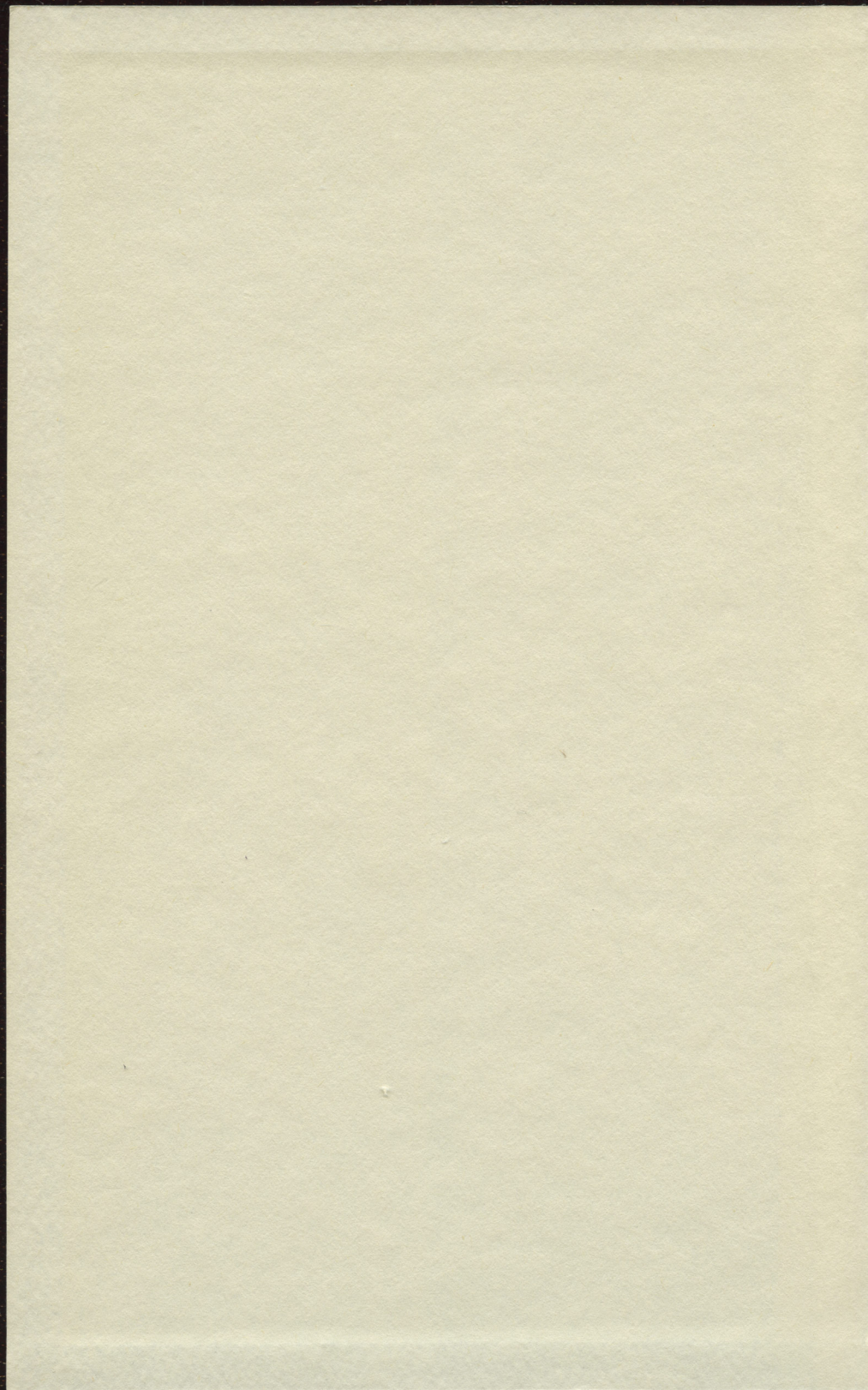


JAMES ROBINSON ON THE INHALATION OF
THE VAPOUR OF ETHER

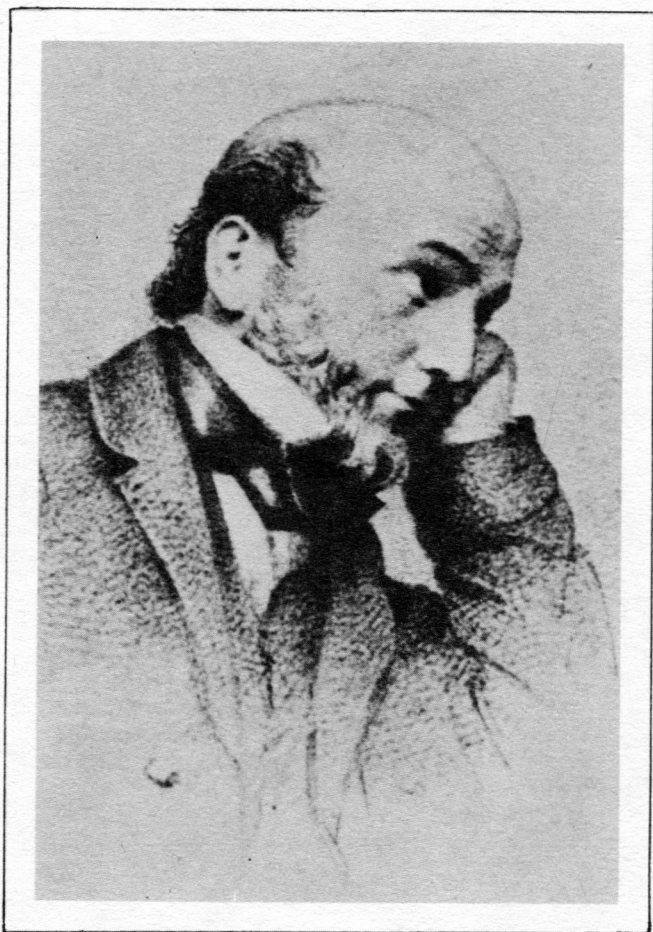


RICHARD H. ELLIS





A TREATISE ON THE INHALATION OF
THE VAPOUR OF ETHER



JAMES ROBINSON
1813-1861

A TREATISE ON THE INHALATION OF
THE VAPOUR OF ETHER
FOR THE PREVENTION OF PAIN IN
SURGICAL OPERATIONS

WITH A PREFACE BY

RICHARD H. ELLIS

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LONDON



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THIS FACSIMILE EDITION REPRODUCED BY

BAILLIÈRE TINDALL

PUBLISHED IN UNITED STATES OF AMERICA BY
WOOD LIBRARY-MUSEUM OF ANESTHESIOLOGY
515 BUSSE HIGHWAY, PARK RIDGE
ILLINOIS 60068

PUBLISHED ELSEWHERE BY BAILLIÈRE TINDALL
1 ST ANNE'S ROAD, EASTBOURNE
EAST SUSSEX BN21 3UN, UNITED KINGDOM

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Eastbourne, East Sussex BN21 3UN, United Kingdom.

