of things seen, remembers them, learns to group them, and so to say at last what the thing is, or is for.

In Characteristics, again, one of Mitchell's characters provided the following discussion of migraine and visual phenomenology:

“As he lost it,” said I, “he felt a violent pain over his left eye, and this was one of his usual attacks of neuralgic headaches...the lines of zigzag light which usually precede his headache, and are so very rare. One man sees stars falling, one a catherine-wheel; but the appearance of distinct human or other forms in their place is a recent observation. I have known a woman to see her dead sister, until, after many returns of the phantom, she ceased to be impressed by it. Well, if the ghost be a real thing outside of us, you will on theory double it if with a finger you press one eye out of line...I tried it on my ghost but it failed. North, says he was only a monocularly projected phantom. It means that the phantom is present to only one eye in these cases. To be able to double it, it must be seen by both eyes and be really external. If it be only in the brain, and due to brain disorder, we should not be able to squint it into doubleness.”

At times, neurologic references were used to create humor. For example, in New Samaria, Mitchell described a man with facial tics: “His scalp moved back and forward in a sort of tic, and the two quill pens in his ears moved with the scalp like undeveloped wings.” Later, he added: “There was the bald man, his scalp still in motion, the two quill pens over his ears moving.” In this and other examples, neurologic phenomena were used to paint the features of his characters. For example, in The Adventures of Francois, Mitchell described a character with a facial palsy: “The Jacobin had small, restless eyes, a diminutive nose, perhaps broken, and a large-lipped mouth, which, as he talked, was drawn to one side.” In the same novel, his characterization of an elderly woman made frequent brief references to her tremor: “her shaky hands dropped on her lap,” and “[s]he rattled the [walking] sticks...her head swaying as the head of the cobra sways.”

In several instances, Mitchell used medical terms in a more literary than medical sense. For example, in Roland Blake, Mitchell wrote: “He had a slight attack of what might be called social vertigo—a trivial general disturbance of moral equilibrium.”

Did the neurologic topics reflect Mitchell's scientific contributions? Neurologic references could be broadly classified by topic (see table E-1). The vast majority of these were references to neurologic signs or diseases rather than the therapeutic approach to these disorders. There were a few exceptions (e.g., both in Characteristics and Westways, the surgical treatment of head injury is discussed). The most frequently referenced topics were seizures/epilepsy, head injury with sequelae (e.g., confusion), posttraumatic neuropathy, vertigo, and essential tremor (see table E-1).

Phantom limb syndrome was a medical condition initially described by Mitchell. Besides “The Case of George Dedlow” (1866), phantom limb is briefly mentioned in John Sherwood, Ironmaster (1910) (see appendix E-1), but not otherwise. Hence, it was not a frequently referenced topic.

Causalgia is a medical term that Mitchell coined. Neuropathic pain is mentioned very briefly in Circumstance and again in Westways, but neuropathic pain is not featured prominently in Mitchell’s fiction.

Injury to nerves was a topic of special medical interest for Mitchell. Posttraumatic palsies were described briefly in “The Case of George Dedlow,” “Autobiography of a Quack,” Roland Blake, The Red City, and Westways, but these injuries are not a prominent feature of these works and the accounts are not very detailed. In addition, the localization of the injured nerve and specific patterns of weakness and functional deficits were not discussed in his fiction, with one exception in “The Case of George Dedlow,” in which he attempted to describe the activity of the rhomboid muscles.

Posttraumatic (especially battle) injuries and their neurologic consequences including references to head injury, loss of consciousness, concussion, confusion, posttraumatic pain and palsy, posttraumatic myelopathy/paralysis, and phantom limb syndrome (see table E-1 and appendix E-1) occurred in 10 (37.0%) of Mitchell’s fictional works (New Samaria, Circumstance, Roland Blake, The Red City, Westways, Characteristics, North and Friends, “The Case of George Dedlow,” “Autobiography of a Quack,” John Sherwood, Ironmaster). Besides phantom limb syndrome, causalgia, and nerve injuries, Mitchell, in his medical/scientific writings, dealt with several additional topics with more than passing frequency. These included hysterical weakness, epilepsy, headaches, paralysis, tics, deep tendon and other reflexes, and disorders of sleep. Each of these topics is reflected in his fiction to some extent, although not to any great extent (hysterical weakness in three fictional works, epilepsy in six, headaches in one, paralysis in two, tics in one, deep tendon reflexes in one, and disorders of sleep in one) (see table E-1).

