



## Special article: Horace Nelson MD, John Webster LDS - unrecognized Canadian anesthesia pioneers

## Article spécial: Horace Nelson MD, John Webster LDS – des pionniers méconnus de l'anesthésie au Canada

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### Abstract

**Purpose** *The timing of the earliest reported ether anesthetics in early 1847, in regions to become Canada in July 1867, was examined using information from on-line and library-based sources. Previous authors had identified the first reported ether anesthetic given by a visiting American dentist in January 1847 in Saint John, New Brunswick. Nevertheless, they had reported three different anesthetics as the second occurrence – which would denote the first anesthetic given by a resident of Canada.*

**Principal findings** *We confirmed that there were no reports of ether anesthetics being given in Canada before that reported on January 18, 1847 in Saint John. The information available for our review indicates that the second ether anesthetic, and the first by a Canadian, was given in Montreal by a dentist, Dr. John Horatio Webster, on February 20, 1847. The surgical assistant for that operation, Dr. Horace Nelson, later reported on animal and human experiments with ether, which he had led in Montreal starting in January 1847.*

**Conclusion** *Earlier authors, who may not have had access to the information now available, came to incorrect conclusions about the first ether anesthetic reported to have been given by a Canadian. Current information indicates that John Webster gave the first reported*

*anesthetic in Montreal on February 20, 1847 following experiments with ether led by Horace Nelson. Both Webster and Nelson deserve recognition as Canadian anesthesia pioneers.*

### Résumé

**Objectif** *Le moment de la première anesthésie à l'éther au début de 1847, dans des régions qui deviendront le Canada en juillet 1867, a été examiné sur la base de renseignements tirés de sources d'informations en ligne et en bibliothèque. Par le passé, des auteurs avaient identifié que la première anesthésie à l'éther documentée avait été administrée par un dentiste américain de passage à Saint John, Nouveau-Brunswick, en janvier 1847. Toutefois, ces auteurs rapportaient trois anesthésies différentes comme étant la deuxième anesthésie – ce qui dénoterait la première anesthésie prodiguée par un résident du Canada.*

**Constatations principales** *Nous confirmons qu'il n'existe aucun compte rendu d'une anesthésie à l'éther administrée au Canada avant celle documentée à Saint John le 18 janvier 1847. Les renseignements disponibles pour notre compte rendu indiquent que la deuxième anesthésie à l'éther, et la première réalisée par un Canadien, a été administrée à Montréal par un dentiste, le Dr John Horatio Webster, le 20 février 1847. L'assistant chirurgical lors de cette opération, le Dr Horace Nelson, a par la suite rapporté ses expériences réalisées chez des animaux et des humains avec l'éther, expériences menées à Montréal dès janvier 1847.*

**Conclusion** *Les auteurs s'étant intéressés à ce volet de notre histoire n'ont peut-être pas eu accès aux informations disponibles aujourd'hui. Par conséquent, leurs conclusions sont inexactes quant à la première anesthésie à l'éther rapportée comme ayant été administrée par un Canadien. Les renseignements*

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**Author contributions** Daniel Chartrand initiated the search for information and was later joined by Douglas Craig. Both authors were involved in drafting the manuscript.

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*disponibles actuellement indiquent que John Webster a administré la première anesthésie documentée à Montréal le 20 février 1847, à la suite d'expériences avec l'éther menées par Horace Nelson. Webster et Nelson méritent tous deux d'être reconnus comme pionniers de l'anesthésie canadienne.*

On the basis of a newspaper report in *The Weekly Observer* (Saint John) on Tuesday, January 19, 1847, it has generally been accepted that the first confirmed use of ether for clinical anesthesia in Canada (*vide infra*)<sup>A</sup> was in Saint John, New Brunswick. The report states that the previous day, Dr. Samuel Adams, a visiting dentist from Boston, administered “the vapor of a compound of which aether appears to form the chief ingredient” to a patient having an arm tumour removed. In his review of the introduction of ether to Upper Canada (now Ontario) in 1847, Steward did not mention the Saint John report but stated that Dr. James Douglas gave the first ether anesthetic in Canada in Quebec City for amputation of toes.<sup>1</sup> Steward did not provide a direct reference to a report by Douglas but suggested the anesthetic took place “some time” before February 20, 1847, on which date (confirmed by a newspaper article cited by Steward), a dentist, Mr. Webster, gave an ether anesthetic in Montreal for removal of a tumour from a woman’s thigh. He noted that the Montreal surgeon was Dr. Wolfred Nelson, assisted by his son, Dr. Horace Nelson. Dr. Edward Dage Worthington later published the claim that he had performed “the first capital operation in Canada under the influence of sulphuric ether”, a below-knee amputation on March 11, 1847 in Eaton Corner, Quebec.<sup>2</sup> Worthington did not acknowledge any of the previous ether anesthetics in his report.