ISBN 0 7020 1028 6

PRINTED IN GREAT BRITAIN BY BILLING & SONS LTD, WORCESTER

PREFACE TO THE FACSIMILE EDITION OF A TREATISE ON THE INHALATION OF THE VAPOUR OF ETHER

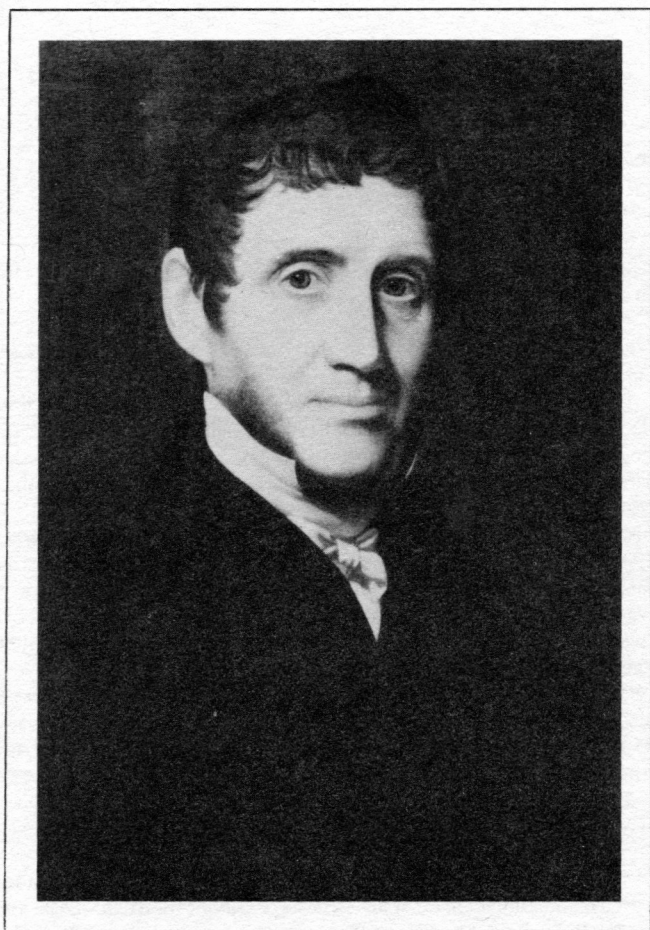
The first public and successful demonstration of ether anaesthesia was made by William Morton, a Boston dentist, who gave ether at the Massachusetts General Hospital on Friday 16th October, 1846 for the painless removal of a tumour from a patient's neck.

The news of the introduction of ether anaesthesia in Boston was sent to Britain in a letter addressed by Professor Jacob Bigelow to his American expatriate, friend and colleague Dr Francis Boott. Boott was then living in London, and, on receiving Bigelow's letter, he arranged with James Robinson, a neighbouring friend and dentist, to carry out their own experiments with ether inhalation. As a result of these experiments, ether was first used in England as an anaesthetic agent on Saturday 19th December, 1846. In the presence of Dr Boott and his family, James Robinson gave ether to a young woman from whom he then painlessly removed a diseased molar tooth. Two days later Robert Liston and William Squire (both of whom had seen Robinson and Boott at work in the interval) took part in the first major operation performed under ether in Britain. This was the amputation of a leg, and was performed at what is now University College Hospital in London.

Within a few weeks the use of ether anaesthesia was generally accepted in Britain, although many who tried to give it did so without proper preparation, and failures were common. In these instances, the operations were performed with the usual amount of pain. The inhalation of ether during surgical operations evoked a great deal of interest, and the medical and other professional journals of the day published a great deal about the subject, as did the national and provincial lay press.

A Treatise on the Inhalation of the Vapour of Ether was the first textbook to be written on the subject of ether anaesthesia. Its publication date can be inferred from *The Publishers' Circular, and General Record of British and Foreign Literature* which, in 1847, was distributed from London once a fortnight. Each edition recorded all those books which had been published in the preceding two weeks, and James Robinson's *Treatise* was listed in *The Publishers' Circular* of March 1st, 1847. The only other textbook on the subject recorded between October 1846 and the end of 1847 was John Snow's famous monograph *On the Inhalation of the Vapour of Ether in Surgical Operations* which was listed in mid-October 1847.

James Robinson's involvement in early anaesthesia in Britain arose not only because of his friendship with Francis Boott, but also because of the prominent place he occupied in British dentistry. He had a large and successful practice in London having been recognized as one of those very few dentists who performed their work in a strictly professional manner. At the time dentistry was entirely unregulated, and had no professional structure, training or standards. The majority of dentists combined their work with a variety of unskilled jobs or



DR FRANCIS BOOTT

1792-1863

trades, and many were charlatans and quacks. Robinson was concerned to improve this generally appalling state of affairs and, to this end, he had already organized Britain's first professional dental society, and had been founder and editor of the two earliest specialist dental journals in this country. His international reputation was such that, in 1846, he had been awarded an Honorary Doctorate of Dental Surgery by the Baltimore College of Dental Surgeons, which was, then, the only dental academic body in the world. In 1848 Robinson was appointed Surgeon-Dentist to The Royal Free Hospital in London, and the following year became Surgeon-Dentist to His Royal Highness Prince Albert. Later, he became actively involved in what was to become known as The Reform Movement of British Dentistry, which resulted in the

establishment of a proper and professional structure for the speciality.

It is something of a paradox that the first textbook of anaesthesia should have been published in Britain rather than in America where anaesthesia began, but this can be explained by the very different circumstances which surrounded its introduction in each country. In America, the process got off to a poor start because of a combination of several factors. Firstly, Morton's gauche attempt to conceal the true nature of his invention (which he at first called 'Letheon'), and his efforts to patent it for himself, gave rise to real misgivings about the process. These were increased by the undignified public squabble between Morton and Jackson over who should receive the credit for the invention. In addition, other centres in America apart from Boston were not at all convinced about the value of the process, and some thought it unnecessary or dangerous. In the circumstances the doctors in Boston had been, understandably, cautious and had refused to endorse ether's use until Morton had revealed the true nature of his 'Letheon' to them. They also seemed to have preferred to spread the knowledge of new discoveries by way of their medical journals, at professional meetings, and in correspondence with their more distant friends and colleagues. Morton's own, somewhat retiring personality also played a part.

In contrast, the reception of ether anaesthesia in Britain was, virtually, unfettered by any of these considerations. Here, from the very beginning it gained immediate recognition, and was widely — if not uncritically — accepted by the professional and lay press. Against this background it is quite understandable why one of those directly involved with the introduction of ether anaesthesia to Britain would have felt justified in writing a book on the subject. It is also easy to appreciate why it was James Robinson who wrote the book rather than any of the others whose names are linked with early British anaesthesia. Francis Boott was a modest man who would have been unlikely to push himself forward in the matter, especially since he had retired from active medical practice some years previously. Robert Liston was a very busy surgeon and one who, for some time, obviously had doubts about the use of ether. He almost abandoned it and, for a while, continued to operate occasionally on patients who were still awake. Eventually, he remained content to do little more than to endorse its use. Liston's first anaesthetist — William Squire — was still a medical student at the time, and was not in an authoritative position. Robinson, however, was one of Britain's most eminent dentists, and he had an impetuous character with which to complement his enthusiasm for his work and his zeal for sharing professional knowledge. He was, already, a successful author, and the second edition of his internationally acclaimed *The Surgical, Mechanical and Medical Treatment of the Teeth* had been published only a short time before his book on ether. Since tooth extraction was, at the time, the most commonly performed, painful, surgical procedure Robinson would readily have appreciated the importance of dentistry as a means of demonstrating that ether was a safe and reliable method of producing insensibility during surgical operations.

A Treatise on the Inhalation of the Vapour of Ether is only one of several contributions made by James Robinson in the earliest weeks of anaesthesia in Britain. He was described, five weeks after his first use of ether, as being the most experienced anaesthetist in the United Kingdom; his active involvement in the establishment of anaesthesia lasted for some four months, following which he relinquished his interest to John Snow, and returned to his work of dentistry by

which he was obliged to earn his living. In this brief period, James Robinson — with Francis Boott's help — put together the first anaesthetic inhaler with which he gave the first anaesthetic in England, and then performed the tooth extraction. He also demonstrated the use of ether to Robert Liston and, thereby, ensured that a convincing demonstration of ether anaesthesia for major surgery would take place. He developed his initially unsatisfactory inhaler into one which was, for a time, considered to be the most perfect device for administering ether anaesthesia; of the many early inhalers only that designed by John Snow was able to supplant Robinson's device. James Robinson went out of his way to gain more experience of anaesthesia, and lost no opportunity to demonstrate how genuine the novel process was. He also made simple clinical observations on patients under the influence of ether, and drew conclusions from these. He wrote accounts of his experience for both medical and lay journals, and ensured that anaesthesia would be well publicized.

