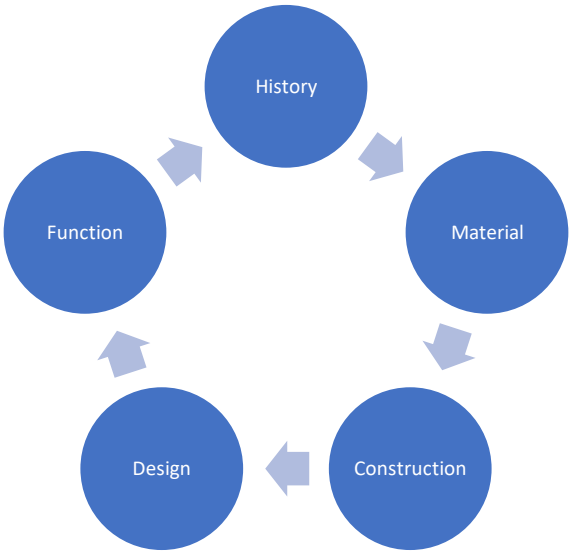
# Anaesthesia

**How to use this folder for Object Study – 3 steps:**

1) Complete **Object Study** as per 5 aspects listed below (see graphic below)
2) Explore the primary sources within folder as it relates to the selected object
3) Interrogate the selected object by using **Further Questions** (see back of page)

## Object Study




1) History
   - When and where was it made?
   - By whom was it made? For whom was it made?
   - Why was it made?

2) Material
   - What is it made out of?

3) Construction
   - What techniques were used to make it?
   - Is it made well?
   - How are its parts organized to bring about its function?

4) Design
   - What is its physical structure? What is its shape?
   - What is its size and weight?
   - What is its style? Is it ornamented? How?
   - What, if anything, does it represent or resemble?
   - Does it have writing on it?

5) Function
   - For what use was it originally intended?
   - How has it been used over time?
   - What marks of its use are evident?

*Adopted from E. McClung Fleming, "Artifact Study: A Proposed Model," *Winterthur Portfolio* 9 (1974): 153-7.

# Anaesthesia

**Further Questions** * Many of these questions follow Stage 2: Four Meanings of an Artifact (Fleming)

1. Identify it: Has your research confirmed your original identification?
2. Evaluate it: Rank its aesthetic and functional qualities, considering the material, texture, skill of craftsmanship, effectiveness of overall design, the expressiveness of its form, style and ornamentation. Compare it with other, similar objects and within the same time period.
3. Is this object listed in contemporary instrument catalogues? Are there other related instruments also available for purchase? If so, how do comparative instruments differ in design or suggested function?
4. What does its function reveal about the philosophy of medicine and health at the time?
5. What does the location of its use reveal about the role of the doctor and the role of the patient in health and medicine?
6. What are the tasks and behaviours associated with this object in the culture(s) where it has been used?
7. How might the status, values and meanings attached to a practitioner of medicine, or to a patient, be conveyed by the object?
8. How and why does the legitimacy of the object, or the perception of its utility, change over time?
9. How did the use and connotations of the objects, or others like them, change the practice of medicine?
10. How do the accompanying primary sources enhance your understanding of the object? What themes or issues are represented in these external sources that are not presented in the object?

**Key Themes to Consider:**

- The role of pain in surgery
- The professionalization of surgeons
- How science and technology impacted the practice of surgery

## Selected References for Further Research


Canton, Donald. *What a Blessing She had Chloroform: The Medical and Social Response to the Pain of Childbirth to the Present.* New Haven: Yale University Press, 1999.

Pernick, Martin S. *A Calculus of Suffering: Pain, Professionalism, and Anesthesia in Nineteenth-Century America.* New York: Columbia University Press, 1985.

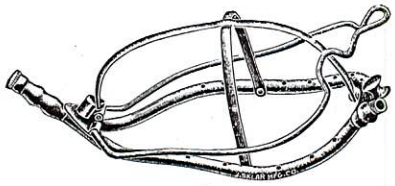
Snow, Stephanie J. *Operations without Pain: The Practice and Science of Anaesthesia in Victorian Britain.* Basingstoke: Palgrave Macmillan, 2006.

Stanley, Peter. *For Fear of Pain: British Surgery, 1790-1850. Clio medica, vol. 70* Amsterdam: Rodopi, 2003.

Wolf, Jacqueline H. *Deliver me from Pain: Anesthesia and Birth in America.* Baltimore: Johns Hopkins University Press, 2009.

## ANESTHETIC INSTRUMENTS

206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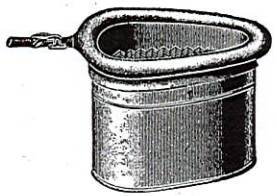
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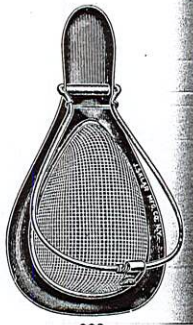
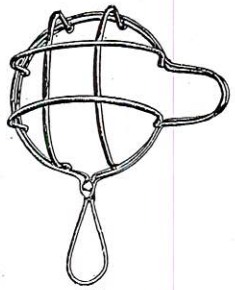

223

### Inhalers and Droppers

204 **Gwathmey's,** vapor inhaler.
205 **Allis',** with inflating rubber face cushion.
206 Kan Klamp Dropper for ether or chloroform.
210 **Bennett's,** with hard rubber nasal tips.
215 **Esmarch's,** complete with bottle.
*216 **Esmarch's,** mask only.
*217 **Esmarch's,** bottle only.
*218 **Esmarch's,** dropper only.
219 **Pinneo's,** dropper.
220 **Schimmelbush's,** folding.
222 **Edwards-Yankauer's,** face-fit, folding.
223 **Crapeau-Yankauer's,** face-fit, with mesh.



## ANESTHETIC INSTRUMENTS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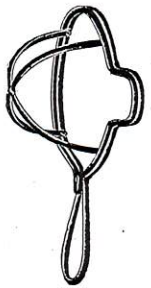
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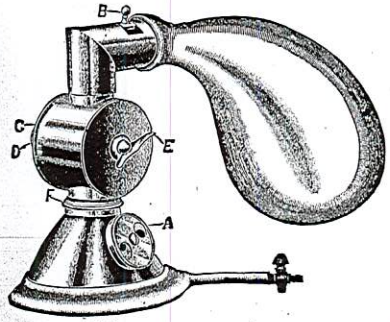

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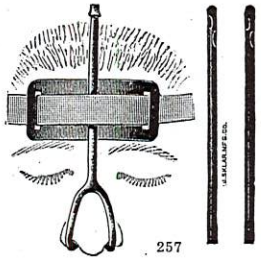
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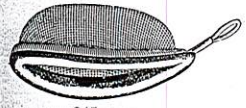
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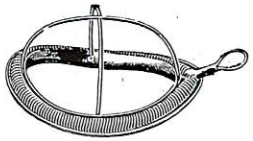
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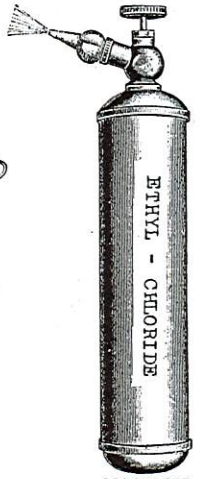


264-266-267

### Inhalers and Droppers

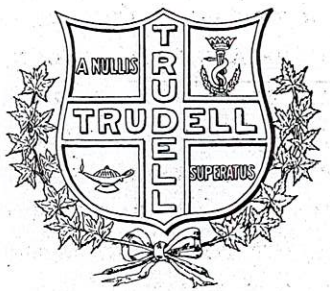
230 **Ochsner's,** or **Sander's,** inhaler.
235 **Ochsner's,** folding, heavy pattern.
240 **Senn's,** heavy wire.
245 **Yankauer's,** with mesh.
250 **Yankauer's,** folding.
252 **Bennett's,** gas-ether, in case or without case.
257 **Connell's,** vapor ether tubes for nasal or intra-tracheal insuflation.
264 Ethyl Chloride, 40 grm. tube, with ordinary nozzle.
*266 Ethyl Chloride, 100 cc. tube, with ordinary nozzle.
*267 Flexible spraying, nozzle only.

**Write for descriptive matter on Gas Oxygen or Ether Apparatus**

*The*

# GEO. S. TRUDELL COMPANY

LONDON, CANADA



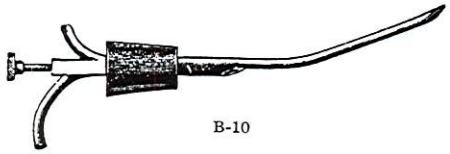

*Importers and Exporters of High Grade*
*Hospital, Surgical and Laboratory Equipment*

B-1

B-3-5


B-7


B-9



B-10

## Anaesthesia Accessories

### Drop Bottles, Droppers

B–1 **Esmarch's.**

B–3 Crystal, flat stopper, 100 cc.

