Silas Weir Mitchell and “The Strange Case of George Dedlow”

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It has been said of Silas Weir Mitchell (1829–1914) that as a young man he was first among the physiologists of his day, in middle age first among physicians, and as an older man, one of the most noted novelists of his country. Mitchell's novels were written in his later life as a means to avoid boredom during lengthy summer vacations that were the norm for that time among the affluent members of Philadelphia society. These novels were criticized by some because of poor plots, which in some instances failed to move along, or for text that offered a stereotyped depiction of genteel society and the effects that war or personal disaster had on the characters' behavior. The criticism came despite the fact that all critics agreed that Mitchell's portrayals of psychopathology in his fictional characters was unique and accurate. However, in his 30s, Mitchell had written and by chance had published a fictional short story that not only transcended such criticisms but became immensely popular.

“The Strange Case of George Dedlow” portrays a union officer who was not a physician but who had some medical background and who sustained a series of war wounds leading to severe nerve pain, the author's first description of causalgia, multiple amputations, and the psychological as well as physical symptoms of phantom limb syndrome. The protagonist tells of his torments in the first person in a very engaging fashion. Thus, long before he began writing his, at that time, acclaimed novels in the 1880s, Mitchell wrote a piece of fiction that combines accurate and very important medical observations with fiction of great historical interest. The following rendering of this now classic short story includes selected quotes and some interpretation and is perhaps appropriate for this year, 2 years after the centenary year of his death in 1914.

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ONE of the most interesting American authors of the 18th and 19th centuries was Silas Weir Mitchell. Applauded for his contributions to medicine as an experimental physiologist and as an early neurologist with interests in nerve injuries as well as psychological aberrations and psychotic disorders, he also wrote and had published many novels, poems, and short stories.^{5,23} Among the latter and published in 1866, many years before he wrote his more serious novels, was a unique piece of scientific fiction entitled “The Strange Case of George Dedlow.”^{1,6}

Background

Mitchell (1829–1914) was born, raised, educated, worked, and died in Philadelphia, Pennsylvania. He was

the third of nine children of John Kersley Mitchell, MD, and Sarah Matilda Henry Mitchell. He was raised in an eclectic setting stressing versatility in reading literature as well as reciting and occasionally writing poetry, which was his father's favorite avocation. As an example of that background, Mitchell published in 1846, at the age of 17, a poem entitled “Verse to a Polar Star.”¹² He had left Penn, where as an undergraduate for a few years he was a desultory student preferring billiards to studying, to help his ailing father in his medical practice.^{11,13} He subsequently attended Thomas Jefferson University, studying medicine for several years and graduating in 1850. After a sojourn in Europe, touring with his beloved sister Elizabeth and also visiting the laboratories of Claude Bernard and Charles Robin, he joined his father's practice and assumed it com-

pletely when his father died in 1858. Influenced by the science he absorbed in his European visits, Mitchell would, in those years of practice, work in the laboratory after his office hours, studying the effect of rattlesnake venom on various animals, generation of uric acid, the blood crystals of sturgeons, the circulation of snapping turtles, and the emotional and physical effects in himself after the ingestion of mescal buttons²⁰ (Fig. 1). Not wishing to leave his mother with the large Mitchell family responsibility, he enlisted during the Civil War as a contract surgeon and was assigned locally to the Filbert Street Military Hospital in Philadelphia. A friend, William Hammond, had become Surgeon General for the Union and he arranged Mitchell's transfer to the Turner's Lane Hospital, also known as the "Stump Hospital" in 1863. There, with George Morehouse and William Keen's help, he accumulated experience treating a large concentration of soldiers with nerve wounds and amputations⁸ (Fig. 2). This experience led to several medical publications that made Mitchell famous as a clinician and surgeon: 1864's *Gunshot and Other Injuries to Nerves* (with Morehouse and Keen)²² and 1872's *Injuries of Nerves and Their Consequences*.¹⁶ Later Mitchell's son published a long-term follow-up of 20 Civil War patients with causalgia treated by Mitchell: *Remote Consequences of Injuries of Nerves and Their Treatment*.¹⁴