No confirmation of the date of the Douglas anesthetic in Quebec City has been found in the lay press or medical publications from 1847. Although Worthington has been given the credit by some authors as the first “native Canadian” to use ether for surgery, in our view, Webster (John Horatio) along with Horace Nelson deserve recognition for both the February 20, 1847 anesthetic and the animal and human research they had conducted with ether (described below) before its clinical use.

An article by Horace Nelson published in June 1847, one month following Worthington’s report, describes animal and human experiments with ether in Montreal

beginning in January 1847.<sup>3</sup> The article includes additional information about the anesthetic (date not stated in the article) given by Webster for removal of the thigh tumour. It is our opinion that both the details of the ether anesthetic and Nelson’s description of the prior experimentation warrant review, as do the very interesting personal histories of both Nelson and Webster.

The full text of the newspaper article reporting the Webster anesthetic is reproduced below.

***The Pilot and Journal of Commerce, Montreal - Friday, February 26, 1847***

*“We have been informed that on Saturday last, Dr. Nelson, assisted by his son, Dr. Horace Nelson, removed a large tumor, of several pounds weight, from the thigh of a weak, nervous woman. Mr. Webster, an able dentist, of this city, administered the ethereal gas to the patient, which, in a few moments, plunged her in such a complete state of insensibility that she manifested not the smallest sense of pain; and when the effect of the gas was over, she stated that she had experienced no pain whatever, nor was she at all conscious of having undergone the operation, of which she had previously expressed the utmost dread. It is said that the Dr. is quite satisfied of the property of the vapour of ether of arresting sensibility and consciousness for a time, but from the effect it has on the nervous system, the deep and heavy breathing that results from it, leads him to think that it might be attended with serious injury if administered in too great a quantity, or breathed for so long a time. It would appear that the “Letheon” is extensively employed in the London Hospitals previous to all important operations.”*

Horace Nelson, Horace’s father, Dr. Wolfred Nelson (the surgeon), and the anesthesiologist, Mr. John Horatio Webster, were all from Montreal. Although Horace Nelson’s role on February 20<sup>th</sup> was reported as surgical assistant to his father, a later publication (summarized below) revealed that he, along with Webster, had been very involved in animal and human research using ether before the February surgery.

Experiments with sulphuric ether vapour. Horace Nelson MD<sup>3</sup>

*“Having bestowed considerable attention to the consideration of the modus operandi of the sulphuric ether vapour, I enclose the following*

<sup>A</sup> Although Canada was not formally constituted as a country until July 1, 1867, we have used this identification for convenience, in order to include the various geographic components of the future country in the years preceding that date.

*report of experiments performed with a view to ascertaining its physiological effects.”*

In the report dated May 14, 1847, Nelson noted that Mr. Jones, a “chevalier d’industrie”, visited Montreal in January to “speculate on the sale of the secret substance” (ether) and an apparatus to administer the substance. He noted that both were purchased by “my friend”, Mr. Webster, dentist. Nelson reported that Jones administered ether to a dog which was in a “state of profound insensibility” within four minutes. Nelson then described performing a series of surgical incisions without any reaction from the dog, after which he left the dog to attend to a patient. He reported that “re-action had taken place” on his return, further incisions were clearly painful, and the dog was then euthanized. Nelson noted that a second dog experiment performed several days later was cruel. This experiment again demonstrated the efficacy of ether inhalation as well as the recovery of consciousness soon after the vapour was discontinued.