Armed with his modified and efficient inhaler Robinson became adept at giving ether for dentistry and for more prolonged surgical operations. He demonstrated ether anaesthesia to hundreds of medical and lay onlookers at his own practice, and at a number of London's leading hospitals. (John Snow witnessed Robinson giving ether on the 28th December, 1846 which was only nine days after it had first been used successfully in Britain.) James Robinson rapidly gained a reputation as the most skilful administrator of ether anaesthesia in the country, and was called in to anaesthetize patients when the attempts of others had failed. By so doing he was able to dispel the doubts about ether's efficacy which had arisen because of the earlier failures. This, arguably, was the most important of the contributions which James Robinson made to the establishment of anaesthesia, and this influence was exerted not only in this country but also in America. That this was, indeed, the case can be confirmed by referring to the historical introduction, written by John Snow, to his book *On Chloroform and other Anaesthetics*. In this, Snow records the opposition which was expressed in America to the introduction of ether anaesthesia, and goes on to state that the acceptance of the process by Liston and his London surgical colleagues led in America to renewed enthusiasm for anaesthesia. He notes James Robinson's success, and goes on to record that both Liston and his other surgical colleagues had been on the point of discontinuing their use of ether when they were convinced of its value by the consistently successful administrations.

A Treatise on the Inhalation of the Vapour of Ether is, nonetheless, a most important work since it was the first anaesthetic textbook ever published. Even though its text was completed within some seven weeks of the first use of ether anaesthesia in Britain it is a most valued document in the history of anaesthesia. The introduction consists of Boott's famous letters to *The Lancet* announcing the discovery of anaesthesia. There follow sixteen pages of original text to which are appended 38 pages of case reports, almost all of which are reproduced, word-for-word, from various medical journals and the London and provincial lay press. It is a pity that there is no preface to inform us what was in Robinson's mind when he set out to produce the work, and of his purpose in so doing. The sixteen pages of original text comprise the only lengthy account of the earliest days of anaesthesia in Britain to be written at the time when the events described were actually happening by one of those who was most closely involved. They merit the closest study.

I hope that this facsimile reproduction of *A Treatise on the Inhalation of the Vapour of Ether* will serve as both an acknowledgement of and a memorial to the fundamental and important part played by James Robinson in the establishment of anaesthesia in Britain and in the United States of America. The importance of his contributions to the well-being of early anaesthesia have previously been overlooked.

RICHARD H. ELLIS

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LONDON.

ACKNOWLEDGEMENTS

I have been helped in the preparation of this edition of James Robinson's pioneering textbook by Mr Ronald Cohen, of Leamington Spa, and Dr Brian Gough, of Solihull. Both played a vital part in the project by allowing their precious and original copies of the work to be used in the production of the facsimile. Without their willing co-operation this volume could not have been published.

The practical assistance of Mr Eustace Cornelius, Librarian of The Royal College of Surgeons of England, has been invaluable to me, as has that of Dr Barend ter Haar, of the publishers Baillière Tindall.

The publication of this edition has been made possible by the generous financial support of Boots Hospital Products, whose sponsorship of the venture — given as a service to anaesthesia and to historians of medicine — has been personified by Mr Roger Mee. He has been a source of wise counsel and enthusiasm, for both of which I have been most grateful.

RICHARD H. ELLIS

JULY 1983

*F. Williams Corfield, F.R.S.
1915*



A TREATISE
ON
THE INHALATION OF
THE VAPOUR OF ETHER,

For the Prevention of Pain in
SURGICAL OPERATIONS,

CONTAINING
A NUMEROUS COLLECTION OF CASES
IN WHICH IT HAS BEEN APPLIED,

WITH NAMES OF THE OPERATORS,

HISTORY OF THE DISCOVERY—DESCRIPTION OF THE APPA-
RATUS—METHOD OF PREPARING THE ETHER—REMARKS
AS TO THE TIME WHEN THE OPERATION SHOULD
COMMENCE, &c., &c., &c.

DEDICATED TO FRANCIS BOOTT, M.D.

BY
JAMES ROBINSON,

Surgeon-Dentist to the Metropolitan Hospital, &c.

LONDON:
WEBSTER AND CO., 60, PICCADILLY.

MDCCCXLVII.
PRICE TWO SHILLINGS.



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BY
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SURGEON-DENTIST TO THE METROPOLITAN HOSPITAL, ETC., ETC.

LONDON:
WEBSTER AND CO., 60, PICCADILLY.

1847.

Dedication.

TO FRANCIS BOOTT, Esq., M.D., &c., &c.

MY DEAR SIR,

ALLOW me to dedicate to you this humble attempt to make known the virtues of Ether, which most probably would never have been made, but for your kindness and assistance.

To you I am indebted for the earliest information on the subject; and my subsequent experiments to perfect an apparatus, and render it practically useful in the cause of suffering humanity, have been sanctioned by your presence, and supported by your counsel and advice.

With every feeling of respect and esteem,

Believe me, my dear Sir,

Very faithfully yours,

JAMES ROBINSON.

7, GOWER STREET,
BEDFORD SQUARE.

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SURGICAL OPERATIONS,
IN AMERICA,
PERFORMED DURING INSENSIBILITY,
PRODUCED BY THE INHALATION OF THE VAPOUR OF SULPHURIC ETHER.

Extract from a private letter from Dr. BIGELOW to Dr. FRANCIS BOOTT.

" Boston, Nov. 28, 1846.

" MY DEAR BOOTT,—I send you an account of a new anodyne process lately introduced here, which promises to be one of the most important discoveries of the present age. It has rendered many patients insensible to pain during surgical operations, and other causes of suffering. Limbs and breasts have been amputated, arteries tied, tumours extirpated, and many hundreds of teeth extracted, without any consciousness of the least pain on the part of the patient.

" The inventor is Dr. Morton,* a dentist of this city, and the process consists of the inhalation of the vapour of ether to the point of intoxication. I send you the *Boston Daily Advertiser*, which contains an article written by my son Henry, and which is extracted from a medical journal, relating to the discovery.

" Let me give you an example. I took my daughter Mary, last week, to Dr. Morton's rooms, to have a tooth extracted. She inhaled the ether about one minute, and fell asleep instantly in the chair. A molar tooth was then extracted, without the slightest movement of a muscle or fibre. In another minute she awoke, smiled, said the tooth was not out, had felt no pain, nor had the slightest knowledge of the extraction. It was an entire illusion.

" The newspaper will give you the details up to its date, since which other operations have been performed with uniform success.

" Dr. F. Boott."

The following Paper, by HENRY JACOB BIGELOW, M.D., one of the Surgeons of the Massachusetts General Hospital, was read before the Boston Society of Medical Improvement, November 9th, 1846, an Abstract having been previously read before the American Academy of Arts and Sciences, November 3rd, 1846.

It has long been an important problem in medical science, to devise some method of mitigating the pain of surgical operations. An efficient agent for this purpose has at length been discovered. A patient has been rendered completely insensible during an amputation of the thigh, regaining consciousness after a short interval. Other severe operations have been performed without the knowledge of the patients. So remarkable an occurrence will, it is believed, render the following details relating to the history and character of the process not uninteresting.

