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Original Research

Toward an Understanding of the Equality of Pain: Crawford Long and the Development of Anesthesia in Antebellum Georgia☆,☆☆,★

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A B S T R A C T

Dr. Crawford Long's career illustrates the complicated intersection of science, sympathy, medical experimentation, race, and gender within the history of anesthesia in the United States. Considered by many to be the first physician to administer ether for surgical anesthesia, Long anesthetized a broad cross-section of his rural Georgia society, including white men, white women, and enslaved black children. These initial uses of ether can be considered both a racialized and gendered experiment reflective of contemporary thinking as well as a radical expression of equality in the context of medical development and understandings of pain. Emerging from this examination of Long's practices and writing is the narrative of a well-meaning and time-bound doctor, living amidst the shadows of antebellum plantations and confronted by his diverse patients' experience of pain.

The development of anesthesia over the past 170 years is an example of how science evolves; it also demonstrates how medical ethics has progressed over time. The pre-eminent anesthesiologist Nicholas M. Greene, MD, (1922-2004; Chair, Department of Anesthesiology, Yale School of Medicine, New Haven, CT, USA) suggested as much when he commented that "so long as witches were being burned in Salem, anesthesia could not be discovered 20 miles away in Boston" [1]. In the United States, the early history of anesthesia played out as a complex narrative among science, sympathy, medical experimentation, race, and gender. The career of Dr. Crawford Williamson Long (1815-1878) (Fig. 1)[1] illustrates this complexity in stark relief. A native Georgian, Long became the first documented physician to use ether for surgical anesthesia in the United States in 1842. His patients represented a broad cross-section of the South's antebellum population and included slaveholding white men, white women, and enslaved black children.

Long's administration of ether has provoked much controversy. His contemporaries and subsequent generations of physicians and historians described him as a Southern gentleman who treated "the humble and the lowly; the poor and afflicted" [2] and whose introduction of ether "had bequeathed to the world a remedy or palliation as a means of preventing human suffering" [2]. Yet other historians have portrayed Long as another in a line of white physicians who sought to test medical treatments on defenseless black patients [3]. The narrative of Long and ether is more complicated than either of these portrayals allow, and its examination serves to bring important nuance to pronouncements that seek to tie the development of anesthesia either to the advancement of human ethics or to a US tradition of "medical apartheid." By examining Long's patients and his own writing about them within the framework of his time, we can identify the southern doctor's "discovery" of anesthesia as both a racialized and gendered experiment reflective of contemporary thinking and a radical expression of equality in the context of medical development and understandings of pain.

In nineteenth-century American medicine, the distinction between treatment and medical experimentation was often blurred [4]. Physicians treated patients with remedies based on ideology or prior experience without necessarily knowing their actual mechanisms or effects [4]. Mercury, for example, caused diarrhea and was thus used for diseases associated with constipation [5]; for followers of Benjamin Rush (1746-1813, physician, a Founding Father of the

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[1] Image of Crawford Long taken from *Old Penn Weekly Review*, April 6, 1912 (587). Courtesy of the University of Pennsylvania Archives.

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Fig. 1. Crawford Williamson Long, MD (1815-1878).

United States of America, Philadelphia, PA, USA), dangerous illnesses needed to be treated with "heroic" doses of medications and massive blood-letting [5], and social cures such as temperance were used by health professionals who believed that healing occurred only when a disease was allowed to run its natural course [5]. Indeed, research was not seen as integral to the training of future generations of doctors: the first physician-scientist laboratory was not established until 1871, over 100 years after the founding of the first American medical schools and 50 years after the development of graduate medical education [6,7]. Test subjects were thus patients, a fact that had particular resonance in the South: "empirical trials of remedies on patients were not unusual in the practice of medicine anywhere in antebellum America, but outright experimentation upon living humans may have occurred more openly and perhaps more often in the South, owing to the nature of slave society" [3,4].