Nelson continued with comment on the February 20<sup>th</sup> anesthetic reported in the newspaper, adding new information about the recovery process. *“During the last stages of applying the dressings, reaction slowly manifested itself; she seemed most happy, judging from her loud peals of laughter, but they were soon succeeded by sighs and tears, calling frequently for one of her daughters living in the country.”*

Nelson continued his report with a description of the sensations he experienced while he inhaled the ether vapour “over one hundred times”. He noted initial respiratory irritation, followed by a state where sensation was destroyed but voluntary motion still existed. On one occasion, he had a tooth removed by Webster and felt no pain. Mr. Molloy, a “highly intelligent young pupil”, was also a subject for the test inhalations and claimed similar effects. Other than Nelson’s transient (20 min) paralysis of an arm following one inhalation, he noted no other side effects or complications.

Although not directly stated in Nelson’s report, it appears likely that Webster, who had purchased the equipment and ether used in the procedures, continued overseeing the ether inhalation experiments. The location of the initial experimentation was Webster’s dental office on Notre-Dame Street (Figure). While not mentioned in the reports of the February 20<sup>th</sup> anesthetic and surgery, they most likely took place in the patient’s home in Griffintown, in an area long since demolished.

Nelson concluded his report by noting that he intended to continue animal experiments with a view to determining both the mode of action of ether and its toxic effects. No further information is currently available to confirm any further experimentation. It is known that Nelson left Montreal later in 1847, moving to Plattsburgh, New York.



**Figure** Maison Lawrence-Kidd, 20 Notre-Dame Street East, Montreal. The building number was 108 Notre-Dame Street in 1847 when it was the location of the dental practice of Dr. John H. Webster and the site of the initial experimentation with ether anesthesia (see text). In 1855 Webster moved to the Maison Joseph Hall, immediately to the left. Photograph by Denis Tremblay, 2008. [www.vieux.montreal.qc.ca](http://www.vieux.montreal.qc.ca). Used with permission. Webster’s addresses obtained from Lovell Directory Montreal – 1847 and 1855

Webster continued to administer anesthetics in Montreal for both dental and surgical procedures. The complex and interesting personal histories of these Canadian anesthesia pioneers are summarized below.

### **Horace Nelson MD (1821-1863)**

Henry Horatio Nelson (known as Horace throughout his adult life) was born in Saint-Jean-sur-Richelieu, Quebec. After schooling in Saint-Hyacinthe, Quebec, he began his medical training as an apprentice to his father, Dr. Wolfred Nelson. At age 16, he enrolled in the Medical Faculty of McGill College, but the Quebec Patriotes Rebellion of 1837-38 (during which he and his father were arrested as supporters of the Patriotes) led him to move to New York City where he completed his medical degree as a student of the renowned surgeon, Dr. Valentine Mott.

Nelson returned to Montreal in 1842 and opened an office as a family physician and surgeon. In 1843, he married Cornelia Breckenridge McNeil, daughter of David B. McNeil, in Plattsburgh. They had three sons, all of whom became physicians, and one daughter.

Nelson was very active in several medical organizations, including appointments as a faculty member of the School of Medicine of Montreal as well as the short-lived St. Lawrence School of Medicine. In late 1847, soon after the

publication of the report on ether anesthesia reviewed above, he resigned from his faculty positions and moved to Plattsburgh for “health reasons”.

Nelson established a practice in Plattsburgh and, in addition, became editor of *Nelson's American Lancet; A Monthly Journal of Practical Medicine* and a co-editor of the *Northern Lancet and Gazette of Legal Medicine*. He held faculty appointments in the School of Medicine, University of Vermont, in Burlington (1853-55) as well as in the New York School of Practical Medicine at Plattsburgh (this school lasted less than one year). An historical note by Dr. L. Schiff in the February 6, 1976 edition of the *Plattsburgh Press-Republican* describes Nelson as a “maverick medic” whose opinions often placed him in conflict with his medical colleagues and with organizations such as the American Medical Association.

Nelson and his family returned to Montreal in 1859 where he re-established a medical practice. He became a demonstrator of anatomy in the Medical Faculty of McGill College in late 1860 and was granted the MD degree by McGill in 1861 based on his published dissertation on stricture of the rectum.<sup>4,5</sup>

We have found no evidence, as promised in the June 1847 report,<sup>3</sup> that Nelson maintained any ongoing interest in ether anesthesia and specifically in the examination of the mechanisms and toxicity of ether anesthesia. His death on December 19, 1863 in Montreal at age 43 was reported in newspapers in Canada without reference to cause. A death notice in *The Plattsburgh Republican* reads: “In Montreal December 19, 1863, of Consumption. Horace Nelson Esq. MD, aged 43, eldest son of the late Dr. Wolfred Nelson.”