B–5 Amber, flat stopper, 100 cc.

B–7 Crystal, with white enameled label Chloroform, 60 cc., 150 cc.

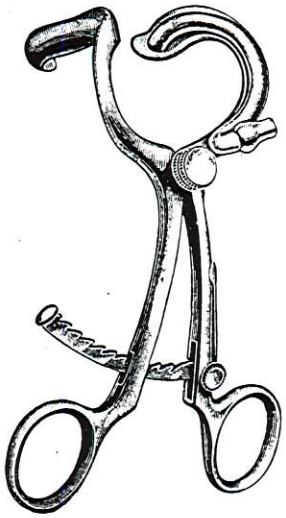
B–9 Crystal, with white enameled label, Ether, 60 cc., 150 cc.

B–10 Dropper, **Pinneo's,** regulating, 4½ inches, 7 inches.






B–15



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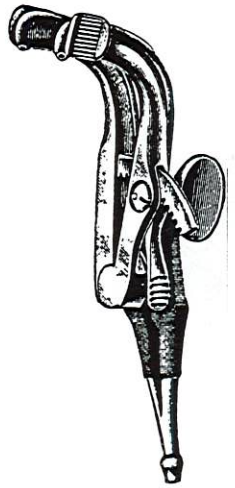

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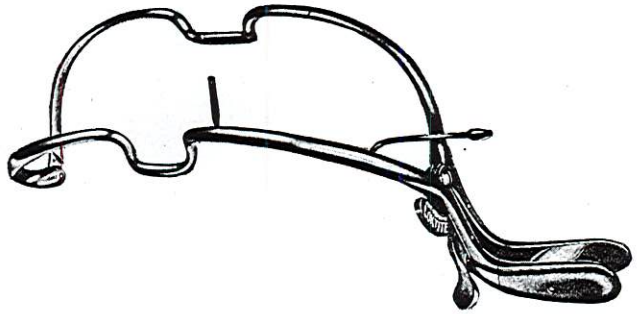


B–30

B-35

### Gags with Anaesthesia Attachment

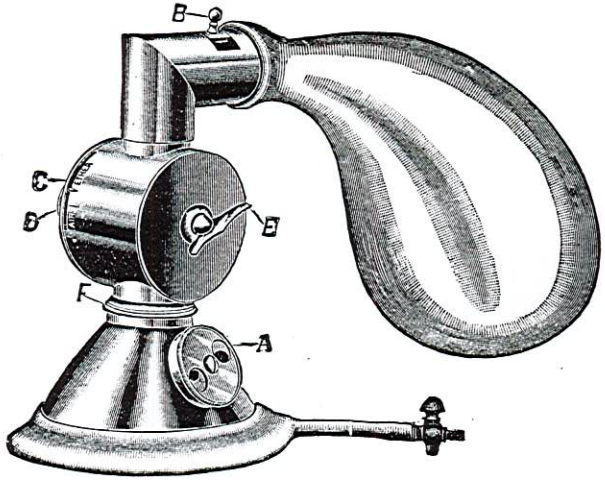
B–15 Gag, **Denhard's,** with anaesthetic tube.

B–20 Gag, **Doyen's,** with anaesthetic tube.

B–25 Gag, **Ferguson's,** with anaesthetic tube.

B–30 **Jenning's,** with anaesthetic tube.

B–35 Screw, oral, hard rubber, for forcing the mouth open.

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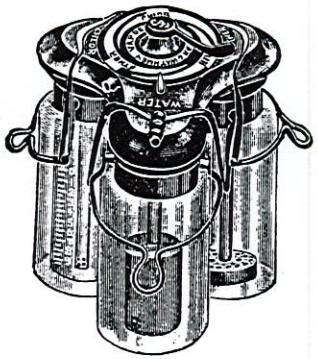

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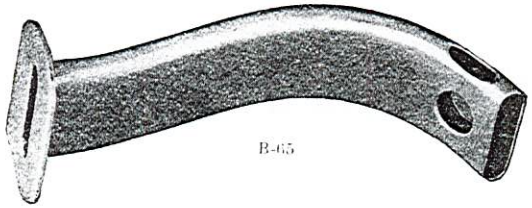

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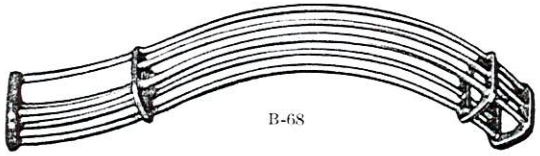

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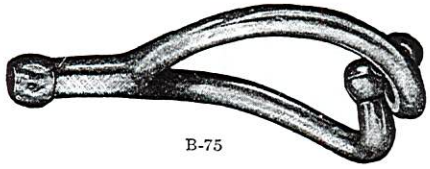


B-75

B-70

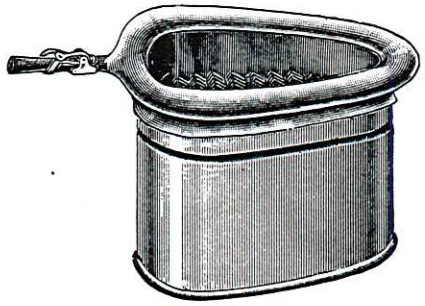
B-71

## Gas-Ether Inhalers, Airways and Tubes

B–50 **Bennett's,** gas-ether, in case or without case.
*B–55 **Gwathmey's,** gas-ether, original.
B–60 **Gwathmey's,** three bottle.
B–65 **Connell's** Airway.
B–68 **Lumbard's** Airway.
B–70 **Gwathmey's** Mouth Hook Tube, long.
B–71 **Gwathmey's** Mouth Hook Tube, short.
B–75 **Sanford's** Nasal Tube, double.







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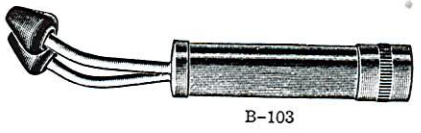

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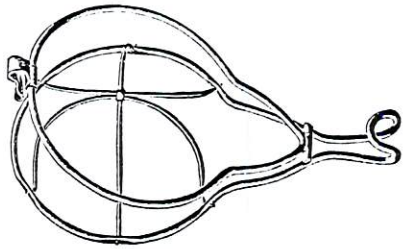

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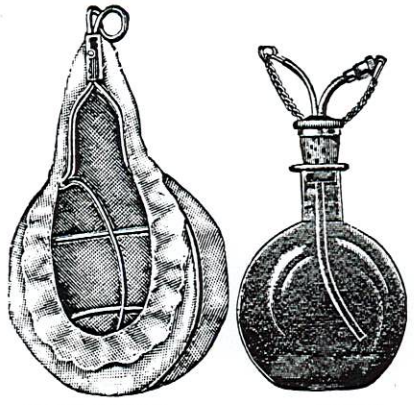

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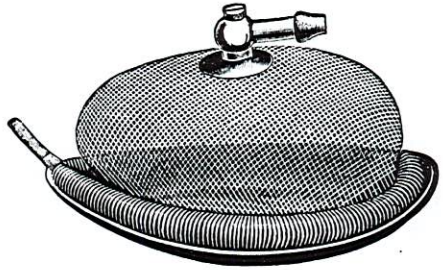

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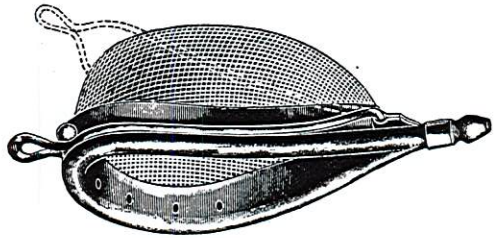
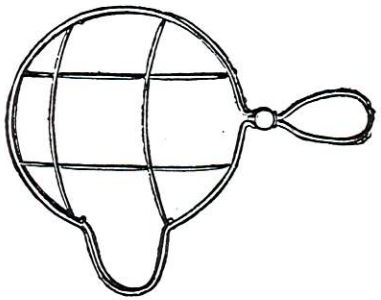


B–114

## Inhalers, Chloroform, Ether and Vapor

*B–100 **Allis',** improved, metal, nickel-plated.
*B–101 **Allis',** improved, aluminum.
B–102 **Allis',** improved, aluminum with inflating rubber face cushion.
B–103 **Bennett's,** for obstetrical use.
B–105 **Esmarch's,** with drop bottle and cover.
B–106 **Esmarch's,** folding with cover.
B–110 **Gwathmey's,** with cover and inflatable rubber face cushion.
B–112 **Gwathmey-Yankauer's** Vapor Mask.
B–114 **Lumbard-Yankauer's** Vapor Mask.



