



Contents lists available at ScienceDirect

## Journal of Anesthesia History

journal homepage: [www.anesthesiahistoryjournal.org](http://www.anesthesiahistoryjournal.org)

## The 2016 Lewis H. Wright Memorial Lecture: America's Doctor Anaesthetists (1862–1936)—Turning a Tide of Asphyxiating Waves☆☆☆☆

George S. Bause, MD, MPH\*

Clinical Associate Professor, Anesthesiology and Perioperative Medicine, Case Western Reserve University School of Medicine, 11100 Euclid Ave, Cleveland, OH, 44106-6031, USA

Clinical Associate Professor, Oral and Maxillofacial Surgery, Case Western Reserve University School of Dental Medicine, 2124 Cornell Rd, Cleveland, OH, 44106-3804, USA

Honorary Curator and Laureate of the History of Anaesthesia, Wood Library-Museum of Anaesthesiology, American Society of Anesthesiologists, 1061 American Ln, Schaumburg, IL, 60173-4973, USA

## ARTICLE INFO

## Article history:

Received 11 December 2016

Accepted 16 December 2016

Available online xxx

## ABSTRACT

Laughing-gas showman G.Q. Colton franchised dental extraction under 100% nitrous oxide in many large American cities before popularizing the practice with French Imperial Court dentist T.W. Evans in France and then England. Chicago dentist Z. Rogers helped surgeon E. Andrews oxygenate nitrous oxide, with neither man changing significantly the clinical practices of others. London's F.W. Hewitt and Pittsburgh's S.J. Hayes oxygenated anesthetics with greater clinical impact. By 1920, E.I. McKesson had publicized his practice of secondary saturation with bursts of 100% nitrous oxide to relax musculature in anesthetized patients. In the banner year of 1936, (1) C.B. Courville published a paper about brain damage following hypoxic anesthetics, (2) pulse oximetry pioneer T. Aoyagi was born, and (3) a New York society nationalized into the American Society of Anesthetists, many of whose presidents would champion the adequate oxygenation and the monitoring of anesthetized patients. Many dental and medical doctors first promoted and then eventually opposed hypoxic anesthetics, finally turning the tide of asphyxiating waves.

© 2016 Anesthesia History Association. Published by Elsevier Inc. All rights reserved.

## Introduction

Three types of doctors—self-styled, dental, and medical—played a role in promoting or preventing hypoxic anesthetics, most notably the anesthetic administration of 100% nitrous oxide for brief procedures, such as dental extraction (“exodontia”). This discussion will range through three overlapping phases in the history of American anaesthesia of delivering unoxxygenated “laughing gas” to patients for roughly a minute at a time either to induce general anesthesia or, while anesthetized, to cause muscular relaxation. Those overlapping phases include (1) American Anesthesia's First Asphyxiating Wave, (2) Oxygenating American Anesthetics, and (3) American Anesthesia's

Second Asphyxiating Wave. Self-styled “doctor” G.Q. Colton led the First Asphyxiating Wave, dental doctor S.J. Hayes helped lead the oxygenating, and medical doctor E.I. McKesson led the Second Asphyxiating Wave. A neuropathologist, a pulse oximetry pioneer, and several presidents of the American Society of Anesthesiologists would eventually assist in turning the tide of asphyxiating waves.

## American Anesthesia's First Asphyxiating Wave

*Making Chairs Then Filling Them: Laughing-Gas Showman G.Q. Colton*

After apprenticing in chairmaking in his home state of Vermont, Gardner Quincy Colton (1818–1898, [Figure 1](#)) moved to New York City, made chairs, matriculated at the Crosby Street College of Physicians and Surgeons, and then dropped out of medical school. Agreeing with Shakespeare to “throw physic to the dogs,” Colton had discovered that he could earn more money by filling chairs as a paid lecturer in natural philosophy and demonstrator of the recreational effects of laughing gas (nitrous oxide). Best known as the world's first nitrous-oxide anesthetist, Colton insisted lifelong that his first patient, Hartford dentist Horace Wells, both “discovered” and volunteered for general