On the 16th of October, 1846, an operation was performed at the hospital, upon a patient who had inhaled a preparation administered by Dr. Morton, a dentist of this city, with the alleged intention of producing insensibility to pain. Dr. Morton was understood to have extracted teeth under similar circumstances, without the knowledge of the patient. The present operation was performed by Dr. Warren,

* From a private letter recently received in this country from Dr. Jackson, it would appear that it was he who first observed the effects of the ethereal vapour, and mentioned the fact to Dr. Morton, he first applied it practically in cases of tooth-drawing, and threatened that unless a patent was taken out, he would forestall Dr. J. and do so himself.

and though comparatively slight, involved an incision near the lower jaw of some inches in extent. During the operation, the patient muttered, as in a semi-conscious state, and afterwards stated that the pain was considerable, though mitigated; in his own words, as though the skin had been scratched with a hoe. There was probably, in this instance, some defect in the process of inhalation, for, on the following day, the vapour was administered to another patient with complete success. A fatty tumor, of considerable size, was removed by Dr. Hayward from the arm of a woman, near the deltoid muscle. The operation lasted four or five minutes, during which time the patient betrayed occasional marks of uneasiness; but upon subsequently regaining her consciousness, professed not only to have felt no pain, but to have been insensible to surrounding objects—to have known nothing of the operation, being only uneasy about a child left at home. No doubt, I think, existed in the minds of those who saw this operation, that the unconsciousness was real; nor could the imagination be accused of any share in the production of these remarkable phenomena.

I subsequently undertook a number of experiments, with the view of ascertaining the nature of this new agent, and shall briefly state them and also give some notice of the previous knowledge which existed of the use of the substances I employed.

The first experiment was with sulphuric ether, the odour of which was readily recognized in the preparation employed by Dr. Morton. Ether inhaled in vapour is well known to produce symptoms similar to those produced by the nitrous oxide. In my own former experience, the exhilaration has been quite as great, though perhaps less pleasurable, than that of this gas, or of the Egyptian *haschish*. It seemed probable that the ether might be so long inhaled as to produce excessive inebriation and insensibility; but in several experiments the exhilaration was so considerable that the subject became uncontrollable, and refused to inspire through the apparatus. Experiments were next made with the oil of wine, (etheral oil.) This is well known to be an ingredient in the preparation known as Hoffman's anodyne, which also contains alcohol, and this was accordingly employed. Its effects upon the three or four subjects who tried it were singularly opposite to those of the ether alone. The patient was tranquillized, and generally lost all inclination to speak or move. Sensation was partially paralyzed, though it was remarkable that consciousness was always clear, the patient desiring to be pricked or pinched, with a view to ascertain how far sensibility was lost. A much larger proportion of oil of wine, and also chloric ether, with and without alcohol were tried, with no better effect.

It remains briefly to describe the process of inhalation by the new method, and to state some of its effects. A small two-necked glass globe contains the prepared vapour, together with sponges, to enlarge the evaporating surface. One aperture admits the air to the interior of the globe, whence, charged with vapour, it is drawn through the second into the lungs. The inspired air thus passes through the bottle, but the expiration is diverted by a valve in the mouth-piece, and escaping into the apartment is thus prevented from vitiating the medicated vapour. A few of the operations in dentistry, in which the preparation has as yet been chiefly applied, have come under my observation. The remarks of the patients will convey an idea of their sensations.

A boy of sixteen, of medium stature and strength, was seated in the chair. The first few inhalations occasioned a quick cough, which afterwards subsided; at the end of eight minutes the head fell back, and the arms dropped, but owing to some resistance in opening the mouth, the tooth could not be reached before he awoke. He again inhaled for two minutes, and slept three minutes, during which time the tooth, an inferior molar, was extracted. At the moment of extraction the features assumed an expression of pain, and the hand was raised. Upon coming to himself, he said he had had a "first-rate dream—very quiet," he said, "and had dreamed of Napoleon—had not the slightest consciousness of pain—the time had seemed long;" and he left the chair, feeling no uneasiness of any kind, and evidently in a high state of admiration. The pupils were dilated during the state of unconsciousness, and the pulse rose from 130 to 142.

A girl of sixteen immediately occupied the chair. After coughing a little, she inhaled during three minutes, and fell asleep, when a molar tooth was extracted, after which she continued to slumber tranquilly during three minutes more. At the moment when force was applied, she flinched and frowned, raising her hand to her mouth, but said she had been dreaming a pleasant dream, and knew nothing of the operation.

A stout boy of twelve, at the first inspiration coughed considerably, and required a good deal of encouragement to induce him to go on. At the end of three minutes from the first fair inhalation, the muscles were relaxed and the pupil dilated. During the attempt to force open the mouth he recovered his consciousness, and again inhaled during two minutes, and in the ensuing one minute two teeth were extracted, the patient seeming somewhat conscious, but upon actually awaking, he declared "it was the best fun he ever saw," avowed his intention to come there again, and insisted upon having another tooth extracted upon the spot. A splinter which had been left afforded an opportunity of complying with his wish, but the pain proved to be considerable. Pulse at first 110, during sleep 96, afterwards 144; pupils dilated.

The next patient was a healthy-looking middle-aged woman, who inhaled the vapour for four minutes; in the course of the next two minutes a back tooth was extracted, and the patient continued smiling in her sleep for three minutes more. Pulse 120, not affected at the moment of the operation, but smaller during sleep. Upon coming to herself, she exclaimed that "it was beautiful—she dreamed of being at home—it seemed as if she had been gone a month." These cases, which occurred successively in about an hour, at the room of Dr. Morton, are fair examples of the average results produced by the inhalation of the vapour, and will convey an idea of the feelings and expressions of many of the patients subjected to the process. Dr. Morton states, that in upwards of two hundred patients, similar effects have been produced. The inhalation, after the first irritation has subsided, is easy, and produces a complete unconsciousness at the expiration of a period varying from two to five or six, sometimes eight minutes; its duration varying from two to five minutes; during which the patient is completely insensible to the ordinary tests of pain. The pupils in the cases I have observed have been generally dilated; but with allowance for excitement and other disturbing influences, the pulse is not affected, at least in frequency; the patient remains in a calm and tranquil slumber, and wakes with a pleasurable feeling. The manifestation of consciousness or resistance I at first attributed to the reflex function, but I have since had cause to modify this view.

It is natural to inquire whether no accidents have attended the employment of a method so wide in its application, and so striking in its results. I have been unable to learn that any serious consequences have ensued. One of two robust patients have failed to be affected. I may mention as an early and unsuccessful case, its administration in an operation performed by Dr. Hayward, where an elderly woman was made to inhale the vapour for at least half an hour without effect. Though I was unable at the time to detect any imperfection in the process, I am inclined to believe that such existed. One woman became much excited, and required to be confined to the chair. As this occurred to the same patient twice, and in no other case as far as I have been able to learn, it was evidently owing to a peculiar susceptibility. Very young subjects are affected with nausea and vomiting, and for this reason Dr. Morton has refused to administer it to children. Finally, in a few cases, the patient has continued to sleep tranquilly for eight or ten minutes, and once, after a protracted inhalation, for the period of an hour.

The following case, which occurred a few days since, will illustrate the probable character of future accidents. A young man was made to inhale the vapour, while an operation of limited extent, but somewhat protracted duration, was performed by Dr. Dix upon the tissues near the eye. After a good deal of coughing, the patient succeeded inhaling the vapour, and fell asleep at the end of about ten minutes. During the succeeding two minutes, the first incision was made, and the patient awoke, but unconscious of pain. Desiring to be again inebriated, the tube was placed in his mouth and retained there about twenty-five minutes, the patient being apparently half affected, but, as he subsequently stated, unconscious. Respiration was performed partly through the tube, and partly with the mouth open. Thirty-five minutes had now elapsed, when I found the pulse suddenly diminishing in force, so much so, that I suggested the propriety of desisting. The pulse continued decreasing in force, and from 120 had fallen to 96. The respiration was very slow, the hands cold, and the patient insensible. Attention was now, of course, directed to the return of respiration and circulation. Cold affusions, as directed for poisoning with alcohol, were applied to the head, the ears were syringed, and ammonia presented to the nostrils and administered internally. For fifteen minutes the symptoms remained stationary, when it was proposed to use active exercise, as in a case of narcotism from

opium. Being lifted to his feet, the patient soon made an effort to move his limbs, and the pulse became more full, but again decreased in the sitting posture, and it was only after being compelled to walk during half an hour that the patient was able to lift his head. Complete consciousness returned only at the expiration of an hour. In this case the blood was flowing from the head, and rendered additional loss of blood unnecessary; indeed, the probable hæmorrhage was previously relied on as salutary in its tendency.