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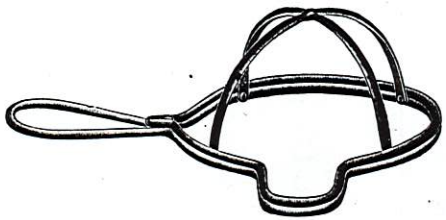

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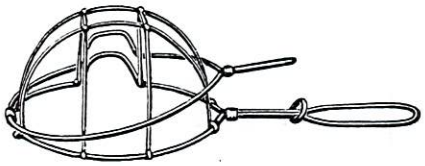

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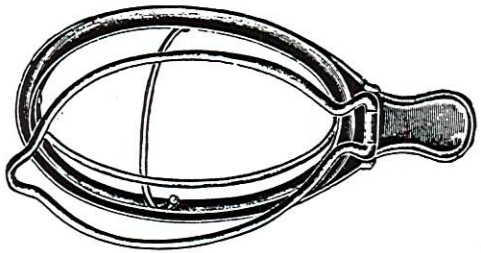

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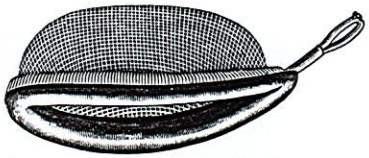

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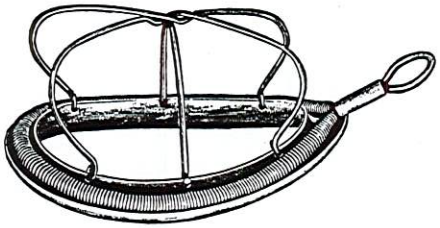

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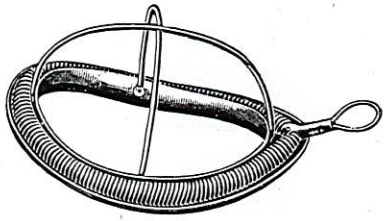


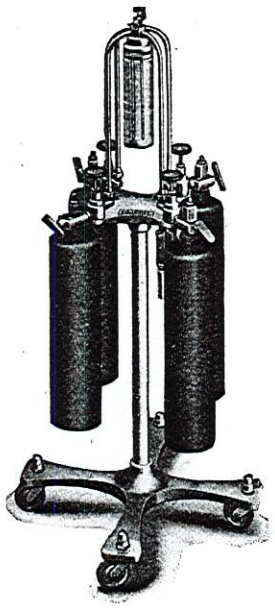
B–150

## Inhalers, Chloroform and Ether

B–120 **Ochsner's** Wire Mask.
B–125 **Ochsner's** Folding Mask.
B–130 **Sander's** Mask only.
B–135 **Schimmelbusch's** Folding Mask.
B–140 **Yankauer's** Mask only.
B–145 **Yankauer's** Folding Mask.
B–150 **Yankauer's** Simplex Folding Mask.







**Complete Catalogues on Gas-Oxygen-Ether Anaesthesia Apparatus will be sent on request**

Illustrated Catalogue

OF

# Standard Surgical Instruments

AND

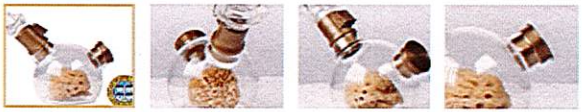
# Allied Lines

FOURTH EDITION

THE J. F. HARTZ CO., Ltd.
24-26 Hayter Street
TORONTO, ONT.

# Replica of Morton Inhaler

WLMD ID: aiml



**DESCRIPTION** | CATALOG RECORD

The first successful public demonstration of ether for surgical anesthesia occurred with an inhaler much like this one, at Massachusetts General Hospital on October 16, 1846. William Thomas Green Morton (1819-1868), a dentist in Boston Massachusetts, was the person who administered the ether on that historic occasion. The glass sphere contained an ether-soaked sponge; the patient inhaled the vapor through the mouthpiece. News of the event spread rapidly and within a year of his demonstration dozens of European inhalers had been invented and patented.

A booklet describing the replica, simply titled "The Morton Inhaler," explains that this replica "was made from the original description of its physical attributes...and of its measurements as furnished by the courtesy of the Massachusetts General Hospital. Reproduced by a modern instrument maker under the aegis of the Wood Library-Museum of Anesthesiology, the project was made feasible by a grant-in-aid from Ayerst Laboratories.

https://www.woodlibrarymuseum.org/museum/replica-of-morton-inhaler/

NATIONAL INSTITUTES OF HEALTH
NATIONAL LIBRARY OF MEDICINE, DIGITAL COLLECTIONS

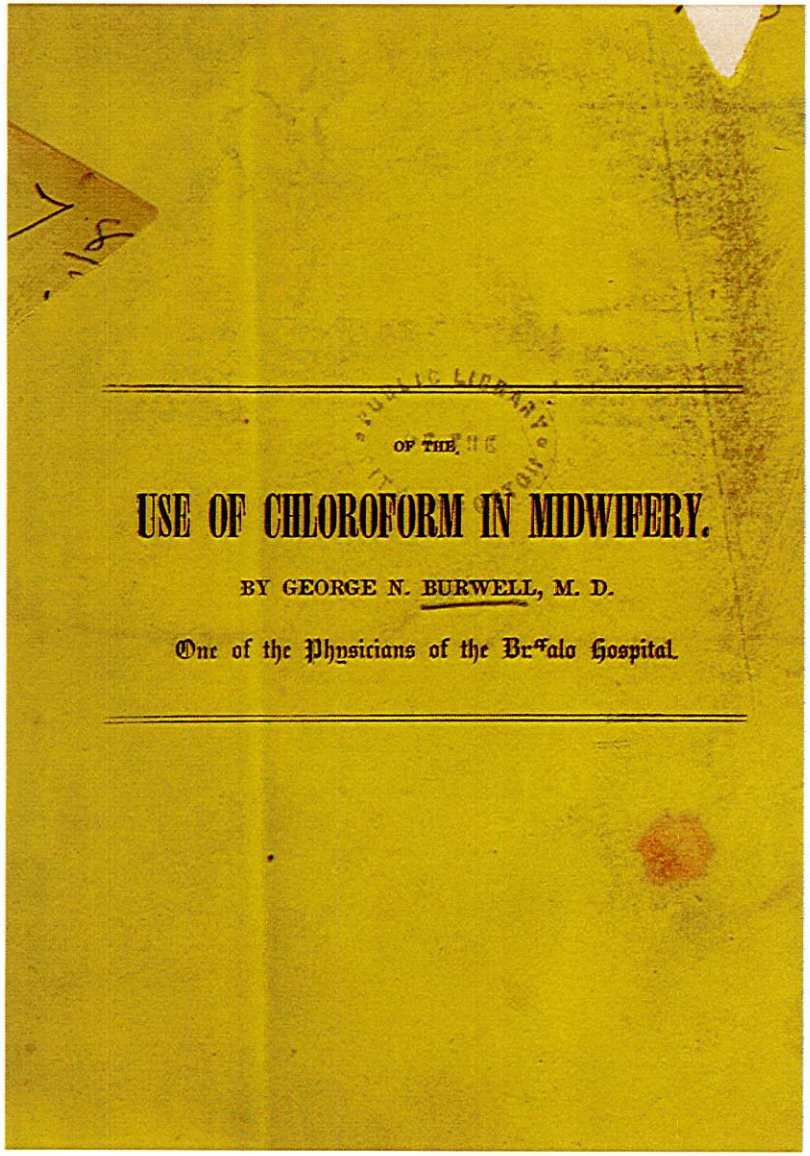
POB: THOMAS MCLEAN
JAN 1, 1830

# LIVING MADE EASY.


## PRESCRIPTION FOR SCOLDING WIVES.

*London. Pub.d by T. M.c Lean, 26, Haymarket. Jan.y 1. 1830.*

*Printed by J. Netherclift.*



OF THE

# USE OF CHLOROFORM IN MIDWIFERY.

BY GEORGE N. BURWELL, M. D.

One of the Physicians of the Buffalo Hospital.