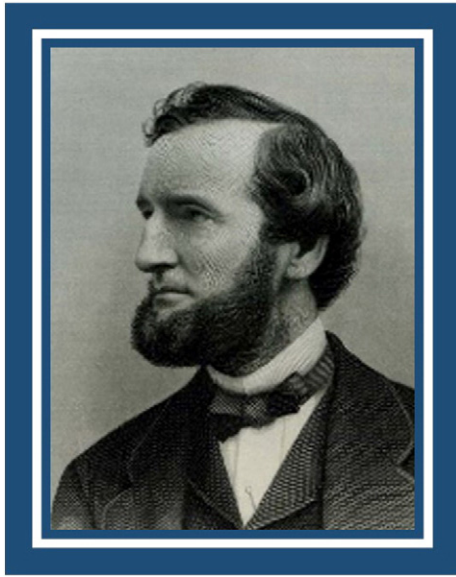
\* Lecture sponsorship: presented in part as the Lewis H. Wright Memorial Lecture, sponsored on October 23, 2016, in Chicago, IL, by the Wood Library-Museum of Anaesthesiology at the Annual Meeting of the American Society of Anesthesiologists.

\*\* Funding: This work was supported by a Paul M. Wood Fellowship from the Wood Library-Museum of Anaesthesiology, American Society of Anesthesiologists, 1061 American Ln, Schaumburg, IL, 60173-4973, USA.

\* Conflicts of Interest: No intellectual, ethical, or financial conflicts of interest.

\* Corresponding author at: 5247 Wilson Mills Rd, No. 282, Cleveland, OH, 44143-3016, USA.

E-mail address: [UJYC@aol.com](mailto:UJYC@aol.com).



**Fig. 1.** Gardner Q. Colton (1819–1898): self-styled “Doctor” and leader of American anaesthesia’s “First Asphyxiating Wave.” Image from plate opposite page 835 of *Sketches of Men of Mark: Written by the Best Talent of the East*. New York: New York and Hartford Pub Co; 1871.

anaesthesia. After Wells’ suicide in 1848, Colton spent most of his final 50 years of life administering nitrous oxide for either recreational or anesthetic purposes. Following his return from the California Gold Rush with a fortune earned largely from dubious land sales in San Francisco as “Justice G.Q. Colton,” he invested his money so poorly that he was forced to resume showmanship, including the demonstration of laughing gas.<sup>1</sup>

In 1862 in New Britain, CT, Colton taught nitrous-oxide anesthesia to dentist Ralph C. Dunham (1826–1896), who mentored 23 other dentists.<sup>2</sup> After revisiting Dunham in 1863, Colton traveled on to Hartford, where he provided nitrous-oxide anesthesia for dentist Joseph H. Smith. Dr. Smith extracted more than 3000 teeth in 23 days. Colton’s fellow showman and friend, Phineas T. “P.T.” Barnum, advised Colton to associate formally with exodontists (“toothpullers”) to take advantage of Colton’s dental anesthetics, which supplied 100% nitrous oxide to patients for brief periods of time. So, any reference to Colton as “Doctor” or “Professor” was, at best, self-styled by this medical school dropout; at worst, the honorifics were encouraged by Barnum. Importantly, Barnum advised Colton to form a business—the Colton Dental Association—for administering nitrous-oxide anesthesia for dental extraction. A grateful Colton followed closely at least three of Barnum’s 10 Rules for Business Success.<sup>3</sup> Barnum Rule #8: “Advertise your business.” At the heart of the Colton Dental Association’s success was all the newspaper, periodical, and trade card advertising in which Colton engaged. Because he originally planned to open the Association on Monday, July 13, 1863, he advertised heavily in the New York City newspapers that he would be offering a free nitrous-oxide demonstration to “Ladies only” the Saturday before. Well, Monday came and the opening was cancelled by the Draft Riots which broke out all over Manhattan. The Colton Dental Association finally opened 2 days later, on Wednesday, July 15.<sup>3,4</sup> Barnum Rule #7: “Engage proper employees.” Because he admitted later that he had only pulled three teeth in his lifetime, Colton had to hire operators to extract teeth. When he founded the Colton Dental Association, Colton associated himself with three highly respected dentists: Dr. Joseph H. Smith with whom Colton had worked for 23 days in Hartford, CT; Dr. William Hurd, a successful mass-marketing dentist from Brooklyn; and Dr. John Allen, Manhattan’s “Father of Continuous Gum Teeth” (Dentures). Within 2 months of the Association’s opening, only partner Allen had not abandoned Colton.