Two recent cases serve to confirm, and one, I think, to decide, the great utility of this process. On Saturday, November the 7th, at the Massachusetts General Hospital, the right leg of a young girl was amputated above the knee, by Dr. Hayward, for disease of this joint. Being made to inhale the preparation, after protesting her inability to do so, from the pungency of the vapour, she became insensible in about five minutes. The last circumstance she was able to recall was the adjustment of the mouth-piece of the apparatus, after which she was unconscious until she heard some remark at the time of securing the vessels—one of the last steps of the operation. Of the incision she knew nothing, and was unable to say, upon my asking her, whether or not the limb had been removed. She refused to answer several questions during the operation, and was evidently completely insensible to pain or other external influences. This operation was followed by another, consisting of the removal of a part of the lower jaw, by Dr. Warren. The patient was insensible to the pain of the first incision, though she recovered her consciousness in the course of a few minutes.

The character of the lethargic state which follows this inhalation is peculiar. The patient loses his individuality, and awakes after a certain period, either entirely unconscious of what has taken place, or retaining only a faint recollection of it. Severe pain is sometimes remembered as being of a dull character; sometimes the operation is supposed to be performed by somebody else. Certain patients whose teeth have been extracted, remember the application of the extracting instruments; yet none have been conscious of any real pain.

As before remarked, the phenomena of the lethargic state are not such as to lead the observer to infer this insensibility. Almost all patients under the dentist's hands scowl or frown; some raise the hand. The patient whose leg was amputated, uttered a cry when the sciatic nerve was divided. Many patients open the mouth, or raise themselves in the chair, upon being directed to do so. Others manifest the activity of certain intellectual faculties. An Irishman objected to the pain, that he had been promised an exemption from it. A young man taking his seat in the chair and inhaling a short time, rejected the globe, and taking from his pockets a pencil and card, wrote and added figures. Dr. Morton supposing him to be affected, asked if he would now submit to the operation, to which the young man willingly assented. A tooth was accordingly extracted, and the patient soon after recovered his senses. In none of these cases had the patients any knowledge of what had been done during their sleep.

I am, as yet unable to generalize certain other symptoms to which I have directed attention.* The pulse has been, as far as my observation extends, unaltered in frequency, though somewhat diminished in volume, but the excitement preceding an operation has, in almost every instance, so accelerated the pulse that it has continued rapid for a length of time. The pupils are, in a majority of cases, dilated; yet they are in certain cases unaltered, as in the above case of amputation.

The duration of the insensibility is another important element in the process. When the apparatus is withdrawn, at the moment of unconsciousness, it continues, upon the average, two or three minutes, and the patient then recovers completely or incompletely, without subsequent ill effects. In this sudden cessation of the symptoms, this vapour in the air tubes differs in its effects from the narcotics or stimulants in the stomach, and as far as the evidence of a few experiments of Dr. Morton goes, from the ethereal solution of opium when breathed. Lassitude, head-ache, and other symptoms, lasted for several hours when this agent was employed.

But if the respiration of the vapour be prolonged much beyond the first period, the symptoms are more permanent in their character. In one of the first cases, that of a young boy, the inhalation was continued during the greater part of ten minutes,

* Since the above was written, I find this irregularity of symptoms mentioned in the case of poisoning by alcohol. Dr. Ogston, according to Christison, has in vain attempted to group together and to classify the states of perspiration, pulse, and pupil.

and the subsequent narcotism and drowsiness lasted more than an hour. In a case alluded to before, the narcotism was complete during more than twenty minutes; the insensibility approached to coma.

The process is obviously adapted to operations which are brief in their duration, whatever be their severity. Of these, the two most striking are, perhaps, amputations and the extraction of teeth. In protracted dissections, the pain of the first incision alone is of sufficient importance to induce its use; and it may hereafter prove safe to administer it for a length of time, and to produce a narcotism of an hour's duration. It is not unlikely to be applicable in cases requiring a suspension of muscular action, such as the reduction of dislocations or of strangulated hernia; and finally, it may be employed in the alleviation of functional pain, of muscular spasm, as in cramp and colic, and as a sedative or narcotic.

The application of the process to the performance of surgical operations, is, it will be conceded, new. If it can be shown to have been occasionally resorted to before, it was only an ignorance of its universal application, and immense practical utility, that prevented such isolated facts from being generalized.

It is natural to inquire with whom this invention originated. Without entering into details, I learn that the patent bears the name of Dr. Charles T. Jackson, a distinguished chemist, and of Dr. Morton, a skilful dentist, of this city, as inventors, —and has been issued to the latter gentleman as proprietor.

It has been considered desirable by the interested parties that the character of the agent employed by them should not be at this time announced; but it may be stated that it has been made known to those gentlemen who have had occasion to avail themselves of it.

I will add, in conclusion, a few remarks upon the actual position of this invention as regards the public.

No one will deny that he who benefits the world should receive from it an equivalent. The only question is, of what nature shall the equivalent be? Shall it be voluntarily ceded by the world, or levied upon it? For various reasons, discoveries in high science have been usually rewarded indirectly by fame, honour, position, and occasionally, in other countries, by funds appropriated for the purpose. Discoveries in medical science, whose domain approaches so nearly that of philanthropy, have been generally ranked with them; and many will assent with reluctance to the propriety of restricting by letters patent the use of an agent capable of mitigating human suffering. There are various reasons, however, which apologize for the arrangement which I understand to have been made with regard to the application of the new agent.

1st. It is capable of abuse, and can readily be applied to nefarious ends.

2nd. Its action is not yet thoroughly understood, and its use should be restricted to responsible persons.

3rd. One of its greatest fields is the mechanical art of dentistry, many of whose processes are by convention, secret, or protected by patent rights. It is especially with reference to this art, that the patent has been secured. We understand, already, that the proprietor has ceded its use to the Massachusetts General Hospital, and that his intentions are extremely liberal with regard to the medical profession generally; and that so soon as necessary arrangements can be made for publicity of the process, great facilities will be offered to those who are disposed to avail themselves of what now promises to be one of the important discoveries of the age.—*From the Boston Medical and Surgical Journal.*

The above extracts from a private letter to Dr. Boott, and from the *Boston Journal*, contain the whole intelligence on the effects of ether received in this country, and imparted to the profession on the 17th of December, 1846.

The two following letters, addressed to *The Lancet*, make mention of the first trials in England; that on Dec. 19th, by myself, in the case of Miss Lonsdale, in which I used a very imperfect apparatus, hastily got up, and which was condemned from its ill success in the cases on the 20th: and the memorable operations of Mr. Liston, on the 21st, at the Hospital of University College, in which he was assisted by Mr. Squires, who used an apparatus of his own construction to induce the state of insensibility into which the patients were thrown.

To the Editor of *The Lancet*.

SIR,—I forwarded a few days ago, for publication in *The Lancet*, Dr. H. J. Bigelow's report on the anodyne effects of the inhalation of the vapour of strong, pure sulphuric ether; and since that time I have received an Address, delivered by the Hon. Edward Everett, (late Minister from the United States to the Court of St. James's,) at the opening of the new Medical College in Boston, an extract from which will be interesting, as affording his high testimony to the safety and efficacy of the process. In a note, Mr. Everett, the President of Harvard College, says—"I am not sure that, since these remarks were delivered, a discovery has not been announced which fully realizes the predictions of the text. I allude to the discovery of a method of producing a state of temporary insensibility to pain, by the inhalation of a prepared vapour. I witnessed a very successful instance of its application, on the 18th of November, and was informed at that time by Dr. Morton, that he had employed it in several hundred cases of dentistry. It has also been made use of with entire success at the Massachusetts General Hospital, and elsewhere in Boston, in capital operations of surgery. The few cases of failure may, perhaps, be ascribed to irregularities in the process of inhalation, or to peculiarities of temperament or constitution on the part of the patient. I understand that great confidence is placed in the discovery by the most distinguished members of the medical profession of this vicinity, and that they are disposed to regard it as an effectual method of inducing complete insensibility under the most cruel operations, by means easily applied, entirely controllable and productive of no subsequent bad consequences. It seems not easy to overrate the importance of such a discovery."