*The Times* (London) & Supplement, Friday, March 19th, 1847

# FATAL EFFECTS OF ETHER.

## CORONER'S INQUEST.

A case of considerable importance, as affecting the practice lately introduced into the medical world of subjecting persons about to be operated upon to the influence of ether, by causing them to inhale its vapour in order to render them insensible to pain, has just occurred at Spittlegate, in the parish of Grantham, in the county of Lincoln, in which death has resulted from that mode of treatment. It appears that a respectable woman of the name of Ann Parkinson, aged 21 years, the wife of a hairdresser at Spittlegate, who had been married 18 months, and had a child nine months old, had been afflicted with a tumour on the under part of her left thigh for about 12 months, which had gradually increased in size until from its situation it became a perpetual torment to her, as she was unable either to sit down or lie in bed with any degree of comfort. Under these circumstances, having read of the many successful cases of operations performed without pain under the influence of the vapour of ether, she expressed a wish to her medical attendant, Mr. Robbs, of Grantham, to have ether applied and the tumour removed. To this, after consulting other medical men, he consented; and on Tuesday, the 9th inst., at 1 o'clock, she was subjected to the influence of the ether, and the operation was performed by Mr. Robbs in the presence of three other medical men. Unfortunately, however, the poor woman never rallied, but remained in a state of complete prostration until 5 o'clock on Thursday morning, when she died without the slightest reaction having taken place subsequent to the operation. In consequence of these circumstances having become known, and much discussion having taken place on the subject, the matter came to the ears of the coroner of the district, Mr. G. Kewney, who, having made a strict inquiry into the facts, and having ascertained that, in the opinion of persons well qualified to judge, the death had resulted from the application of ether, thought it his duty to institute an inquiry, and accordingly issued his warrant for an inquest, which commenced on Saturday the 13th instant. In charging the jury, the Coroner, after recapitulating the facts of the case, made the following observations:—

"The case you are about to investigate is one of the most important that it has fallen to my lot to preside over, because, if it should be found, after a calm and deliberate inquiry, that the death of this person did result from the effects of the vapour of ether, and not from the tumour under which she was labouring, or from the operation which was necessary to remove it, it will become a question, whether the person administering the ether is answerable for the consequences, or whether it is unsafe and prejudicial to life to pursue the practice of administering ether, which has been introduced apparently with great success in many cases. I have every reason to believe that Mr. Robbs performed the operation in question with that skill which he is known to possess, and no one can blame him for adopting a practice sanctioned by the highest medical authorities, and which has been used in all our leading hospitals, his object being the alleviation of pain and suffering; but it will be for you to say, after a calm and dispassionate investigation, whether in doing so he has strictly adhered to the rules laid down in such cases, or whether he has been guilty of criminal negligence, inattention, or rashness in the manner in which he has treated the particular case before you. It must be remembered, that credit is due to him for endeavouring to extend the advantages of a discovery apparently calculated to relieve the sufferings of humanity, for it is too well known that many of the greatest discoveries in medical as well as other sciences have been violently opposed on their first promulgation, though ultimately found to be of the greatest benefit to mankind, of which the circulation of the blood and other equally striking instances may be mentioned. But, whilst he should receive encouragement upon this view of the subject, it must never be forgotten that he was bound to bring to the case under his management the greatest care, skill, and attention of which he was master, and in no degree to exceed or go beyond the instructions laid down by the most competent medical authorities in similar cases; and the remarks contained in a portion of the charge to the grand jury at the Central Criminal Court, in a late case, appear to me to be so appropriate that I cannot do better than read them; they are as follow:—

"'Although it would be very hard to make a medical man amenable to a charge of manslaughter because he happened to be unsuccessful in his treatment of any particular case, yet, on the other hand, it was necessary for the protection of the public that persons of the medical profession should understand that if they chose to make use of dangerous and deadly ingredients they were bound to exercise the utmost care and caution in so doing.

"'The interests of science required that there should occasionally be some departure from the beaten path prescribed by medical authority, and many important results had followed from such deviations by the alleviation of diseases heretofore deemed incurable. But if dangerous experiments were attempted the persons adopting them must be taught to keep within proper bounds, and that they must exercise the most ample caution in carrying out those experiments.'

"If, therefore, you should find that Mr. Robbs has been guilty of culpable negligence, inattention, or rashness, it will be your duty, as jurors, upon the oath you have taken, which is paramount to all other considerations, to bring in a verdict of manslaughter against him; but if, on the other hand, you shall find, after hearing and weighing the whole of the evidence, that the death of Mrs. Parkinson was purely the result of the application of ether, as generally practised by legally qualified medical practitioners in order to alleviate pain under surgical operations, and not from any other cause, it will be your satisfactory duty to simply record that fact; and this inquiry may be the means of checking a practice that will then appear prejudicial to human life, and your labours may conduce, not only to the benefit of this immediate neighbourhood, but to the advantage of the public at large."

At the conclusion of the charge the coroner and jury proceeded to view the body, and the inquest was then adjourned till Monday, when it was resumed, and the following evidence was given:—

Elizabeth, the wife of Nelson Leak, of Spittlegate, mason, deposed, that she is sister to John Parkinson, of Spittlegate, hairdresser, who was the husband of the deceased Ann Parkinson, to whom witness was also cousin. That her brother had been married to the deceased about a year and nine months, and she was in a very delicate state of health at the time of her marriage, that is to say, she was what is called a very delicate woman, subject to cold upon the slightest occasion, but was not subject to any particular illness and was not consumptive, as witness believes. That about three months after her marriage she became pregnant, and about three months before her confinement she complained to witness that she had a substance formed upon her left thigh, which caused her pain and impeded her walking. That she showed witness the place, and she, witness, observed a swelling about the size of an egg upon the under part of the left thigh, nearer to the body than the knee, and it caused pain upon sitting down. That she called in Mr. Bentley, a medical man living in Spittlegate, to attend her, and he saw her and prescribed linseed poultice, and afterwards brought a plaster, which was applied, and causing great pain it was taken off before he ordered it to be so. That the tumour kept increasing, and Mrs. Parkinson was confined of a boy about nine months since, which was born at its full time, and she did very well, and suckled the child for about six months, when it was weaned. That during the whole of this period she was in good health, otherwise than as she was affected by the tumour before mentioned. That during all this time the tumour increased in size, and became a great impediment to her walking, sitting, or sleeping. That in January last she applied to Mr. Robbs, surgeon, Grantham, to attend her. That he did so from that period until her decease. That he ordered leeches, and made several punctures in the tumour; which, however, was not reduced, but rather increased. That in consequence of this, she wished to have the tumour removed, and wished witness to speak to Mr. Robbs upon the subject; which she, witness, did, and he said he would bring Dr. Turner to look at it. That he did so on Thursday the 4th inst. That at this time she had seen several reports of successful operations under the influence of ether, but had expressed her wish to have the tumour removed before she had heard of such mode of treatment. That when Dr. Turner came he said, he thought there was no other remedy than taking it away by an operation. That on the next day Mr. Robbs called to see the deceased, and asked her if it was her wish to have the tumour removed? and she said that it was; and it was then determined that it should be taken away, and it was also determined that ether should be applied. That about a fortnight or three weeks before witness had asked Mr. Robbs what he thought of the application of ether, and he said he had no faith in in it, but at the time in question he said he had performed an operation on a young man's toe with success, under the influence of ether. That witness, on the Saturday, the 6th of March, saw the

young man in question, and asked him how he had felt during the operation? and he said quite comfortable, "that he felt quite like a fool;" and he said in answer to a question, that if he had to undergo another operation he would take the ether. That on the same evening Mr. Robbs administered ether to Mrs. Parkinson, in witness's presence, by causing her to inhale the vapour in order to see what effect it would produce upon her. That it made her laugh very much, and whilst under its influence she was pinched very severely; and when she recovered from its influence she said she felt quite comfortable, and retained all the "consciousness of mind," but not feeling, but was aware she was being pinched, although she said it did not give her pain. That the operation lasted about 10 minutes, but the influence continued about two hours and a half, during which time she was hysterical. That on the following Monday evening she was again subjected to the vapour, when its influence was much more rapid, and she became quite unconscious in a few minutes—in about four or five minutes. That she remained so for about a quarter of an hour or 20 minutes, when she became conscious, but the effect of the ether did not leave her for about an hour. That on her recovery she said she knew all that had passed in the room, though she was apparently unconscious; that she could hear though she could not see. That she was not hysterical the second time. That after this it was arranged that the tumour should be removed the next day, Tuesday, the 9th inst. That she appeared to be in her usual health between the operations of Saturday and Monday; and on being asked if she felt at all unusual, she said, her head felt heavy, which she attributed to her laughing so much whilst under the influence of the ether. That witness asked her, on Monday evening, whether she was determined to have the tumour removed? and she said she was; and witness asked her if she would have so determined even if the ether had not been discovered? and she said she should; this she also asked her on the Tuesday morning, and she again replied in the affirmative. That on Tuesday last, the 9th of March, about noon, Mr. Robbs, accompanied by Mr. Rogers, Mr. Priest, and Mr. Dibben, all medical men, arrived at Mr. Parkinson's, and the operation was performed. That it was about 1 o'clock that the ether was administered. That the apparatus consisted of a glass jar or globe, with a tube that was made to fit the mouth, and it was applied by Mr. Dibben. That in about 10 minutes Mrs. Parkinson was reduced to a state of unconsciousness, when