### John Horatio Webster LDS (1811-1888)

In the medical literature, little is known about “Mr. Webster”; however, in the *Canada Journal of Dental Science*, we found the text of a lecture given by Webster before the Montreal Dental Society in 1871 or 1872.<sup>6</sup> The following is an excerpt from that lecture:

*...“Perhaps no ten professional men in this country have administered ether and chloroform as often as myself. I having been the first to introduce both into Canada; the first to manufacture chloroform, when the imported article was selling here for one dollar per oz., and the first to manufacture ether, so as to insure its purity and strength.*

*The first time that ether was administered outside of my Surgery was for an operation by Dr. Wolfred Nelson, assisted by his son, Dr. Horace Nelson, in the presence of several medical students and other spectators, for the removal of a tumor. The patient*

*was a poor woman, living in Thompson's Yard, Griffintown. I administered the ether, and with such satisfactory results that many other medical men were induced to give it a trial. The next time that I was requested to administer it was in the Hotel Dieu Hospital, to an old man, for the removal of a broken silver catheter from the bladder. I at first declined, as it was the belief of six surgeons present that the man could not survive the operation, owing to his advanced age and weakness. I was, however, persuaded by Dr. Thomas Arnoldi to do so. The anaesthetic was successfully administered, the catheter removed, and in a few days the man was discharged, cured...*

*... In the hundreds, I may say thousands, of cases in which I have administered I have not seen one that I could not get perfectly under the influence of ether or chloroform.”*

John Horatio Webster was born in Vermont and married Anne Elizabeth Porter from Poughkeepsie, New York. Their first six children were born from 1833 to 1846 in New York State. In 1847 and 1849, they had two more children in Montreal. In 1855, two sons, William and Henry, died tragically at 19 and 22 years of age. They had both just completed their final exams at McGill University, but before convocation for the degrees of MD and DDS, respectively, they drowned in Lake Champlain, south of Montreal.

Being well established in Montreal, Webster practiced dentistry and anesthesia on Notre-Dame Street, and from 1855 to 1888 rented the house immediately adjacent to the location of the initial ether trials in 1847 (Figure). We were astonished to discover in the local newspapers and in the dental literature<sup>7</sup> that Webster was charged in 1858 with criminal assault of a patient, Mrs. Louisa Nichols. She accused him of having raped her in his dental office after she had received chloroform for a dental procedure. During her testimony, it was rapidly established that she had not been raped, leading the judge to instruct the jury to consider the accusation to be an “attempt to commit a rape”. On the basis of the plaintiff's somewhat confusing testimony, the jury found Webster “guilty of an attempt to commit a rape, with recommendation to mercy”, despite the fact the doors to adjacent rooms were left half opened and none of the persons present in those rooms had witnessed any improper conduct. The newspaper noted: “The decision seemed to take the Court by surprise”. For his part, after a long discussion (seven pages) of the case, the editor of *The Dental Register of the West* concluded: “... we are of opinion that the prisoner has been convicted on insufficient evidence. He may certainly be guilty, but we could not condemn him on such slight evidence.”<sup>7</sup>

Following the verdict, Webster filed an appeal of his conviction, seeking a new trial on the basis of inappropriately allowed evidence. The appeal was denied.<sup>B</sup> He was ordered to return to the court for sentencing. Despite a thorough search of the information now available, no record of the final outcome of the trial has been found.

In the years following the trial, the records do show that Webster was able to resume his career as a dentist in Montreal. Years later, he became a member of the executive committee of the Quebec Dental Society, and he also became an examiner for “mechanical dentistry”. In 1888, the year of his death, he was honoured by the Canadian Dental Association as the recipient of the Gold Medal for “practical dentistry”.

## Discussion

Previous authors recognized Webster for administering the ether anesthetic for a procedure that Wolfred Nelson performed, assisted by his son, Horace, to remove a thigh tumour. Some authors<sup>8,9</sup> placed the date of the surgery as early March 1847 in Montreal, which was before the case reported by Worthington.<sup>2</sup> Steward did correctly note February 20, 1847 as the date of the Webster anesthetic, which he suggested followed an ether anesthetic in Quebec City by Dr. James Douglas for amputation of toes.<sup>1</sup> The basis for Steward’s claim that the Douglas anesthetic was first was an “Editorial Note”,<sup>10</sup> which does not include actual dates of the several anesthetics noted.