I beg to add, that on Saturday, the 19th, a firmly fixed molar tooth was extracted in my study from Miss Lonsdale, by Mr. Robinson, Dentist of Gower Street, in the presence of my wife, two of my daughters, and myself, without the least sense of pain, or the movement of a muscle. The whole process of inhalation, extracting, and waking, was over in three minutes. Yet the same apparatus was used in three or four cases afterwards, and failed in each case to produce insensibility. I attribute the failure to the defect in the valve of the mouthpiece, by which the expired air was returned to the bottle, instead of passing into the room. The valve was a ball and socket one, and required a very strong expiration to make it act freely. I would add, that the efficacy of any apparatus must depend upon the facility of breathing the vapour, and the perfect action of the valve, admitting the expired air to pass easily into the room. In Miss Lonsdale's case, we all observed she breathed strongly, and thus, no doubt, opened the valve. In all the other cases, we had great difficulty in making the patients breathe through the mouthpiece.

Gower-street, Dec. 21st, 1846.

Yours sincerely,
F. BOOTT.

To the Editor of *The Lancet*.

Gower-street, Dec. 22nd, 1846.

SIR,—If you have not heard of Mr. Liston's success in the case of the inhaled ether, the following note I have received from him, will interest you, as confirming the American report.

"Clifford-street, Dec. 21st, 1846.

"MY DEAR SIR,—I tried the ether inhalation to-day in a case of amputation of the thigh, and in another requiring evulsion of both sides of the great toe-nail, one of the most painful operations in surgery, and with the most perfect and satisfactory results.

"It is a very great matter to be able thus to destroy sensibility to such an extent, and without, apparently, any bad result. It is a fine thing for operating surgeons, and I thank you most sincerely for the early information you were so kind as to give me of it.

"To Dr. Boott."

"Yours faithfully,
"ROBERT LISTON.

I hope Mr. Liston will report of these cases more fully.

Yours sincerely,
F. BOOTT.

FURTHER EXPERIMENTS IN ENGLAND.

Having had another apparatus constructed, combining the necessary powers of inhalation and exhalation, as mentioned in Dr. Boott's preceding letter (a description of which shall be given hereafter), I tried it for the first time on my servant, who in two minutes became so perfectly insensible as not to feel the application and pressure of a pair of forceps applied to one of the central incisors, although a portion of the gum was enclosed within their grasp.

By this experiment I ascertained that the mechanical powers of the apparatus were correct. The first case in which it was applied to practical purposes, was that of a girl thirteen years of age, of a healthy constitution and robust appearance. After having with some difficulty persuaded her to inhale the vapour, scarcely a minute elapsed before she became narcotized, and I took the opportunity to remove a deep-seated stump of the first molar of the lower jaw. On recovering herself, she appeared to be in a state of bewilderment, and enquired what I had given her, and how long she had been in the country; and on my asking whether she was now ready to have her tooth out, she answered that she would rather postpone the operation till the next day. She was however somewhat surprised at expectorating blood, and more so when on feeling for the stump she found that it had been removed during her state of temporary insensibility. She had not felt the slightest pain, but had been dreaming of the country. In two minutes from the removal of the stump she left the surgery perfectly recovered.

The next case was that of a youth, between thirteen and fifteen years of age, who inhaled the vapour preparatory to the extraction of one of the molares of the upper jaw. He was at first very timid at the idea of having his tooth extracted; and when I had induced him to submit by the promise of removing it without pain, he became afraid of the vapour itself. To give him confidence, I was obliged to allow my servant to inhale it in his presence. This overcame his fears, and he inhaled vigorously for a minute and a half, when he became narcotized, and I performed the operation of which he had so much dread. He recovered in three minutes, and could not imagine how or when I had extracted the tooth. On being asked if he had been dreaming, he replied, "No; I have been dead or something." And in a few minutes, having examined the wonderful thing as he called it, he left the surgery perfectly recovered. Afterwards, in relating the matter to his friends, he assured them that I extracted teeth by means of "a little pipe and bottle."

These cases were followed by that of Mr. Dixon, the dental instrument maker, who, after receiving the vapour for, as calculated by Dr.

Boott, three minutes, became perfectly narcotized, with his eyes wide open, and I extracted the stump of a bicuspid tooth. On recovering, in three minutes, he gave us the following extraordinary account of his state.

He described that he had been under the influence of an extraordinary dream, in the course of which, all that he had done and read and known, and all the events of his early youth, seemed to be compressed into a circle. He then felt as if an evil spirit was endeavouring to triumph over him, but still his confidence in his own victory was predominant, the actual removal of the tooth being coincident with the last effort of the spirit.

In half a minute he was conscious of the presence of those around him, and in two minutes more was perfectly recovered, having been totally unconscious of the operation.

In this case it was observed for the first time, both by Dr. Boott and myself, that as soon as unconsciousness commenced, the eyes were wide open, the pupils being considerably dilated and fixed; and that they remained so during the whole period of the experiment, not even moving till the patient returned to consciousness.

Whether this peculiarity may or may not be of advantage in operations on the eye, or whether the perfect flexibility of the muscles which accompanies this state of artificial repose may not be turned to some account in the reduction of dislocations, &c., are suggestions of which time and experience only can prove the value.

The next cases I have to record are three, in which, in the presence of several medical men, I operated in my surgery.

In the first was extracted the dens sapientiæ of the upper jaw of a young man, of robust constitution, and about twenty years of age. This patient, after inhaling the vapour for about two minutes, became insensible, and the tooth was extracted. On recovering, he was requested to give an account of his sensations, but he could neither recollect anything, nor was he aware when his tooth had been taken out; and quaintly observing that "it was the queerest thing he ever knew in his life," he left the surgery perfectly well.

In the second case, a youth, between seventeen and eighteen years of age, required the removal of a carious central. He was of a weakly and nervous constitution, and objected to inhale the vapour, having heard, as he said, that "I sent people to sleep and then took out the whole of their teeth." I therefore removed the tooth in the usual manner, and I mention the case merely to shew the prejudice and misconception with which a novelty and innovation has to contend.

The third case was that of a female, between thirteen and fourteen years of age, of a weakly and delicate constitution. She took the vapour readily, in twenty inspirations became perfectly narcotized, and the first molar of the lower jaw was removed. She did not recover her faculties for four minutes, and then complained of head-ache and oppression, which were removed by taking a little ammonia in water. She could give no account of her state, and was unaware when or how the tooth had been removed. In this case I concluded that more vapour was given than necessary.

The next case occurred at the Metropolitan Hospital, in the person

of a young girl between nine and ten years of age; several of the medical officers of the institution and some visitors being present. She was exceedingly timid on first entering the surgery of the institution, but on a little persuasion took the vapour, which after a minute's inhalation produced its effect. She became insensible, and a deciduous molar and canine tooth were extracted. She recovered in about two or three minutes, but could give no description of her feelings, or how she had lost her teeth.