the operation of removing the tumour commenced, and she appeared to feel the first cut, as she made a deep moan, whereupon ether was again applied, but witness is not of opinion that she inhaled much more upon such second application. That the operation proceeded during the time the vapour was so inhaling the second time. That witness cannot positively state whether the ether was again applied during the operation, nor can she state positively whether the apparatus was kept applied to the mouth during the whole time the operation was going on. That Mrs. Parkinson was laid upon her stomach upon a table, and witness assisted in holding her during the operation, and was placed about the lower part of her body, and did not therefore see her mouth. That upon every incision made during the operation she moaned, and appeared to feel it, as she struggled and nipped witness's hand; but she did not appear to feel any thing when the different vessels were being tied up. That to the best of witness's belief the operation lasted an hour all but five minutes, when she was taken from the table and laid on the bed; she had a little brandy and water before the operation was quite over, which she swallowed readily, and a little more when she was put to bed. That she did not appear to lose much blood, and the wound was dressed after the operation and bandaged, and when put to bed she appeared to be conscious. That shortly after she was in bed witness made her a little gruel, which she took, and said she felt better, but spoke in a very low and faint tone of voice. That she did not appear to rally at all from that time. That Mr. Robbs came to see her in the afternoon and evening, and desired her to be kept quite still. That on the following day she remained in the same low state, and Mr. Robbs saw her more than once, and sent her medicine which was administered, and a little thin gruel and tea was given her by his directions, which was all the nourishment she took. That on Wednesday she complained of a numbness in both legs and the lower part of her back, and hot bottles were applied by Mr. Robbs's directions, but she was not relieved. That witness asked her if she felt pain during the operation, and she said she did when they cut, but not otherwise. That on the Thursday morning, about 20 minutes past 5 o'clock, she died without uttering a groan. That from the time the operation was performed till her death, she never moved by her own power, but was moved when necessary by witness. That she seemed quite conscious during the whole time from the operation till her decease. That Mrs. Heaney, the nurse, was backward and forward in the room during the operation.

William Eaton, of Grantham, surgeon deposed that on Saturday last, by order of the coroner, he proceeded with Mr. Shipman, in the presence of several other surgeons, to make an examination of the body of the deceased, Ann Parkinson. That on examining the body externally, he found an incised wound on the left thigh about six or seven inches long, secured by sutures, on removing which he found a wound, which had the appearance of an operation having been performed upon the thigh. On examining it closely he could not observe that any nerve or large bloodvessel had been divided or wounded. That there were four ligatures, which appeared to have been applied to small arterial branches. That there was nothing in the appearance of the wound or of its situation that could account for the speedy dissolution of the deceased, and the operation appeared to have been performed as correctly as it was possible to have been done. That he then proceeded to examine the chest internally, and found nothing unnatural in the appearance of it; the lungs were pervious, and appeared healthy—they were a little congested at the posterior part, which witness attributed to the position at the time of dissolution. That the heart was next examined, was healthy in structure, but more flabby or flaccid than usual, and containing rather less blood than usual. The stomach was next examined, and contained a little dark coloured thick fluid of a grayish colour, apparently gruel, and was healthy, but rather congested at the lower part from the position as above stated. The liver was of its natural size, but paler than usual and softer in texture; the spleen healthy and natural, the intestines also. That he did not think it necessary to examine the kidneys. but then proceeded to examine the head. That the brain was quite healthy, with the exception of the upper part of the anterior lobes, the membranes of which were congested with blood, and there was no effusion in the ventricles. That the blood throughout the body was in a fluid state. That witness discovered nothing in the appearances on or in the body to account for the death under the ordinary circumstances attending an operation of the nature that had been performed. That the congestion of the brain, in witness's opinion, was caused by the exhibition of the ether which was administered, as also the liquid state of the blood. That in witness's opinion the death was not caused by the shock to the system simply produced by the operation, as the deceased exhibited every appearance of a healthy person, though delicate, and the operation was not in a part at all likely to affect the general state of the patient's health. That in witness's opinion the death of Mrs. Parkinson took place from the effects of the ether which she had inhaled, and the tumour itself was not in that state to cause death, witness having seen it since its extraction. That it is what is called an osteo-sarcomatous tumour, which is of a malignant nature and calculated to destroy life ultimately. That the practice of using ether in similar cases has been sanctioned by the highest medical authorities, and has been used with success in many cases in the public hospitals, and he himself has operated upon a patient, though he suffered a good deal from the effects of it, but is now getting on well.

Robert Shipman, of Grantham, surgeon, assisted Mr. Eaton in the examination of the body of the deceased, and entirely concurred with the evidence given by the latter gentleman. At the conclusion of the evidence, the coroner, having duly cautioned Mr. Robbs, requested to know whether he was desirous of making any statement relative to the case? upon which that gentleman described the manner in which the vapour had been inhaled, and stated that the operation lasted about 25 minutes, including the tying of the vessels, the remainder of the time being occupied by the inhalation and the necessary bandaging, &c. He also stated that he believed the deceased felt as much pain as if she had not inhaled the vapour, as she cried out and struggled at each cut. He then proceeded to read accounts of numerous operations which had been performed by the most eminent surgeons in the public hospitals and other places where the ether had been used with success, and stated that nothing had been done in this case but what had been fully warranted by the practice of the leaders of the profession. He also stated that he had attempted to produce reaction by the exhibition of ammonia and other applications without success.

The Coroner then summed up, and the jury, having deliberated a short time, pronounced a verdict, "That the deceased Ann Parkinson died from the effects of the vapour of ether, inhaled by her for the purpose of alleviating pain during the removal of a tumour from her left thigh, and not from the effect of the operation, or from any other cause."

At the conclusion of the case Mr. Robbs stated that he fully concurred in the verdict, as he had no doubt whatever that the ether alone was the cause of death, and it was a duty he owed to the public to say so.

The verdict was then signed, and the inquiry terminated.

# A VICTIM TO THE CHLOROFORM HABIT.

Two points at least furnishing matter for reflection arise out of the death from inhalation of chloroform reported this week. The deceased, a midwife, aged 42, had, it appears, been in the habit for at least ten years of inhaling large quantities of chloroform; in fact, she claimed to be—at any rate it was claimed for her at the inquest—that she was the champion chloroform taker of the world, and that she would take a pint of chloroform in the day.

# THE MEDICAL EXAMINER.

PHILADELPHIA, MARCH, 1848.

## ANÆSTHESIA.

When our Boston brethren first announced the discovery of an agent for producing complete insensibility during surgical operations, we expressed our candid, but very serious doubts, whether the condition of the nervous system could be so modified without imminent danger. Our fears on this point are not yet entirely removed; but, as intimated in our last number, the cases in which the agents have been employed for this purpose, are now so numerous, and the aggregate results so favourable, that we cannot deny that the dangers from their employment seem to be far less than we apprehended.

The dawn of this great discovery—the greatest, perhaps, of the age—was singularly infelicitous in its attending circumstances. The murky clouds of avarice hung thickly about it, and shut out generous confidence and hope, by the suspicions and reasonable doubts which such unworthy aims naturally excited. So long as cupidity sought to conceal the agent under a strange name, and to limit its usefulness by the penalties of a patent, we felt that we could have neither lot nor part in it:—we were unalterably determined to let it alone. Now that the empirical garments with which its fair proportions were veiled and deformed, have been stripped off, and every eye may view it without prejudice, we may contemplate the subject with the calmness which becomes its deep importance. To our country belongs, in part, the honour, not only of the discovery of the now most popular agent, chloroform, but of the much greater discovery of the powers of the ether, which has led to the employment of both as anæsthetic agents; and but for the meretricious character first cast upon this noble contribution to science and humanity, how proudly might Americans point to it and claim it as their own! However, the subject is now open to the widest range of experiment and observation. While it is conceded, that both sulphuric ether and chloroform, will, by inhalation in sufficient quantity, produce insensibility to the most painful lesions, it remains to be determined which is the best adapted for general use, as well as the extent to which the influence of the agent may be safely

carried; the circumstances most proper for its employment, and those which render it hazardous or altogether improper. Time and observation alone can give us this information, and prudence forbids that we should be in haste in forming our conclusions. The communications, contained in our present number in relation to these points, are of great value. It will be seen that Professor Simpson is unqualified in his preference for chloroform, and that he deems it quite a safe remedy, even although he admits that symptoms are often induced that must alarm a novice. Professor Meigs, without denying the utility of this means of allaying pain as a pathological or morbid symptom, contends that the ordinary pains of labour are natural or physiological, and therefore not to be interfered with. This is a very important distinction, and our prepossessions, at least, coincide with the opinions of our colleague on this point.

The cases reported by Dr. Clarke, in which sulphuric ether was employed to alleviate the pains of labour, seem almost conclusive as to the utility and safety of the remedy. We have nowhere seen more decided or satisfactory results,—the more satisfactory to us, indeed, because of our knowledge of the plain, practical, and altogether truthful character of the reporter.

The last quarterly report of the College of Physicians of Philadelphia contains a report on this subject, by Dr. Isaac Parrish, embracing an excellent summary of the cases published prior to that time, from which the reporter arrives at conclusions very similar to those we have expressed in the course of these remarks.

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### ASIATIC CHOLERA.

The last advices from Europe, speak of the appearance of cholera on the borders of Prussia, but it is doubtful whether it has progressed so far. We do not discover, in fact, any certain information of its advance westwardly, nor does there seem to be so much excitement on the subject, so far as we can judge by the English and French journals.