The Story of "George Dedlow"

In 1864, Mitchell had published as a second author his first fictional piece, a children's book of satire. Elizabeth Wister Stevenson was the senior author of this relatively small and short book entitled *The Children's Hour*.²⁴ His next piece of fiction was the short story "The Strange Case of George Dedlow," published anonymously in 1866 in the *Atlantic Monthly*, at the time the most popular magazine in America.^{1,3,13} The story centers on a Union lieutenant from Indiana who is not a physician but has some medical background because he worked for his father who was a doctor and because he attended several medical lectures. His original military assignment was as an assistant physician but due to attrition in the ranks he is made an officer on the line in an infantry division. Posted to Tennessee below Nashville where supplies, especially those of a medical nature, were limited, he volunteered to go to a military post further north to obtain quinine and "medicinal stimulants." He was shot and immediately found both arms useless. Quickly captured by guerillas sympathetic to the Confederacy, he recounts that "A ball had passed from left to right through left biceps and directly through the right arm just below the shoulder, emerging behind. The right hand and forearm were cold and perfectly insensible. I pinched them as well as I could (presumably with the left arm and hand which had relatively early on regained some function) to test the amount of sensation remaining," but the right hand "might as well have been that of a dead man." He was unable to stay erect or walk so his captors placed him in a horse-drawn cart and when it set off at a trot, "The jolting was horrible but within an hour I begun to have in my dead right hand a strange burning which (at first) was rather a relief to me. It increased as the sun rose and the day grew warm, until I

FIG. 1. Silas Weir Mitchell as a young physician and experimental physiologist in 1858. He helped his father with his medical practice but also worked after office hours doing research. Public domain. Image courtesy of Kislak Center for Special Collections, Rare Books and Manuscripts, Penn Libraries, University of Pennsylvania.

felt the hand was caught and pinched in a red hot vise." He begged for water to wet and cool it and this was initially refused. With time, "I screamed, cried, and yelled in my torture until, I suppose, my captors became alarmed and stopping, gave me a handkerchief, my own I fancy, and a canteen of water with which I wetted my hand, to my unspeakable relief."

He was brought to a rebel hospital near Atlanta where the left arm "rested easily," whereas the right limb, where the humeral bone was fractured and nerves badly injured, remained painful. Once after fainting due to pain and weakness, he awoke with the right hand even worse. "It was red, shining, aching, burning and as it seemed to me perpetually rasped with hot files" (Fig. 3). After a month or so, amputation without benefit of anesthesia (medical supplies limited for the Confederacy as well as the Union) was offered and carried out. "The pain (of the operation) was severe but it was insignificant compared to any other minute of the past six weeks." Despite the circumstances involving an extremely painful amputation, once done, Dedlow experienced "instant unspeakable relief and be-

The Turner's Lane Military Hospital, Philadelphia, 1862

FIG. 2. Although assigned initially to the Philadelphia Filbert Street Military Hospital, Surgeon General Hammond had Mitchell and his associates Morehouse and Keen transferred to the newly built Turner's Lane Hospital, which shortly became known as the "Stump Hospital." Public domain.

fore the flaps were brought together, I was sound asleep." Before he fell asleep though, he recollected "pointing to the arm which lay on the floor (and saying) there is the pain and here am I. How queer!"

Eventually, the lieutenant was exchanged for a Confederate prisoner and returned to his Union regiment as a one-armed Captain. In September of 1863 during the Battle of Chickamauga, while climbing a hill toward a rebel-held fortress, a battery to his left opened fire with shots crossing obliquely: "A moment which is so printed in my recollection. I can see now, as if through a window, the grey smoke lit with red flashes, the long wavering line, the sky blue above, the trodden furrows blotted with blue blouses. Then, it was as if the window closed, and I knew and saw no more." The captain awoke under a tree and was told both thighs were hit and there was little to be done. However after awhile, "...a steward put a towel over my mouth and I smelt the familiar odor of chloroform." When he awoke, he felt a cramp in his left leg and asked an attendant to rub it since he could not reach it with his left arm and hand.