After Allen’s departure from the Colton Dental Association, Colton would struggle on, hiring new operators and gradually expanding the Association’s business using Barnum’s Rules.<sup>3</sup> By end-December of 1865, Colton could use Barnum Rule #6: “Do not scatter your powers.” The Colton Dental Association was attracting so many patients that it could now limit the practice of its dentists to extractions only.<sup>3,5</sup>

#### “Colton Gas” Safety: Scrolling Survivors and Self-Regulating Practice

By February of 1864, reports of three deaths after nitrous-oxide anesthesia threatened to derail the Colton Dental Association’s laughing-gas locomotive. Besides disputing the three causes of death, Colton began collecting signatures of all his nitrous-oxide patients on a massive scroll in his Manhattan office. Colton would quote their comments and cite the total number of signatures in future Colton Dental Association advertising.

The success or failure of the Colton Dental Association rode on self-regulation. To expand franchises to large American cities and eventually to Europe, Colton needed a reliable way to manufacture nitrous oxide. To “bake up” and “wash” his laughing gas safely, Colton required a method that minimized the risks posed by explosions and contaminating fumes. Also, to allay the fears of big-city dentists, Colton also had to appear professionally responsible at his Colton Dental Association. He needed his Association to self-regulate the extent of toothpulling so that his operators were not tempted to automatically remove all teeth from all unconscious patients.

Colton and his Association experienced success in baking up nitrous oxide by using self-regulating heaters. At this time period, nitrous oxide was self-generated by the dentist or physician and involved the heating of ammonium nitrate (the explosive compound in fertilizer bombs) within a confined temperature range. A Massachusetts teacher of natural philosophy named Alfred W. Sprague co-invented a self-regulating heater that melted solid ammonium nitrate past its roughly 175°C melting point but did not heat it beyond 250°C, where noxious fumes and even detonation were a risk.<sup>6</sup>

In contrast to the self-regulatory success Colton observed with laughing-gas heaters, he saw many dental competitors fail to self-regulate the number of their dental extractions per patient. By removing patients’ fears and consciousness, nitrous oxide made things too simple for unscrupulous “toothpullers,” most of whom were paid by the number of teeth extracted. Because of heavy advertising and popular word-of-mouth testimonials, the Colton Dental Association’s practitioners were swamped with patients and could successfully self-regulate their extracting so that healthy teeth were spared from the dental forceps. Nonetheless, competing practitioners who had begun using nitrous oxide in their practices began extracting entire mouthfuls of teeth, giving all exodontists, even those at the Colton Dental Association, a bad reputation.

#### An “Empire State” Franchiser Visits France’s Imperial Dentist and England

With the end of America’s Civil War and after the production of laughing gas was facilitated by Sprague nitrous-oxide generators, Colton was free to expand from Manhattan out to large cities all over America. He established Colton Dental Association franchises chronologically in Philadelphia, PA; New Orleans, LA; Baltimore, MD; Cincinnati, OH; Brooklyn, NY; St. Louis, MO; Boston, MA; Chicago, IL; Louisville, KY; and eventually San Francisco, CA. Most of the Colton Dental Association franchises were operated by Colton’s relatives, their in-laws, or friends. And most of these franchises were established before Colton took an 18-month tour of Europe (1867–1868), largely focused on his own “tale of two cities” involving Paris and then London.

Download English Version:

<https://daneshyari.com/en/article/7518205>

Download Persian Version:

<https://daneshyari.com/article/7518205>

[Daneshyari.com](https://daneshyari.com)