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<th>Year</th>
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<td>1800</td>
<td>EtherCOPY</td>
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<td>1882</td>
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Cartoon by James Gillray, 1802. Showing Dr. Garnett experimenting upon Sir J. C. Hippesley with Humphry Davy assisting (holding bellows).
Ether had been known, at least since the middle of the sixteenth century, as 'sweet oil of vitriol'. Robert BOYLE synthesized ether in 1680. The German chemist, J. A. S. FROBENIUS, who had worked in Boyle's laboratory, published in 1730 his "Account of a spiritus vini aetherius", which established its popular name. In 1743 Matthew TURNER of Liverpool published An account of the extraordinary medicinal fluid called Aether, in which he recommended the administration of two teaspoonsful of ether in wine for various conditions, including headache. In 1795 Richard PEARSON stated that he had found the inhalation of ether vapors to be beneficial in phthisis. In the early 19th century there are several accounts of experiments with ether, one by Benjamin BRODIE (1783-1862), famous London surgeon and physiologist. In a lecture in 1821 Brodie demonstrated a guinea-pig under a bell jar made to inhale ether; the animal became insensible, and respiration ceased after 8 minutes; after application of artificial respiration through a tracheotomy, the animal recovered. Brodie concluded only that 'ether is a narcotic poison, and narcotic poisons effect the brain' (Brodie also experimented with 'woorara' (curare)).

In 1772 Joseph PRIESTLEY discovered nitrous oxide. Following the work of LAVOISIER on oxygen, Thomas BEDDOES (1760-1808) founded his Pneumatic Institution in Bristol, for research on the uses of gases as therapeutic agents. His engineer at the Institute was James WATT, who designed the apparatus. In 1798 Humphry DAVY (1778-1829) was made Superintendent of Beddoes' Institute. Exhibited here are:

Humphry Davy, Researches chemical and philosophical, chiefly concerning nitrous oxide...1800.

When breathing nitrous oxide, Davy experienced "a sensation...attended by a highly pleasurable thrilling...but whenever its operation was carried to the highest extent, this gradually diminished...impressions ceased to be perceived, vivid ideas passed rapidly through the mind, and voluntary power was altogether destroyed, so that the mouthpiece generally dropt from my unclosed lips." In his conclusions, Davy stated "As nitrous oxide in its extensive operation appears capable of destroying physical pain, it may probably be used with advantage during surgical operations..."

Thomas Beddoes & James Watt, Considerations on the medicinal use of factitious airs, and on the manner of obtaining them in large quantities. 2d ed, 1795.

Pneumatic treatment was actually rather cautious; even in the case of oxygen "where symptoms do not decidedly indicate larger doses, it is prudent to begin with a pint of oxygen air in a bagful of common air, that is to say, diluted with from 20 to 40 times its bulk of common air, and gradually to increase the dose as symptoms direct."
Dr James Young SIMPSON began using ether in his Edinburgh obstetrical practice in January 1847.

During the spring and summer of 1847 he experimented on himself and his assistants, by inhaling, night after night and week after week, various substances which he thought might have anesthetic properties.

The suggestion to try chloroform first came from a Mr Waldie, a chemist in Liverpool. It was a 'curious liquid', discovered and described in 1831 by Soubeiran and Liebig, simultaneously but independently. In 1835 its chemical composition was first accurately ascertained by Dumas... How it finally came to be tried is best described in the words of Simpson's colleague and neighbor, who used to look in every morning at nine o'clock to see how the enthusiasts had fared in the experiments of the previous evening.

"Late one evening, it was the 4th of November 1847, after returning home after a weary day's labor, Dr Simpson with his two friends and assistants, Drs Keith and Duncan, sat down to their rather hazardous work in Dr Simpson's dining room. Having inhaled several substances, but without much effect, it occurred to Dr Simpson to try a ponderous material which he had formerly set aside; that happened to be a small bottle of chloroform. It was searched for and recovered from beneath a heap of waste paper. And with each tumbler newly charged, the inhalers resumed their vocation. Immediately an unwonted hilarity seized the party --- they became bright-eyed, very happy, and very loquacious--- expatiating on the delicious aroma of the new fluid... But suddenly there was talk of sounds being heard like those of a cotton mill louder and louder; a moment more and then all was quiet -- and then crash! On awakening Dr Simpson's first perception was mental --'This is far stronger and better than ether' said he to himself. His second was to note that he was prostrate on the floor, ...he saw Dr Duncan beneath a chair... snoring in a most determined and alarming manner. ....((Later)) one of the ladies gallantly taking her place and turn at the table, until the supply of chloroform was fairly exhausted, fell asleep crying 'Oh, I'm an angel'."

Simpson communicated his findings to the Medico-Chirurgical Society of Edinburgh on 10 November 1847."
William Thomas Green Morton, a dentist (later MD, 1852) who had briefly been a student and partner of Horace Wells, gave the first public demonstration of the value of ether in a surgical operation carried out by Dr John Collins Warren at the Massachusetts General Hospital on 16 October 1846. It was repeated on a second case the next day. Both demonstrations were highly successful, but owing to Morton's initial unwillingness to disclose the nature of his new agent and because he wished to patent it, no further trial was permitted for a period of three weeks. Dr Henry J. Bigelow, a young Boston surgeon (age 28), subsequently forced the issue on 9 November at which time an amputation was performed, and Morton then authorized Bigelow to make a detailed public announcement; Bigelow's report appeared in the Boston Medical & Surgical Journal for 18 November 1846. The news spread rapidly. Dr Robert Liston did an amputation under ether anesthesia in London on 21 December 1846.