"Just rub my left calf," said I, "if you please."

"Calf?" said he. "You ain't none, pardner. It's took off."

"I know better," said I, "I have pain in both legs."

"Wall, I never," said he. "You ain't got nary leg."

As I did not believe him, he threw off the covers, and, to my horror, showed me that I had suffered amputation of both thighs, very high up."

This then was the protagonist's initial experience with phantom limb involving both legs.

The captain was transferred to a military hospital in Nashville where an epidemic of hospital gangrene broke out. This affected his one remaining limb, his left arm, where the wound had never completely healed. Despite local injections of bromine, the artery opened and bled repeatedly leading to amputation at the shoulder joint. However, he continued to experience pain in the left hand, especially the little finger, as if the limb were still there. "Often at night I would try with one lost hand to grope for the other. As, however, I had no pain in the right arm, the sense of existence of that limb gradually disappeared, as did that in my legs also." The pain in the left arm and phantom limb persisted and he was transferred to another military hospital ("Stump Hospital," Turner's Lane, in Philadelphia), where there were hundreds of other soldiers who had lost limbs (Fig. 4). As a result, the protagonist goes on to explain his concept of a recurrent image of a lost limb:

I found that the great mass of men who had undergone amputations for many months felt the usual consciousness that they still had the lost limb. It itched or pained, or was cramped, but never felt hot or cold. If they had painful sensations referred to it, the conviction of its existence continued unaltered for long

FIG. 3. Mitchell is seen examining a patient, most likely at the Infirmary for Nervous Diseases, an adjunct building to the Philadelphia Orthopedic Hospital where in later years his son John Kersley Mitchell also worked. Mitchell cared for many soldiers with military injuries much like those suffered by his fictional protagonist George Dedlow. Image courtesy of National Library of Medicine.

periods; but where no pain was felt in it, then by degrees the sense of having that limb faded away entirely.

The author using the words of the protagonist explains this strange phenomenon by the surmise that after a limb is cut off, the nerves leading to and from it can be irritated and thus convey to the brain sensations similar to those originating distally from an intact limb. He uses the analogy of a bell wire. If pulled at any point along its length and irrespective of the spot pulled, it rings the bell for the front door and the servant responds appropriately. "The impressions made on the cut ends of the nerve, or on its sides, are due often to changes in the stump during healing and consequently cease as it heals, so that finally in a healthy stump no such impressions arise." The author in the words of the captain recognized the role enlarged nerve ends (neuromas) can play in producing a constant irritation or "neuralgia," which "is usually referred to that part of the lost limb to which the affected nerve belongs." "...and, imperfectly at least, preserves to the man a consciousness of possessing that which he has not." Mitchell subsequently described this mechanism well in his chapter on neural maladies of stumps.¹⁷

The very observant as well as thoughtful captain expands his concepts of phantom limb syndrome even further: "Another set of cases present a peculiarity which I am at a loss to account for. Where the leg, for instance, has been lost, they feel as if the foot was present, but as

though the leg were shortened (Fig. 5). If the thigh has been taken off, there seems to be a foot at the knee; if the arm, a hand seems to be at the elbow, or attached to the stump itself." Thus, the author through the protagonist addresses the telescoping phenomenon seen in some cases but without an anatomical or physiological explanation. He goes on though: "...nearly every person who has lost an arm above the elbow feels as though the lost member were bent at the elbow, and at times is vividly impressed with the notion that his fingers are strongly flexed." The captain finally obtained some relief of his left upper-extremity phantom neuralgia by injections of "morphia" about the shoulder.