Did Mitchell’s fictional accounts of neurologic topics precede or follow the accounts in his scientific writings? With the exception of phantom limb syndrome, Mitchell’s fictional accounts of neurologic disorders followed those in his scientific writings, often by many years (see table E-1).

Discussion. Silas Weir Mitchell was a prolific writer of both science and fiction. His novels were well regarded in his day. Hugh Wynne, Free Quaker (1896) was compared to Henry Esmond (1852), which has been viewed by many literary critics as W.M. Thackeray’s greatest work. Other than a
small number of general remarks, little has been written on the neurologic content of Mitchell novels. For example, one author briefly noted that most of Mitchell’s literary output “consisted of highly perceptive psychological and neurologic case studies dressed up as romances.”9 Another remarked that much of Mitchell’s writing for the lay public was “sprinkled with his experiences from casualties during and after that war.”9,34 Finally, it has been stated that Mitchell’s “neurologic experience was expressed mainly in his scientific publications, and his psychiatric knowledge in his fiction.”9,35

While approximately two-thirds of Mitchell’s 27 fictional works contained one or more neurologic reference, the total number of such references was fewer than 80. The large majority of these references were brief (ranging in length from a single word to a full sentence); in only two works was a neurologic theme central to the plot. On the other hand, some of his Mitchell’s fictional neurologic discourse was quite detailed. Indeed, in the late 18th and early 19th centuries, the “humanitarian narrative” arose, a new expository technique that sought authenticity in large quantities of minute observation; authors wrote about bodily pain and death in such a way as to engender an empathic response from readers, thereby blurring the boundaries between medicine and literature.55,56 Some of Mitchell’s discourse was medically sophisticated, with discussions of different aspects of aphasia (word deafness, anomia), brain laterality, and visual disturbances.

Phantom limb was first described by Weir Mitchell and the term causalgia was coined by him, but, other than in “The Case of George Dedlow,”97 neither topic featured prominently in any of his fictional works. Similarly, although nerve injuries were a topic of special interest for Weir Mitchell,5,8 these injuries are not a prominent or detailed feature of his works. More generally, however, posttraumatic (especially battle) injuries and their neurologic consequences are featured in 10 of Mitchell’s fictional works, making these relatively common.

With the exception of “The Case of George Dedlow,”97 Mitchell’s fictional accounts of neurologic topics followed his presentation of these topics in the scientific literature. This is not surprising. While his literary career began to emerge in the mid-1860s, it really began in earnest in the 1880s, when Mitchell was in his mid-50s. In contrast, most of his scientific writings were published in the 1860s and 1870s and by the mid-1880s had begun to taper off.2,3 Mitchell viewed his fictional writings as a second career; he had begun writing to occupy his time, fill his idle hours and fight boredom while on vacations in Newport.2,3 The activity allowed him to convert his leisure time into a productive activity.2,3

In several instances, we cited references to paralysis and seizures in the setting of conversion disorder, but our focus was on neurologic rather than strictly psychiatric disorders. Mitchell’s work is known to have delved into a number of psychiatric issues,53 and the psychiatric content of his novels has been the focus of scholarly activity.57 For example, Constance Trescot, the central character in the book by that name92 and Ann Pehnallow, a chief character in Westways,12 both developed hysteria. Sybil Maywood, in Dr. North and His Friends,27 had a dual personality and Mr. Harpworth, in John Sherwood Ironmaster,37 developed paranoia. These fictional characters illustrate Mitchell’s keen abilities as an observer and his interests in disorders of the mind.57

Mitchell also had a life-long interest in snake venom,2,3 and he made occasional references to this topic in his fiction,27 but most of these references were not neurologic per se and have therefore not been the focus of our analyses. Despite these limitations, this is the only study to our knowledge that has systematically reviewed Mitchell’s novels and short stories, detailed his neurologic citations in this fiction, and discussed these with reference to his interests and contributions as a neurologist.

References