Gynecologist J. Marion Sims (1813-1883; surgeon, Montgomery, AL, USA) represents a famous (and infamous) example of such practices. In order to develop a treatment for vesicovaginal fistulas, Sims operated on enslaved black women, sometimes as often as 30 times, over the course of 4 years [4]. According to some sources, Sims disregarded both his patients' modesty, operating and examining them in public, and their pain, sometimes refusing relief and forcing patients to restrain each other [3]. Southern doctors like Sims justified their experimentation on black slaves by arguing that sensitivity to pain was determined by race, class, and gender: black slaves were considered the least susceptible to pain while whites—well-to-do, female—were believed to be more vulnerable [5]. Indeed, Sims noted the "courage" of enslaved black women to withstand pain—a courage that he then placed at the service of his more privileged, fragile, white female patients [4,5]. This classification system was supported by research claims such as that of Samuel A. Cartwright (1793-1863; physician, Huntsville, AL, USA), who "discovered" a disease that he believed made blacks less sensitive to pain than whites [5]. Medicine was filtered through social constructs of race and gender both in theory and open practice.

Amidst these practices and ideas, Crawford Long became the first documented American physician to administer anesthesia. Born in Danielsville, a small town in Georgia, Long matriculated at Transylvania University's Medical Department in Lexington, Kentucky, at the age of 21 [8]. We do not know precisely why he sought medical education at a university, since the common way to learn medicine was through apprenticeship [8]. Founded in 1799, Transylvania was staffed by renowned physicians, such as Benjamin Winslow Dudley (1785-1870; Professor of Surgery, Lexington, KY, USA), and was famous for its vast medical library [8]. In 1837, Long transferred to the University of Pennsylvania. Scholars have speculated that Long's decision might have been prompted by the dismissal of one of Transylvania's professors for founding another medical school or by the knowledge that several of Transylvania's professors had studied at the University of Pennsylvania [8]. Philadelphia was an exciting place in which to be a medical student, given its long tradition in medicine as the site of the first American hospital (Pennsylvania Hospital, founded in 1751, opened in 1752) and the first American medical school (College of Philadelphia, 1765) [7]. Long matriculated at a university buzzing with new medical innovations and thinking. Professors there included George B. Wood (1797-1879; physician, Philadelphia, PA, USA), editor of *The Dispensatory of the United States of America* and a professor of ethics; William E. Horner (1793-1853, anatomist, Philadelphia, PA, USA), author of *Horner's Anatomy*; and Robert Hare (1781-1858; chemist, Philadelphia, PA, USA), author of a chemical textbook [8,9]. Long's stay in Philadelphia was not all work, however; he indulged in recreational fun by experimenting with the social use of ether. As his biographer, Francis Boland, so vividly depicts, "a group of Georgia medical students boarded with two Quaker maiden ladies at the corner of Market and Nineteenth streets, where the boys locked themselves in a bedroom and tried the effects of ether for the purpose of exhilaration and not from any scientific motive" [8]. Long was not alone in this use of ether, which was a popular form of entertainment known as "ether frolics" [8].

After graduation, Long spent one year in New York City hospitals where he assisted in surgeries [8]. Although we have no written primary sources describing his time there [8], biographers have suggested that Long would have observed the extreme suffering of patients undergoing surgery without anesthesia [8]. Since he would have had the chance to work with Willard Parker (1800-1884; surgeon, New York City, NY, USA) and J. Kearney Rodgers (1793-1851; surgeon, New York City, NY, USA), he may have been led to examine the role of a doctor in the face of patient suffering [9]. Parker, Chair of Surgery at the College of Physicians and Surgeons, supported the Alms House at Bellevue Hospital Center and advocated for a hospital devoted to the treatment of infectious diseases, while Rodgers was one of the founders of New York Eye Infirmary (which later became New York Eye and Ear Infirmary), a hospital created to treat the ophthalmologic diseases of the poor [10,11]. Observing these famous doctors and their patients, Long may have understood that patient suffering was a universal fact and that it was a doctor's obligation to try to provide relief to each one.

In 1841, due to family pressure, Long moved to Jefferson, Georgia, and opened his own practice [8]. West of Long's hometown of Danielsville, Jefferson was bigger, numbering a few hundred inhabitants [8]. Like many small southern towns at the time, its population consisted of planters and slaves [8]. Long brought his ether parties home with him: "its inhalation soon became quite fashionable in this county, and in fact extended from this place through several counties in this part of Georgia" [12]. It is here, as a young doctor educated in the North and experienced with ether in social contexts, that Long began to use the inhalational agent for surgical anesthesia. Long had not used ether previously in a medical context and could not be sure it would work as an appropriate anesthetic. His actions thus reflect the thin line between treatment and experimentation in nineteenth-century America [4], but at the same time, they countered the period's concept of what constituted appropriate bodies for experimentation.