In the next case, a man, 27 years of age, wished the removal of a carious molar of the upper jaw. After inhaling for two minutes the vapour took effect, and I extracted the tooth. When he recovered, which was in about two to three minutes, on being questioned by some of the parties present as to the pain, his answer was that he knew nothing about it, as he "*had lost his brains.*"

Having, in the foregoing cases, given the apparatus a sufficient trial to test its value, I communicated most of them, accompanied by a description, to the editor of the *Morning Chronicle*, who did me the favour of publishing them; but as the *modus operandi* could then be only partially described I will here give it in detail, observing that although up to the present time the ether has fully answered my expectations, cases will no doubt occur in which the effect produced by it may be modified by the previous habits and constitution of the person to whom it is exhibited.

Persons who have been in the habit of taking spirituous liquors, for instance, will probably be little susceptible to its influence, and in some cases perhaps altogether beyond its pale—the ether merely producing intoxication. The same, or nearly similar results, will probably be obtained where the patient has been in the habit of taking opium, in which it is questionable whether the inhalation will produce an immunity from pain, while we shall no doubt meet with nervous and hysterical persons, who may be afraid to employ the means on account of the state of insensibility it produces—which they may not be able to contemplate in perspective without some degree of alarm,—a fear by no means unreasonable and scarcely surprising till the discovery has ceased to be a novelty, and experience has stamped it with the seal of safety.

We would urge those who employ the ethereal inhalation, not only to note every symptom or peculiarity, however minute, that may occur in the cases submitted to its operation, but to weigh well the previous habits and present state of their patients before they exhibit it; keeping in mind that there are peculiarities of habit and constitution, and particular states of health, in which the effects may be questionable, and some in which it would not be advisable to administer it.

At present the invention, so to call it, is, although so far successful, a novelty; with the benefits and dangers of which we are, in this country, very imperfectly acquainted. There are it is true many cases in which analogical reasoning will suggest its application,—some perhaps of the most important and dangerous in the whole range of medical practice.

In midwifery, for instance, in cases in which a necessity exists for turning the child in utero, when the contractions of the womb are irregular and violent; in cases of puerperal convulsions, tetanus, &c.,

its effects remain to be ascertained; and is it not possible, that if the spasmodic action can be sufficiently overcome to allow its exhibition, that the ether inhalation may be available in that most dreadful of all visitations, hydrophobia? We feel convinced, that it is not only to the extinction of pain in surgical operations that it will be applied, but that its mission will have a much more extended range, and that it will be of some value as a remedial and curative agent, when the faculty of medicine have examined its effects.

The expansion and fixture of the pupil of the eye point out its application in ophthalmic cases. The relaxation of the muscles, its use in dislocations. The immunity from pain, its advantage in surgical operations. These are the data we have at present to guide us. Its action (by repetition) upon the mind, and how far it may be useful in cases of mental derangement, in producing a fresh and more healthy development of the functions of the brain we have yet to learn; and a more extensive field for enquiry and observation was never offered to medicine and science.

In the presence of Messrs. Storks, Jeremy, and some other medical men, I administered the vapour to a young woman about twenty-five years of age, of a delicate habit and nervous temperament. She at first inhaled the vapour with some fear, but on gaining confidence and taking more decided inspirations she in two minutes became narcotized, and a carious lateral incisor was removed. On her recovery, which was prompt, she was questioned as to her sensations; she said that she could not recollect any dream as her head had been in a state of confusion, and, felt funny, but that she had not suffered any pain whatever during the operation.

It was observed that during her insensibility she sat shaking her hands, over which however she appeared to have little control, not being able to raise them above a certain height; and that she did not make the slightest attempt to raise them to her head when the tooth was extracted.

The next case presents somewhat different features from any in which I had previously administered the vapour.

A stout, robust, and masculine-looking female wished to have two molar teeth extracted; she had suffered excruciating pain for three weeks, from the teeth, which were very carious, and a large alveolar abscess had been the result of the irritation. After inhaling the ethereal vapour for three minutes and a half she became narcotized, and the second molar tooth was extracted; on which she observed that she had felt some pain, but not near so much as formerly when she had a tooth out. She inhaled the vapour again and I then for the first time observed its action on the iris, and allowed her to inhale for two minutes more, when the pupil of the eye after ascending and descending several times became fixed under the upper eyelid. I now removed the other tooth. She recovered in three minutes, and observed that she would postpone having it out till the next day, and could scarcely be persuaded by those present that it had already been removed. She said that she had had a dream, but could not remember its purport.

From her having suffered some slight degree of pain when the first tooth was extracted, I felt convinced that there was something wrong

unconnected with the action of the apparatus. Under this impression I enquired into her usual habits and whether she was a dram-drinker. She denied the habit, but allowed that on that *particular day* she had taken two glasses of gin to give her heart for the operation.

Having observed the peculiar effect of the inhalation of ether upon the eye in many cases, which as they all present the same phenomena more or less prominently it would be both unnecessary and uninteresting to report, I shall proceed to shew the safety with which this new agent may be employed, and that a patient may be safely kept in a state of quietude sufficiently long for the most tedious operation. To strengthen this opinion I shall here embody the opinion of Dr. Boott on the subject. He says,

"My impression from the trials I have witnessed of the inhalation of ether are so strong both as to its safety and efficacy that I wish to do all in my power to induce the profession to use it with confidence. I have however uniformly found that if the vapour is too much diluted by the patient breathing the outer air, we produce excitement instead of insensibility, and that if the air and vapour once vitiated are again admitted to the lungs, this state of excitement is followed by exhaustion.* But if the apparatus is a good one, like that pictured in the *Lancet*, and *Medical Times*, having a padded mask to compress the mouth, and thus prevent the patient from breathing the outer air, and a valve to allow the expired air to escape, I have never known a failure in producing the state of insensibility, and I do not believe that one case in five hundred could resist the soporific effect from one to three minutes.

"It is a most interesting and remarkable state of insensibility, so profound that in many cases there is not the slightest movement of a muscle under the most painful operation, while the waking up is complete in a minute or two without the least unpleasant sensation. If pain is felt for a moment, I believe that it is from the insensibility not being perfect at the commencement of the operation, though immediately afterwards it may become so.

"We have not in this country had experience as to the length of time for which the vapour may be safely inhaled to meet the exigencies of protracted operations, but cases have occurred in which the inhalations have been received two or three times within two or three minutes of each other, and no ill effect has ensued; and I feel convinced that by the use of the stop-cock in the apparatus alluded to we may prolong the insensibility so as to free the patient from the suffering of a long operation.

"The advantage of this contrivance, is, that we can regulate the volume of vapour in first inhaling it so as to prevent its too stimulating effects, and thus avoid coughing, especially in children; and after the state of insensibility has been produced, we can heighten or depress its degree by cutting off the access of the vapour, and allowing a momentary breathing of atmospheric air through the nose, and again giving more of the vapour of ether to ensure the continuance of insensibility

* Does not this opinion in some measure account for, and is it not confirmed by, the failures that have already taken place?

long enough for the duration of ordinary operations. It was breathed in one case reported by Dr. Bigelow for twenty-five minutes, and though the recovery of the patient was protracted to twenty minutes or more, no ill consequences followed.

"I believe it to be safer in its effects, (which are also more transient) than brandy or opium, and that if administered properly it very seldom or never would fail in throwing the patient into a state by which the agony hitherto caused by the knife and the dentist's instruments may be obviated; and I have no hesitation in saying that it is the duty of surgeons and dentists to make themselves familiar with its use; that humanity demands it, that society will insist upon it, and that any wanton disregard of the sufferings of mankind will be visited by general indignation.

"The effect produced is probably that of intoxication, peculiar in its kind from the rapid manner in which it is induced; and the insensibility to pain which follows is analogous to that from ordinary drunkenness.

"There are several instances of this effect in drunkenness, as in the amputation of a leg, of the woman brought into St. Bartholomew's Hospital while drunk, by Mr. Lawrence. Dr. Sharpey has mentioned to me the case of an Irishman, part of whose face was eaten by a pig while he was lying dead drunk on the ground, and a wax model of the mutilated face is, or at least was, preserved in 1833 in the Museum of the Park Street School, Dublin.