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### SHIP FEVER.

The ship or typhus fever seems to be prevailing to a great extent in the hospitals of New Orleans, more especially among the emigrants. In all our Atlantic cities, particularly north of the Potomac, we have had, during the winter, more or less of the disease in the receptacles of the poor emigrants, whether public institutions or private habita-

# ETHERIZATION;

WITH

# SURGICAL REMARKS.

BY

JOHN C. WARREN, M. D.

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# II.

The appearances presented by the patients under the influence of ether have a general resemblance: they are varied, however, by the constitution of the patient and the mode of application, so as to present exceptions, to an extent it would be useless to describe.

The first inhalations were made through the tube and glass globe of Dr. Morton, afterwards a sponge, as applied by Dr. Mason Warren in the cases of children, was used also in those of adults, found to be more safe and convenient than the tube, and therefore employed in the greater part of our practice.*

The first symptom usually noticed is a short cough, which impels the patient to remove the sponge; but being urged to allow it to be replaced, he readily consents, perhaps after a slight expectoration, and no severe pulmonary irritation being felt, he proceeds to inspire the va-

* Dr. Mason Warren first used the sponge for children in February, 1847—[see Boston Medical and Surgical Journal for March.] At about the same time it was used by Dr. Smith, a distinguished physician of Cheltenham, England, but does not seem to have been extensively employed by him till the latter part of March, or first of April.

porous draught more and more deeply, until he becomes insensible. The respiration is then often audible, and sometimes even apoplectic; afterwards feeble and almost imperceptible—a state, which, however accustomed to it, excites a degree of uneasiness on the part of the surgeon, and leads him to investigate more carefully the condition of the pulse. My own practice has been, when not doing the operation myself, to keep the fingers applied to the patient's pulse during the whole process of etherization. This, quickened from mental causes before the operation, is still more so a short time after inhalation, sometimes excessively; subsequently it becomes slower, feebler, and even scarcely perceptible. When this is found to be the fact, the sponge being removed, the pulse becomes more free; then, if necessary, being re-applied, the same phenomena may present themselves many times during a long operation. The pulsations of the heart are often hard and vibratory. The circulation in the capillaries, especially of the face, neck and upper part of the chest, is so much increased as to redden the skin, an appearance which rarely continues long, and gives place to paleness, succeeded by cold perspirations.

The gastric phenomena are less remarkable. There is a propensity to nausea in a number of cases, which not unfrequently amounts to vomiting, sometimes protracted to the following day. Relaxation of the vesical or intestinal sphincters does not ordinarily occur, but it is certain that in strictures an instrument may be more readily passed through the œsophageal and urethral canals in a state of etherization.

In a female patient affected for many days with an

absolute retention of urine, etherization was followed by a free excretion, and the retention never returned. Whether in this case the relief was obtained by relaxation of the vesical sphincter, or by tonic etherization of the vesical parietes, it really is not possible to say.

The muscular apparatus is excited at an early period. The fists may be clenched, the muscles of the upper extremities and neck contracted, sometimes cataleptically; more commonly they perform various movements, as if the patient were trying to extricate himself from his new situation. Such movements are less frequently seen in the lower extremities.

The conjunctiva of the eye is often injected with blood; the pupils generally contracted, sometimes dilated in a powerful etherization, frequently fixed. The eyelids are occasionally strained open, more frequently closed; and when closed, the patient, if still conscious, being called on to open them, has the power of doing so, thus affording a test, which, though by no means universal, in some degree enables the operator to determine whether the operation shall begin.

The most curious of the changes produced by etherization are those of the sensitive and intellectual functions; these changes, however, are exceedingly various in their form and order, but they usually terminate in a suspension of both sense and intelligence. In a number of instances tactile sensation, the sense of feeling, appears to be suspended, (as the patient has no recollection of suffering,) while the intellect exists. The organ of intellect seems capable of taking cognizance of objects external, while it either does not

notice the impressions on the feeling nerves, or if it does they do not produce on it the usual effects.

These appearances, at first so astounding and unintelligible, seem to support the doctrine so satisfactorily explained by Dr. Carpenter, in the British and Foreign Review, No. XLIV., and in return are illustrated and explained by this doctrine, viz. that the seat of tactile sensibility is in the great cephalic ganglia, while the intellectual functions reside in the cerebral lobes. If these lobes were, as formerly believed, the *sensorium commune*, or common centre of all impressions, as well as of intellectual functions, then it would be difficult to understand how common feeling, or tactile sensitiveness could be suspended, while intellect, and even visual and auditory sensibility continued. But if tactile sensitiveness reside in the thalami, corpora striata, or annular protuberance, it is possible it may be suspended without suspension of the action of the cerebral lobes. So visual sensation, residing in the tubercula quadrigemina, may be, as we know it often is, intermitted without intermission of intellect; and the same may be said of the auditory function.* Hence arises a question not so satisfactorily answered,—why in some cases etherization should affect the seat of common feeling, i.e. the ganglia, without in the same degree affecting the cerebral mass? for these ganglia are not so situated, as to come under the ethereal influence through the circulation earlier than other parts of the encephalon. And if we admit that the influence is introduced through the

* Vide Appendix B.

nerves, then the par vagum, or pneumogastric nerves originating from the medulla oblongata would, we should expect, influence this part primarily, which thus being obnoxious to the first attacks of ether would experience an interruption of its function, and reacting on the lungs produce a suspension of respiration. This, we know, does sometimes happen, but generally in an advanced stage of etherization, and after the interruption of functions depending on other parts of the encephalic mass.

Flourens, Longet, and other French physiologists, as appears by reports and discussions before the Royal Academy of Medicine in Paris, in March and April of the present year, and which are reported in the Paris Medical Gazette of Dr. J. Guérin,* have been able by experiments on animals to satisfy themselves what parts of the brain are first etherized, and in what order the others follow. The course of my experience in human etherization is in favor of the opinion expressed by Professors Roux and Velpeau, that the symptoms are not so distinct, nor so regular, as to enable us to determine with precision which division of the nervous system will be first affected, and in what order the others.

To illustrate the fact, that tactile sensation may be suspended without suspension of intellect, two or three cases may be mentioned, which are, of course, to be considered as not exhibiting the most perfect phenomena. In the month of April, 1847, a medical gentleman

* This journal was one of the earliest and most judicious supporters of the claims of etherization to public attention.

brought his wife to Boston from a great distance, for the removal of a scirrhous tumour under the influence of ether. The apprehension of pain had led her to object to the operation, until she became acquainted with the power of ether. She was thirty-five years of age, a lady of education, and what is usually called a nervous person. Being placed in the upright posture inhalation was applied by the sponge. At first it caused some pulmonary irritation; she was soon after able to inhale freely, and showed marks of physical and mental excitement. She talked wildly, cried, and sank down in her chair: she thought she was in the cars, and complained of the motion. The sponge was employed for fifteen minutes without signs of loss of intellect. Apprehensive of the effect of too long a use of ether, I determined to begin the operation.

To the incisions in the skin she exhibited no marks of sensitiveness, soon after cried out, and made considerable movements, which continued through the operation. Her husband, an intelligent physician, pained and disappointed by her apparent suffering, considered etherization to be a failure. After all was concluded she expressed delight, that she had been relieved of her disease without pain; and during the cure repeatedly made use of the same expressions, exhibiting an unusual cheerfulness caused by her escape from suffering.

This lady could see, hear, answer questions, and understand the directions and persuasions addressed to her; yet she uniformly said, that the operation had given her no pain. It has been suggested, that in such cases the pain is not recollected; but the supposition that

one intellectual, i. e. cerebral, faculty is suspended, while the others continue, is more difficult than that of the suspension of the feeling-faculty independently of the intellectual.

Soon after the above operation, a gentleman who resided at a great distance, came to Boston for the purpose of having a tumour removed. He informed me, that although usually in the enjoyment of good health, he was of a nervous temperament, and readily agitated by moral and physical impressions. Preparatory to the operation he was placed on a bed. The head being raised, a sponge was applied to the nostrils, and the mouth closed; as it has appeared, that less cough is produced when the inhalation is through the nostrils. For five minutes he showed no external sign of etherization; then said, "now it is beginning,"—"I feel it in the chest,"—"now I feel it in the legs." Presently he began to speak rapidly, rose from the bed, and with many gesticulations uttered a harangue, partly on politics, partly on the medical profession, to which he was highly complimentary, but principally on the blessings which would flow to humanity from the discovery of etherization. This state was so gratifying, that with difficulty was he prevailed on to resume his place on the bed, and to reapply the sponge. In a few minutes more he closed his eyes, and believing him asleep, the operation was begun. He immediately spoke, encouraged its prosecution, and in two or three minutes it was concluded. Thereupon he again broke forth in a highly poetical strain, described the delight he had experienced from the passage of the knife through the skin, the

gratification he felt at the different steps of the operation, and its happy conclusion.