The relevant text of the note titled “Employment of Sulphuric Ether Vapour in Montreal, Quebec, and Sherbrooke” reads: “*This agent has been employed in Quebec, this city, and Sherbrooke; but not with uniform success. In Quebec, Dr. James Douglas lately amputated the toes of a man, who had been previously narcotized by the inhalation of the vapor. More lately, in this city, Dr. Nelson removed a tumour from the thigh of a woman under similar circumstances of narcotism. The removal of a leg by Dr. Worthington, of Sherbrooke, was effected under a like state of insensibility from the same cause.*” One added case (timing not stated) of an unsuccessful ether anesthetic by a Dr. Campbell in Montreal was also mentioned. The 1847 author’s intent of “lately” and “more lately” is not clear - was “more lately” before or after “lately”?

Whereas there is clear documentation of the February 20 date for Webster’s anesthetic, no direct confirmation has been discovered for the date of the anesthetic given by

Douglas. In a detailed and very interesting biography of his father, James Douglas Jr. reported the first use of chloroform anesthesia in Quebec City by his father in 1848;<sup>11</sup> however, he did not mention any previous use of ether anesthesia. As Worthington was a former student of Dr. James Douglas, it is also surprising that he took the credit of having performed the first surgery under ether anesthesia and never mentioned that Douglas had also performed an amputation of toes under ether anesthesia in early 1847. We are forced to conclude that the Douglas ether anesthetic in Quebec City did not precede that by Webster in Montreal.

Regardless of the timing of the Webster anesthetic in relation to all the others noted, Nelson’s earlier reports of animal and human experimentation<sup>3</sup> are of special interest. Horace Nelson was an academic physician who certainly started investigating ether anesthesia rigorously (for those days), but he did not seem to have any special or sustained interest in anesthesia. On the other hand, John Webster not only administered the first ether anesthesia for a major surgery (with a written record), but he also purchased the drug and apparatus in January 1847. As Webster reported in his lecture to the Montreal Dental Society, he was the first to manufacture ether and chloroform in Canada. Ultimately, over a period of 25 years, he had administered thousands of anesthetics, apparently with great success. Webster was not only one of the early pioneers of anesthesia in Canada but also possibly the first to use anesthesia routinely in his clinical practice.

Today, it is difficult to know to what extent the criminal trial of 1858 affected Webster’s reputation and his career. Years later, he became the examiner of the Quebec Dental Society for “mechanical dentistry” (but another dentist was the examiner for anesthesia) and was very involved on the executive committee of the Dental Society, at one point becoming the vice-president. In 1888, the Canadian Dental Association recognized his exceptional career with the Gold Medal for practical dentistry.

To date, Horace Nelson and John Webster have received very little recognition for their contributions to Canadian anesthesia, Nelson and Webster’s contributions in 1847 and Webster’s in the decades following. We trust our narrative will not only clarify the timing of the February 20, 1847 anesthetic in Montreal, in relation to other early Canadian ether anesthetics, but will also show that both Nelson and Webster deserve recognition as Canadian anesthesia pioneers.

## Key points

- A visiting dentist from Boston administered the first reported ether anesthetic in Canada on January 18, 1847 in Saint John, New Brunswick.

<sup>B</sup> Regina vs. Webster. Judgment December 9, 1858. Queen’s Bench, District of Montreal. Lower-Canada Reports. Décisions des Tribunaux du Bas-Canada. 1859; IX: 196-201.

- There has been uncertainty concerning the date and location of the first ether anesthetic administered by a Canadian.
- Our searches of electronic historic databases and printed records have established that the first reported ether anesthetic by a Canadian was given by a dentist, John H. Webster, in Montreal on February 20, 1847.
- In the weeks preceding the February anesthetic, Horace Nelson, a physician and surgeon, led a series of animal and human experiments with ether anesthesia.
- While Webster continued to include general anesthetics in his practice for decades, there is no record of Nelson maintaining an ongoing interest in anesthesia.

**Conflicts of interest** None declared.

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