In many ways, a larger issue experienced by the protagonist is that of existence as a human without limbs, and Mitchell through the captain takes this topic up at some length.^{1,23} The captain admits he has not seen anyone with loss of all four limbs like himself—some with loss of both arms or legs or perhaps one arm and one leg but not both arms and both legs. The captain begins to question his very existence as a human being and becomes very moody, depressed, and "wretched." He muses on his need for less food due to less body weight and the other "physiological changes" his losses have wrought. In the midst of this emotional turmoil, he, by chance, overheard a conversation between the hospital chaplain and another patient, a sergeant, who are discussing séances at a house

FIG. 4. Illustration of a Civil War amputee by Erica Aitken. From Miller EC: Truth, stranger than fiction: Silas Weir Mitchell and phantom limbs. *Pharos Alpha Omega Alpha Honor Med Soc* 74:20–24, 2011. Published with permission.

outside the hospital on Coates Street. The captain talks further with the sergeant who had “neither kith nor kin on earth” but could from the séances talk to them. These spiritual revelations are orchestrated by a medium named Blake and aided by a helper called Sister Euphemia. The captain attended and witnessed some of the revelations and decided to participate. In his case, the alphabet card that he touched indicated to Sister Euphemia by a series of knocks that he wished to communicate with two series of numbers—3486 and 3487. These numbers were those of the specimens of his legs that were in bottles at the US Army Medical Museum. Somehow through this experience the captain had a return of self consciousness and was “reindividualized.” Magically, he is able to walk across the séance room at the house on his stumps and unseen legs. He then collapses, and, the author through the protagonist, tells us he eventually leaves the hospital and

I found that the great mass of men who had undergone amputations, for many months felt the usual consciousness that they still had the lost limb. It itched or pained, or was cramped, but never felt hot or cold. . . . I should also add, that nearly every person who has lost an arm above the elbow feels as though the lost member were bent at the elbow, and at times is vividly impressed with the notion that his fingers are strongly flexed.

Another set of cases present a peculiarity which I am at a loss to account for. Where the leg, for instance, has been lost, they feel as if the foot was present, but as though the leg were shortened. If the thigh has been taken off, there seems to them to be a foot at the knee; if the arm, a hand seems to be at the elbow, or attached to the stump itself.¹

FIG. 5. Upper: Several sentences abstracted from the Mitchell’s narrator’s description of a phantom limb. Public domain. **Lower:** Use of mirror therapy by the military to treat phantom limb syndrome. Navy Commander Jack Tsao shows Army Sergeant Nicholas Paupore how to perform mirror therapy on his amputated right leg. Image courtesy of US Airforce.

returns home to the West (Indiana). There he is waited on by others and is “not a happy fraction of a man” and is “eager to regain the lost members of my corporeal family in another and a happier world.”

Discussion and Dénouement

Why was this informative piece of fiction published anonymously? Was it perhaps, as the protagonist in the short story itself states, that his experience had been submitted to medical journals and refused? This although possible seems unlikely since Mitchell later on admits through the protagonist that he had never seen a quadruple amputee let alone one who had survived, not to mention the highly unrealistic conclusion to the “case.” Does this journalistic aberration relate to Mitchell’s eclectic upbringing, for, after all, he had previously published several poems under a pseudonym or nom de plume? In his lifetime, Mitchell had published many novels, poems, and other short stories like “The Strange Case of George

FIG. 6. There have been at least six biographical books written about Mitchell, his life, and his scientific and fictional/literary contributions. Two examples are shown here. Fair use law. No permission required.

Dedlow.” On occasion, he would use the name of Kersley, which was the middle name of his father, John K. Mitchell, and, in later years, the name of one of his sons, also John K. Mitchell. An example would be the poems “Kearsarge” and “How the Cumberland Went Down,” where Mitchell used the pseudonym Edward Kersley.^{4,12} Mitchell eventually admitted he was the actual author of those pieces of literature. However, thanks to Drs. Bourke, Toodayan, and Mitchell himself, we have the most likely answer to the question of why he chose to be anonymous for this short story:^{3,15,25} Mitchell lent the manuscript to a friend, Reverend Furness, to read having “no intention of it appearing in print.” Could this relate to the pressure of his other literary activity at the time? In addition to his scientific writing, he was the sole author of another fictional children’s book published the next year, which was as popular as the first.²¹ In any case, we learn that Reverend Furness passed the manuscript of “The Strange Case of George Dedlow” on to a colleague, Reverend Hale, who presumed that “everyone desired to appear” in the *Atlantic Monthly* and sent it on to that magazine. Soon afterward, to his surprise, Mitchell received a proof and a check. Did this come from the *Atlantic Monthly* or from Reverend Hale? That we do not know. In any case, the article was published as a lead article without Mitchell’s name as the author. It wasn’t until much later that Mitchell admitted he was the author and provided the explanation outlined above.