The symptoms of etherization continuing, I remained with him half an hour, during which he exhibited a variety of emotions, mostly of a pleasurable character, but terminating in a hysterical affection with a free discharge of tears. From time to time muscular tremors pervaded his whole system, especially the lower extremities, without movements of the limbs. His wound, two or three inches in length, was perfectly united on the third day, and on the fourth he left Boston.

In the latter part of May, 1847, another instance occurred, in which the intellectual faculties were awake through the whole operation, together with movements so strongly indicative of pain, that two very intelligent physicians present were satisfied the ether had been of no use, till after the operation, and at subsequent periods, they had an opportunity of questioning the patient themselves, with the uniform reply, that she had experienced no suffering. The disease was a tumour in the right breast, which, although it was only of five weeks' continuance, had attained the size of a lemon, and was rapidly increasing. It proved to be a dark-colored, vascular growth, of soft consistence, having the appearance of malignity, with the exception that its circumference was quite regular and separated from the glandular texture in which it was buried, by a distinct, though very thin sac.

This lady was forty-five years old, married, quite fleshy, but not remarkably healthy, and very excitable, or nervous, of course dreading the operation, and glad

to resort to the use of ether. The horizontal posture was employed, and the sponge applied to the nostrils; in a few minutes her limbs became agitated, she talked a great deal, and displaced the sponge. More than a quarter of an hour elapsed before she became sufficiently tranquil to begin the operation; and it would have been delayed longer, for the purpose of increasing the etherization, but that some apprehensions existed of its consequences in such a constitution. Similar apprehensions have frequently had a similar influence, until a more prolonged experience proved them to be groundless. The first incisions of the knife, pretty extensive, caused no movement. As the dissection proceeded, there occurred motions of the body and limbs, wild cries, protestations on the part of the patient of her great resolution and ability to endure suffering, frequent appeals to her physician to bear testimony to the fortitude with which she had supported various diseases, and strange dreamy expressions of apprehension from an operation she was expecting to undergo. With difficulty the morbid mass was extirpated from its connection with the mammary texture, and the operation was undoubtedly more protracted than it usually is in patients not etherized. There was much bleeding, and a number of arteries were tied.

The principal symptoms of etherization disappeared in about half an hour. The following day she was tranquil and comfortable, with the exception of vomiting, which had continued from the time of the operation, and declared she had not suffered but from the ligature of the arteries. The unmanageable state of this patient

during etherization caused at the time a sentiment of regret at its use; but subsequently, when she expressed her great satisfaction at having escaped the dreaded pain, the ultimate conclusion was in favor of ether.

To these cases many similar might be added, but I will only mention one, which did not occur in my own practice. A friend of mine, a lady, had three teeth extracted under etherization. She was perfectly able to count them as they were removed, but was entirely without pain during the extraction of the first two. Of course the seat of intellect was not etherized, while that of pain was, during these two operations.

The phenomena of these cases support the opinion, that the seat of intellect and that of pain are different.

The intellectual phenomena, while the cerebral functions are in a state of activity, though exceedingly various, are principally of two kinds, — the gay, and the lachrymose. The former, most frequent in males; the latter in females; in both the most prominent trait of character is apt to be displayed and exaggerated. In general, it may be said, that in most cases of etherization, there is a gradual increase of the cerebral excitement, till somnolence suddenly appears; and on the return of intellect, this state, at first strongly marked, gradually fades into the ordinary condition of the mental faculties; but to this course there are many exceptions.

The young man, whether in a state of somnolence, or of excitement, has visions of rioting, travel, happy meetings with distant friends, and many enjoy the idea of the rapid motion of the rail-cars. A sea-captain made a voyage to Sumatra, and triumphantly repulsed a host

of Malays, who were assailing him with pikes and cutlasses. Combativeness, attended with oaths and imprecations, is sometimes developed in a degree troublesome and even alarming to those around. This disposition is frequently alternated with strong expressions of affection and gratitude.

The female exhibits hysterical phenomena. She has alternate fits of laughing and crying, though more disposed to the latter than the former; and if married, she has dreams of her distant husband, or absent children. A female, who had exhibited restlessness during an operation, said, she dreamed that her child affected with hooping cough, and having a paroxysm of strangling, seemed neglected by her husband, who was unwilling to raise and support it. Indelicacy in expression or action has never presented itself in the range of my experience.

The manifestations of passion are so numerous that it would be difficult to describe them all, but those enumerated will perhaps be sufficient to convey a notion of their character. Pleasurable sensations seem on the whole to predominate; and many patients, both male and female, are anxious to renew the gratification they have experienced.

# APPENDIX.

## A.

The term ether, æther, is derived from the Greek word *αἴθειν*, to consume; signifying the element of fire situated in the highest region of heaven beyond the air. The date of the discovery of ether is uncertain; for there are passages in the writings of some of the ancients which may be interpreted to refer to it, but not so explicitly as to render certain a knowledge of it by them. The oldest of these references is by Raymond Lully, of the thirteenth century; the second by Basil Valentine, of the fifteenth century. In the year 1540, Valerius Cordus, of Nuremberg, describes, under the name of *oleum vitrioli dulce*, an article approximating to very impure sulphuric ether; the description of which is transcribed by Conrad Gessner, in 1552.

The earliest period at which this fluid is distinctly mentioned by the name of ether, within our knowledge, is in an article by Mr. Godfrey, in the Transactions of

the Royal Society of London for 1730, art. 8, p. 283, in which certain experiments with it are detailed, and its refrigerating and inflammable nature spoken of. Although the writer appears to consider the discovery as originating from a German chemist, Frobenius, an assumed name it is supposed by Macquer; yet he speaks of some experiments with ether in the laboratory of his master, Boyle, at a previous date, and, in corroboration of the accuracy of his statement, refers to the works of Sir Isaac Newton, by whom it is styled Spiritus vini æthereus.

This appears to be the first authentic account of ether and its properties. That sulphuric ether was the kind employed, is evident from its mode of preparation, "equal parts, by weight, of vitriolic oil and spirits of wine."

From the year 1730 the attention of chemists was much directed to ether. It was manufactured with difficulty, and in small quantities, until great facilities were introduced by *Hellot*, after whose time it has been abundantly made. At a subsequent period the labor of Baumé, embracing as it does not only a chemical examination of the properties of ether, but also of the various other products resulting from the distillation of alcohol and sulphuric acid, was a great contribution to the chemical science of the time.

From the analysis of Saussure, the composition of pure ether is found to be as follows: Carbon, 64.96; hydrogen. 13.47; oxygen, 21.57.

The ethers are limpid, diaphanous fluids, of a highly volatile nature, and strong penetrating odour. They

are of different kinds, produced by the action of alcohol with different acids; thus we have, besides the sulphuric, the acetic, nitric, muriatic, and chlorine ethers. A variety of the last of these, discovered by Mr. Guthrie, of this country, in consequence of an effort to manufacture the diluted chlorine ether of the Dutch chemists, on the recommendation of Professor Silliman, is esteemed as a mild, diffusible stimulant, constituting so pleasant a drink when diluted with water, as to have been used for purposes of intoxication. The Spirits of Nitrous Ether, Hoffman's Anodyne Liquor, and Clutton's Febrifuge, are well-known preparations.

The effects of nitric ether are more active than those of sulphuric. Both of them have been used internally for many years: their stimulating and very diffusible properties have, however, prevented their extensive employment, excepting in a modified state. They have also been used externally as refrigerants by evaporation. The late Dr. Thatcher, of Plymouth, in Massachusetts, recommended the use of sulphuric ether in this way for the reduction of strangulated hernia.

Mr. Robert Ferguson, an enterprising chemist and apothecary of this city, has furnished me with the following formula for the preparation of sulphuric ether, as pursued at the Norfolk Laboratory, belonging to Messrs. Everett & Blake, and for some years under his charge:

"Into a lead retort, introduce by small portions at a time, through the safety-tube (after the apparatus is luted together), ninety pounds of sulphuric acid, and

ninety pounds of strong alcohol. Raise the heat until it boils gently, and continue it so till sulphurous vapors appear at the orifice of the pipe proceeding from the receiver. The operation will require about one day. A second forty-five pounds of alcohol are added to the mass in the retort, and the distillation continued as before. On the third day the same quantity of alcohol is added, and the distillation continued. When cold, remove the residuum from the retort, and dilute with water, and preserve it for making the sulphate of potassa. Place the distilled liquor in closely stopped demijohns, and add thereto a small quantity of potassa, in order to remove the sulphurous acid with which it is contaminated; agitate occasionally for two or three days, decant, and return it into the retort, which ought previously to be cleaned, as also the receiver and condenser. Let the retort be carefully luted, and apply a moderate heat, not sufficient to produce boiling.

