



# The Perfect and Famous Anesthetic Known as *Methyl* in Boston in 1895



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## ABSTRACT

Extravagant claims were made for proprietary dental anesthetics in Boston, MA, in the late 1800s. For instance, in 1883, Uriel K. Mayo introduced an inhaled Vegetable Anaesthetic comprised of nitrous oxide that had been uselessly pretreated with botanical material. This misguided concept may have been inspired by homeopathy, but it was also in line with the earlier false belief of Elton R. Smilie, Charles T. Jackson, and William T.G. Morton that sulfuric ether could volatilize opium at room temperature. In 1895, the Dental Methyl Company advertised an agent they called *Methyl*, a supposedly perfect topical anesthetic for painless dental extraction. The active ingredient was probably chloroform. Anesthetic humbug did not cease in Boston on Ether Day of October 16, 1846.

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In 1895, the Methyl Dental Company of absolutely painless dentists opened their door on 181 Tremont St, Boston, MA, overlooking the Boston Public Garden and its Ether Monument (Fig. 1).<sup>1</sup> The prime location was in the downtown mercantile district of the city. Their intriguing newspaper advertisement (Fig. 2) was brought to our attention because an enlarged copy is included in the historical montage that presently adorns an underground wall of the Downtown Crossing stop of the Orange Line subway train (Fig. 3). Along with hotels and department stores, there was a cluster of dental offices near there (Fig. 4). Of note, anesthesia-pioneering dentist Horace Wells had demonstrated nitrous oxide anesthesia near the Tremont House hotel in 1845.<sup>2–4</sup> Subsequently, William T.G. Morton (1819–1868) had a dental office on 19 Tremont Row, a northward extension of Tremont St, and fellow ether pioneer Elton Romeo Smilie (1819–1889) was on 22 School St near its junction with Tremont.<sup>2,5,6</sup> (Smilie reported surgical insensibility from inhaled ether vapor in 1846 but falsely ascribed the action to the supposed volatilization of opium by ether.)

Wells had been originally introduced to nitrous oxide in Connecticut in 1844 by traveling laughing gas showman Gardner Q. Colton

(1814–1898), and Colton was still exhibiting laughing gas on Tremont St in Boston in 1862 (Fig. 5).<sup>7,8</sup> Methyl Dental was on Tremont St for at least 5 years, later moving a few blocks down to Washington St (Fig. 6). The company dissolved in 1904.<sup>9</sup>

## Methyl

The namesake drug of the painless Methyl Dental Company was a supposedly “famous” anesthetic that was “simply applied to the gums.” No ether, gas, or cocaine was involved. There were no dangers, bad results, or after effects. Perfect safety and positively no pain were guaranteed. The agent, identified only by the name *Methyl*, was “endorsed by the Medical Faculty” of some institution. Now-defunct possibilities in Boston included Bellevue Medical College of Massachusetts (closed 1883), College of Physicians and Surgeons (1882–1948), Excelsior Medical College (closed 1883), and New England University of Arts and Sciences (closed 1881).

What was the ingredient of Methyl? The chemistry term *methyl* arose in 1835, when French chemist Jean-Baptiste Dumas (1800–1884) determined the composition of wood alcohol, CH<sub>3</sub>-OH. He coined the term *methylene* from Greek words for wine and wood (Fig. 7).<sup>10–13</sup> Accordingly, wood alcohol became known as *methyl alcohol* in English in the 1840s. Today, in international chemical nomenclature, the word *methyl* designates the -CH<sub>3</sub> group. For example, there is such a group in the methamphetamine molecule, colloquially known as *meth*.<sup>14</sup>

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**Fig. 1.** The Methyl Dental building of 181 Tremont St is seen to the left of the large Masonic Temple in Boston. Although hard to read in the photograph, the sign running across the top of the first story of the smaller building proclaims “The Methyl Dental Co.” in letters roughly 3 f. in size. The fine dental building no longer stands. The tree in the foreground is in the Boston Public Garden, home of the Ether Monument.<sup>1</sup> This image gives a sense of the posh location and is preserved by the Bostonian Society (<http://rfi.bostonhistory.org/ArchivesShowItem.aspx?1324-BIBLIO>).

Alas, despite its touted fame in Boston, the identity of anesthetic Methyl is lost to time. Anesthetics known in 1895 included methyl chloride,  $\text{CH}_3\text{-Cl}$ .<sup>12,15</sup> A liquid while under pressure, it could be sprayed on the gums for refrigerant evaporation. It is a gas at atmospheric pressure and room temperature and has general anesthesia power when inhaled. Locally, it sometimes caused tissue sloughing. Systemically, it was appreciably toxic. It was sometimes added to better anesthetics, such as ethyl chloride,  $\text{CH}_3\text{-CH}_2\text{-Cl}$ .<sup>16,17</sup> A mixture of methyl and ethyl chloride was commercialized in 1892 by French pharmacist Jules Bengué (1863–1898) but was not introduced in America until 1898. The company he founded still offers a salve containing the methyl ester of salicylic acid under the Anglicized name *Bengay*.<sup>17</sup> All things considered, neither methyl chloride nor methyl salicylate would have satisfied any patients seeking perfect dental anesthesia.<sup>18</sup>

The cocaine molecule includes a chemical group known as a *methyl ester*,  $\text{R-COO-CH}_3$  (Fig. 8).<sup>19–21</sup> The Methyl Dental advertisement explicitly stated that Methyl was not cocaine. Methyl was claimed to be a local anesthetic (Figs. 2 and 6). Motivated to avoid the high toxicity and addictive properties of cocaine, chemists in the 1890s actively attempted to synthesize artificial methyl esters as anesthetics, but none were available to Methyl Dental in Boston in 1895. For instance,  $\alpha$ -eucaine and orthoform are methyl esters

released in Europe in 1896 and 1897.<sup>20,21</sup> More effective local anesthetics such as amylocaine (Stovaine) and procaine (Novocain) were not available until the early 1900s.<sup>16</sup>

### Vegetable Anaesthetic

A clue to the nature of Methyl is provided by the advertisements of another Boston dentist. In 1883, Dr. Uriah King Mayo (1816–1900), also of Tremont St, began to advertise an amazingly safe and effective product that he dubbed the “Vegetable Anaesthetic” (Fig. 9).<sup>22</sup> In 1886, the title page of the third edition of his advertising booklet was distinctly reminiscent of the claims of Methyl Dental. The Vegetable Anaesthetic is “a safe and pleasant substitute for ether, chloroform, nitrous oxide, and all dangerous substances used to destroy pain in dentistry and surgery.”<sup>22</sup> Mayo was coy as to the ingredients of his inhalation anesthetic, but there was an investigation after Boston dentist A.J. Shurtleff died during self-administration of the “perfectly safe” product.<sup>23</sup> The gas may have been previously bubbled through botanical material such as opium, but analysis indicated only nitrous oxide. The ploy, which may have been performed in homeopathic good faith, is reminiscent of the misguided attempts of Smilie and Morton to volatilize opium with the aid of sulfuric ether.<sup>5,6</sup>

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