“The Strange Case of George Dedlow” became immensely popular. Many readers felt it was fact and that such a quadruple amputee existed and moreover that he resided at the Turner’s Lane (“Stump”) Hospital. They sent mail to this fictional person, attempted to visit him at the hospital, and even raised money for him and left it at the hospital. Of interest, the *Lippincott’s Magazine*, a con-

temporary rival to the *Atlantic Monthly* in the magazine world, requested permission from the latter to republish the article in their own magazine. This permission was granted and when published, the author, once again, remained anonymous. In later years, Mitchell commented that “There was freedom accorded to a writer of fiction” but that he “certainly could never have conceived it possible that his humorous sketch about a quadruple amputee and especially its absurd ending, would for a moment mislead anyone.”¹⁵

The observations in Mitchell’s short story, especially about “causalgic pain” as well as phantom limb and associated psychological abnormalities, were quite accurate and borne out by his and others’ scientific articles and books^{10,18,19} (Fig. 6). Other writers of Mitchell’s era and even later said about the scientific and especially psychological nature of his fiction that “only Oliver Wendell Holmes,” a close friend of Dr. Mitchell’s, “came close and not as well.” It should be noted though that the term causalgia was not used as such in this story even though it was accurately described. Mitchell did not use the term in print until his 1867 treatise entitled “Diseases of Nerves Resulting from Injuries.”¹⁶ In the instance of phantom limb, Pare and Descartes in earlier centuries and subsequently other lesser known authors had described this fascinating disorder, but Mitchell is given the credit for popularizing it, in large part through this short story.⁷

After writing this story, another children’s book and several more scientific books and papers on nerve wounds and their disorders, which became medical classics, Mitchell published other short stories, poems, and in his later years, a relatively large number of novels depicting civilian life during and after wartime. In the instance of “The Strange Case of George Dedlow,” his wartime novels, and some of his poems about war, this was done without Mitchell

FIG. 7. John Singer Sargent portrait of a mature Mitchell. Public domain. Image courtesy of Charles D. Barber, president of The Green Tree Perpetual Assurance Company.

having first-hand experience in a battle setting, but the author did have the advantage of being in the medical corps and caring for many soldiers with military injuries back in Philadelphia (Fig. 7). He and his associates at Turner's Lane and the Philadelphia Orthopedic Hospital, and other institutions, had indeed heard of many battle experiences that were often times quite terrible. Some critics of Mitchell's era faulted his fictional stories for lacking well-developed plots and reasonable conclusions, especially in the case of his historical novels. He was also faulted for his undue emphasis on the genteel or upper class society and their characterizations in some of his novels, short stories, and poems. Certainly, in the "Dedlow" such criticisms do not seem applicable. The plot of the story moves along at an appropriate pace, the characterizations are not especially genteel, and there is a definite conclusion, albeit one that was specious. Mitchell's ability to weave medical information into his novels and other fictional pieces and to depict characters with abnormal psychological or even psychotic behaviors has always been applauded.²³ Sometimes, in a few short stories about ghosts, his views of the mystical and its possible roles in life shine through as in the concluding spiritual séance in "The Strange Case of George Dedlow." Perhaps as a result, we should permit the author some deviation from reality concerning survival with all four limbs lost and a concluding spiritual and unlikely sé-

ance in this otherwise absorbing, realistic, and informative story of Civil War injuries.

Conclusions

In "The Strange Case of George Dedlow," one finds not only one of the finest of Mitchell's pieces of fiction but also a very informative and useful medical information about pain after limb and nerve injury, the pathogenesis of phantom limb syndrome, and certain of the psychological aspects of such disorders. Along with Benjamin Rush, Mitchell was a founder of neurology and an early pioneer in psychiatry in America.¹¹

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Supplemental Information

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