"The sulphuric ether in general use among druggists, contains more or less alcohol and water. It may be obtained pure by adding to it dry sub-carbonate of potassa, as long as it is wetted by the liquor; decanting it, and adding dry muriate of lime. The carbonate in the first instance separates the water, and the alcohol is separated by the muriate of lime. In this manner I have obtained it of the specific gravity of .630 at 60° F. It is not in this state, however, perfectly pure, but contains a quantity of the salts, from which it may be freed by distillation, though not without increasing the specific gravity."

Ether thus prepared is proper for inhalation, and

we have been in the habit of employing it for this purpose.

The mode of preparation recommended by Dr. Jackson, is as follows. The strongest and purest rectified sulphuric ether, which can usually be obtained from the druggists, is agitated with water, for the purpose of removing all acid. It is then freed from the water it may have taken up, by the chloride of calcium. Its specific gravity is thus rendered about .725.

## B.

The opinion expressed in the text as to the comparative period of etherization of the cerebral lobes and the encephalic ganglia, differs from that of the able physiologist, Mons. Longet. Which of the two best explains the phenomena must be decided by a careful observation of facts. In justice to Mons. Longet. it seems proper to present his views on this subject. In his opinion there are a certain class of cases, where, during the operation, the patient evinces the customary signs of pain, and appears to the by-standers to be undergoing the usual amount of suffering; and yet, when the operation is terminated, he declares that he has suffered no pain. It must be recognized that in these cases the etherization has been imperfect, extending only to the cerebral lobes without reaching the cephalic ganglia. In such cases the pain must be allowed to have been *felt*, but not *perceived*—the

# LETTRE

## *DE M. CHAPTAL,*

PROFESSEUR DE CHIMIE DES ÉTATS-GÉNÉRAUX DE LA PROVINCE DE LANGUEDOC,

## A M. L'ABBÉ MONGEZ,

*AUTEUR DU JOURNAL DE PHYSIQUE.*

Montpellier, le 16 Avril 1785.

MONSIEUR,

Je viens de recevoir une Lettre de Milan, en date du 6 avril, dans laquelle M. le Chevalier Landriani me communique des expériences très-intéreſſantes qu'il me charge de faire connoître au Public par la voie de votre Journal.

J'avois fait part à cet illuſtre ami d'un procédé auſſi ſimple qu'efficace pour préparer des oiſeaux, de petits quadrupèdes & autres animaux, par le moyen de l'éther. Je vais vous décrire mon procédé; je l'ai exécuté conſtamment avec un égal ſuccès, & je le crois digne d'être connu du Public.

Je vuide d'abord les animaux de tout ce qui peut être contenu dans les inteſtins, ou par une preſſion graduée dirigée vers l'anus, ou par une forte injection qui chaſſe au-dehors toutes les matières.

Cela fait, je lie l'anus avec un fil; j'injecte de l'éther par la bouche ou le bec, à l'aide d'une petite ſeringue, je les farcis de cette liqueur & les ſuſpends par la tête.

Je perce un œil, en vuide le cerveau, & y fais pénétrer de l'éther qu'on y retient en bouchant l'œil avec un tampon.

Le lendemain ou le ſurlendemain, on renouvelle l'injection dans l'intérieur du corps, & on la continue juſqu'à ce que l'animal ſoit parfaitement deſſéché.

A meſure qu'il ſe deſſèche, on peut lui donner des attitudes convenables; & lorſque la deſſication eſt complette, on peut conſerver l'animal, ſans ſoin, ſans embarras, & preſque ſans précaution. Une perruche, préparée de cette manière en 1782, eſt reſtée perdue derrière les rayons

d'une bibliothèque pendant deux ans, ſans que la forme du corps, la ſolidité de l'attache des plumes en aient paru altérées.

Cette méthode me paroît préſenter quelques avantages.

1°. Je la crois neuve : M. Touchy, de la Société Royale des Sciences de Montpellier, qui s'occupe avec ſuccès d'Ornithologie, a propoſé l'eſprit-de-vin il y a quelques années ; mais une fois que la partie ſpiritueuſe de cette liqueur s'eſt diſſipée, l'eau qui reſte facilite la corruption, tandis que l'éther entraîne en s'évaporiſant, & l'eau qu'il contient & celle du corps qui en eſt imbibé.

2°. Cette méthode a le double avantage de ne point gâter les formes, & de ne pas altérer l'éclat du plumage.

3°. Le procédé en eſt peu coûteux : une once d'éther m'a toujours ſuffi pour préparer de petits oiſeaux. Trois onces & demie ont ſuffi pour un très-gros perroquet ; & la modicité du prix auquel j'ai réduit l'éther propre à ces opérations, permettroit même qu'on en fît uſage pour des animaux d'une certaine groſſeur (1).

4°. On peut en tout tems & à chaque inſtant employer cette méthode.

5°. Elle peut être pratiquée par tout le monde.

J'obſerverai que la préparation eſt plus longue, plus difficile & moins complette dans les animaux bleſſés dont le corps préſente des ouvertures par où l'éther s'échappe : il convient donc de les étouffer pour les ſoumettre à cette opération lorſqu'ils ne ſont pas morts naturellement. J'obſerverai encore que la préparation eſt plus ou moins prompte, ſelon que le tems eſt plus ou moins propre à favoriſer l'évaporation de l'éther & le deſſéchement de l'animal. Peut-être que par le moyen d'une chaleur artificielle on abrégeroit le tems de la préparation.

Je crois que la théorie de cette opération conſiſte en ce que l'éther en ſe diſſipant, volatiliſe l'eau répandue dans le corps animal, le deſsèche inſenſiblement, & détruit la ſeule cauſe qui favoriſe la putréfaction. L'art de deſſécher les viandes, & de les garantir de la pourriture, communiqué en divers tems par MM. Vilaris & Cazalet, paroît confirmer notre théorie.

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(1) Dans ma Fabrique de ſels & acides minéraux établie à Montpellier, je vends 4 liv. le meilleur éther poſſible.

Original and Translation – *"Lettre de M. Chaptal, Professeur de Chimie..."*

WARNING: THE BELOW LETTER DISCUSSES CRUELTY TO ANIMALS AND MAY BE DISTURBING TO SOME READERS

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LETTER
From Mr. Chaptal,
Professor of Chemistry of the Estates-General of the province of Languedoc,
To Mr. The Abbot Mongez,
Author of the Journal of Physics.
Montpellier, 16th of April, 1785

Sir,

I have just received a letter from Milan, dated the 6th of April, in which Mr. le Chevalier Landriani has informed me of his very interesting experiments that he would like me to pass along to the public through your journal.

I had shared with my illustrious friend a very simple procedure for the purpose of preparing birds, small quadrupeds and other animals, by the use of ether. I will describe my procedure to you; I have executed it consistently with uniform success, and I believe it should be dignified by being shared with the public.

I void the animals of all that is contained in their intestines, with a gentle pressure towards the anus, or with a strong injection that eliminates all of this matter.

With that done, I bind up the anus with a thread; I inject the ether by the mouth or the beak, with the help of a small syringe, I stuff them with this liquid and hang them by their head.

I pierce an eye, to see the brain, and I penetrate with the ether that remains in the mouth while stuffing the eye with a sponge.

Later, or later in the day, we renew the injection into the interior of the body, and we continue until the animal is partially dried out.

To measure how it is drying, we can give it suitable bearing and once the desiccation is complete, we can conserve the animal with care, without obstacles and without precaution. A budgie, prepared in this manner in 1782, is resting in

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a library for two years, without change to its body, the feathers still solidly attached without alteration.

This method presents several advantages.

1) I believe it's new: Mr. Touchy, of the Royal Society of Sciences of Montpellier, a successful ornithologist, has proposed wine-spirits for several years; but once the spirit part of this liquid is evaporated, the water that remains facilitates corruption, however ether always evaporates, and the water that is left in the body is evaporated too.
2) This method has the double advantage to not spoil the form or damage the plumage.
3) The process is not expensive: one ounce of ether has always been sufficient to prepare small birds. Three and a half ounces have sufficed for a very large parakeet; and the modest price where I've reduced the ether in these operations has permitted me even to use it for animals of a certain size.[1]
4) We can in every time and every place use this method.
5) It can be practiced all around the world.

I observed that the preparation is quite long, more difficult and less complete with animals where their bodies have openings where the ether escapes: it is convenient to suffocate them for this operation in cases where they have not died naturally. I have observed also that the preparation is more or less prompt, where time more or less favours evaporation of the ether and the drying of the animal. Perhaps the medium of artificial heat would shorten the preparation time.

I believe that the theory of this operation is that the ether, in evaporating, makes the water in the body of the animal volatile and the water scatters, the desiccation is imperceptible, and it destroys the only thing that favours putrefaction. The art of drying meats and to guarantee them from rotting, communicated many times by Misters Vilaris and Cazalet, can confirm our theory.

[1] In my factory making salts and mineral acids established at Montpellier, I sell the best possible ether for 4 *livres*.