Dr Charles Jackson, Professor of Chemistry at Harvard, claimed priority for the discovery on the basis that it was he who had proposed the use of ether to Morton, on 30 September 1846. When Morton applied for a patent, he consented under pressure from Jackson to take the patent out jointly under the names of Morton and Jackson. Controversy over the relative contributions of the two men raged for many years. (Jackson also claimed that Samuel F. B. Morse had stolen the idea of the telegraph from him.)

Dr Crawford W. Long (1815-1878) of Georgia had become familiar with ether frolics while a student at the University of Pennsylvania. On 30 March 1842 he administered ether to a patient and removed a small cystic tumor from the back of his neck. He performed seven additional surgical operations under anesthesia before September 1846, but made no attempt to make known his experiences until December 1849, when -- as a result of the controversy which had arisen over Morton's claims -- he contributed a short paper to the Southern Medical & Surgical Journal.
Horace WELLS, a dentist in Hartford, Connecticut, witnessed a laughing gas demonstration on 10 December 1844. In the audience seated beside Wells was a man who volunteered to take the gas, and while under its influence injured his knee severely, but he was unaware of the accident until the effects of the nitrous oxide had passed off. Wells put two and two together, and the next morning persuaded a colleague to extract one of his (Wells') teeth under nitrous oxide. On recovery from the gas Wells exclaimed: "It is the greatest discovery ever made. I didn't feel as much as the prick of a pin."...Wells satisfied himself that the nitrous oxide could be used safely, and proceeded to demonstrate it at Boston to W. T. G. Morton, his former student and partner. Dr John Collins WARREN permitted Wells to administer the gas to a boy for tooth extraction, before a class at the Harvard Medical School (January 1845). Unfortunately the level of anesthesia was too light and the boy screamed out, and Wells was proclaimed a visionary and charlatan.

Wells returned home discouraged, resumed his practice for awhile, then abandoned it and went to New York. Continuing to experiment, he became an ether addict, and after many episodes of frustration he committed suicide on 24 January 1848.

The use of nitrous oxide in dentistry was revived in 1863.
CREWS AH JR., ROBINS B., BERNSTEIN A.

IDIOPATHIC MYOCARDIAL HYPERTROPHY A FORM OF PRIMARY MYOCARDIAL DISEASE.

J NEWARK BETH ISRAEL HOSP 15:71-87, APR 64

ARRHYTHMIA, AUTOPSY, ELECTROCARDIOGRAPHY, HEART ENLARGEMENT, HEART FAILURE, CONGESTIVE, PULMONARY EMBOLISM
biographical and historical material used comes chiefly from

Thomas E. Keys, *History of surgical anesthesia*

John F. Fulton, *Centennial of surgical anesthesia*
JOHANN VALENTIN DEUSSER, EXECUTIONER AND SURGEON (GER)

DEUTSCH MED J, 18, 711-2, 5 DEC 67

GERMANY, HISTORICAL BIOGRAPHY, *HISTORY OF MEDICINE, 17TH CENT., *SURGERY/HISTORY
Shayock, Richard H.

Germ theories in medicine prior to 1870; further comments on continuity in science.

by

Henry Jacob Bigelow

originally published in

Boston Medical & Surgical Journal
Following the advice of men like Beddoes, American physicians employed ether in the treatment of tuberculosis and other conditions. Itinerant 'professors' of chemistry traveled through the countryside, lecturing on gases and demonstrating the exhilarating effects of nitrous oxide. Part of the demonstrations consisted of having members of the audience inhale ether vapor or nitrous oxide, till they lost their equilibrium, talked foolishly, and became pleasantly drunk. Some 'students' amused themselves without lectures; 'laughing gas parties' and 'ether frolics' became the vogue.

A GRAND EXHIBITION of the effects produced by inhaling NITROUS OXIDE, EXHILARATING or LAUGHING GAS! will be given at UNION HALL THIS (Tuesday) EVENING, Dec. 10, 1844. FORTY GALLONS OF THE GAS will be prepared and administered to all in the audience who desire to inhale it. EIGHT STRONG MEN are engaged to occupy the front seats, to protect those under the influence of the Gas from injuring themselves or others. This course is adopted that no apprehension of danger may be entertained. Probably no one will attempt to fight. THE EFFECT of the GAS is to make those who inhale it either Laugh, Sing, Dance, Speak or Fight etc etc according to the leading trait of their character. They seem to retain consciousness enough not to say or do that which they would have occasion to regret. N.B. The gas will be administered only to gentlemen of the first respectability. The history and properties of the Gas will be explained at the commencement of the entertainment. The entertainment will close with a few of the most surprising CHEMICAL EXPERIMENTS. Mr Colton will give a private entertainment to those Ladies who desire to inhale the Gas, TUESDAY, between 12 and 1 O'clock, FREE. None but Ladies will be admitted. Entertainment to commence at 7 o'clock. Tickets 25 cents.

Hartford Courant, 10 Dec 1844