"Professor Quain also has mentioned an instance, where a man, in a state of intoxication, fell from a coach, and had a shattered leg amputated; on coming to himself, he affirmed that he knew nothing either of the accident or the operation.

"That this state of insensibility to pain from ordinary intoxication was not generally at least known, I should infer from the case mentioned to me by Dr. Sharpey of a Scotchman, who had over indulged himself in perhaps more ways than one at a penny wedding; he complained to a magistrate of his testes having been cut off by some one while he was drunk, and his story was not credited, until Mr. Syme of Edinburgh gave evidence as to its probability.

"It has been asserted that the effect produced by ether is that of asphyxia, but the appearance of the countenance—the state of the pulse—and the frequent excitement which accompanies the state of insensibility, are against the idea. Mr. Hale Thompson assures me, that in his operations under the full effect of ether, the arterial blood presents its usual appearance. Nor is there any reason from the inhalation to suppose asphyxia can take place, as the usual quantity of air is admitted to the lungs. If the patient is suffered to breathe the same air over and over again, the usual consequences of such breathing would ensue; but in all cases where the expired air is allowed freely to escape, the usual change takes place in the blood, and the vapour of ether, diffused over the large surface of the mucous membranes of the lungs is rapidly absorbed, producing a peculiar and evanescent intoxication. This view is important, as it would generally take from the mind any inordinate apprehension of danger from the application of ether. I should attribute less danger to it than to the usual stimulants pushed

to their extreme effects, with which we are sufficiently familiar, and to which the world does not attribute physical as it does moral evil.

"There is one remarkable effect, however, from the inhalation of ether, which certainly distinguishes it from ordinary intoxication, and that is its soothing influence over the nervous system. My friend, Dr. Skey, has mentioned to me its use in this respect, in the case of a lady, who inhaled the vapour of ether to the point of unconsciousness, 40 years ago, under the advice of the late Dr. Woolcombe, of Plymouth. Her complaint was pectoral, and she says that she never can forget its soothing effects: that it is not too strong to say, that under its influence she felt herself softly wafted to heaven. She breathed it with a shawl thrown over her head, and repeatedly. Sir George Magrath, to whom I applied to know if any record of Dr. Woolcombe's experience existed in the hospital at Plymouth, has informed me that none exists, and that those who remember him and his practice, have no knowledge upon the subject. This soothing effect may be beneficial in many irritable states of the nervous system, produced as it is without the antecedent prolonged stimulus from the use of spirits, which gradually absorbed, first excites and eventually produces the state of intoxication, which is kept up by continued absorption. But if, as in the case reported from Dr. Christison by Dr. H. Bigelow, the stomach is emptied of its contents, this intoxicating effect is at once removed."

Fortified with these opinions and others of a similar weight and value, I had not the least hesitation in undertaking the administration of the ethereal vapour in any operation, however prolonged, provided that there was no probability, from the nature of the disease, death might occur during the process; for I felt assured, from the ridicule of some and the scepticism of others, that *advantage* would be taken of such an event to attribute it to the ethereal inhalation.

I had so long observed the motions of the eye, the relaxation of the limbs, and the state of the pulse, in every instance in which I had administered the vapour, that I felt confidence in myself from the perfect control I possessed over its effects, and under the restrictions previously mentioned do not hesitate to give it in longer or shorter operations.

Guided by my own experience and strengthened by the opinions of others, I have come to the conclusion that the principal index of the success of the operation is the eye; how far this is correct will be proved by the results that will be found as we proceed to give a variety of cases.

INHALING.

At the commencement of the operation, I always allow the patient to inhale the vapour three or four times without closing the nostrils, carefully observing the pupil of the eye, which in about one minute will be found considerably dilated, but this will of course depend upon the susceptibility of the patient; after eight or ten more inspirations the pupil will remain stationary for some few seconds; it will then turn

towards the eyelids, which motion will in most cases be repeated several times: continuing the inspirations, the pupil will be observed to turn under the upper eyelid, or remain in the centre of the eye; and in five or six inhalations beyond this, the operation may commence.

In operations, the performance of which requires any length of time, the vapour should be cut off by means of the stop-cock attached to the mouth-piece, which is so constructed, as when turned it admits a current of atmosphere to the mouth as well as permitting the patient to breathe through his nose during seven or eight inspirations. Then again let on the vapour, and so on breathing that and the atmospheric air alternately at intervals of half a minute, until within three minutes of the end of the operation, when the pipe may, with perfect confidence as to the result be removed from the mouth.

Having thus far described the mode of proceeding, we will illustrate its practical application by a series of cases, in which it was demonstrated in the presence of various members of the medical profession, who carefully and minutely watched the position of the eye and other phenomena attendant on the ethereal inhalation; for I have invariably declined operating even on private patients and at my own residence, unless the parties would permit such members of the medical profession to be present as chance or invitation had brought before me.

The following cases were operated upon in the presence of Messrs. Liston, Quain, Storks, Symes, Casson, Bishop, &c. &c.

A boy, about fifteen years of age, of a weakly constitution and occasionally subject to a cough, came to me for the removal of a bicuspid tooth. He readily inhaled the vapour, and in two minutes became narcotized. The tooth was extracted, and he recovered from the effects of the inhalation in about two or three minutes, slightly bewildered. On being questioned, he said that he had had no pain, and that he had been dreaming, but could not describe what it was about.

The next case was that of a man, of about thirty years of age and robust habit, the servant of a gentleman residing in the neighbourhood. One of his teeth, a first molar, had been a source of constant pain and annoyance for some weeks, and he was desirous to have it extracted. He inhaled the vapour for four minutes before any visible effect was produced, and appeared to suffer considerable pain during the operation. On rising from the operating-chair, he was in a state of some excitement, saying, "Now, gentlemen, it's all very well, but I won't stand it, and if there is any body here"—making an attempt to take off his coat, when he became partially sensible. After taking a small quantity of wine and water, he quickly recovered; and on being questioned, said that he had certainly felt some pain, but not so much as at previous operations of the same kind, observing however that a few more breathings would have done for him. In this case the patient had not taken a sufficient quantity, while in all probability being in the habit of taking spirituous liquors, he required an additional dose of the vapour.

The next case was that of a youth, twenty years of age, by profession a mechanical dentist, who wished me to remove the remains of a first molar, from which he had suffered considerable annoyance. He inhaled the vapour for about three minutes, when he fell into a state of narcotism, and the stump was extracted by means of

the elevator, an operation that under ordinary circumstances would have caused intense pain. On his recovery, which took place in about three minutes, he knew nothing of the operation or how or when it had been performed, having had a dream, the substance of which he could not recollect, but in which he fancied that he had slept for some hours. In this case I observed very particularly the peculiar effect of the operation upon the iris.

Mrs. B., a lady of an extremely nervous temperament, was introduced to me by her medical attendant, Mr. Symes. She was desirous of having thirteen different teeth and stumps removed by aid of the ethereal inhalation, if it could be effected *without pain*, but would not submit to the operation unless this could be guaranteed. She had been a martyr to local neuralgia, caused by the irritation of these teeth and stumps, but nothing could induce her to submit to an operation performed in the usual manner.

She readily inhaled the vapour, and in two minutes became narcotized; during the continuance of which state I removed four of the stumps, to which she chiefly attributed her sufferings. On her recovery she expressed herself perfectly satisfied with the result, not having had even an unpleasant sensation, while of the operation itself she knew nothing.

In four subsequent interviews I removed the remainder of the carious teeth and stumps, the patient each time recovering from the operation in periods varying from two to four minutes; and on seeing her a few weeks afterwards, she declared that in future no surgical operation should be performed on her, without the aid of the ethereal inhalation. In this case it appears that no dream attended the state of insensibility.

I cannot omit this opportunity of tendering my sincere thanks to this lady, for her kindness in permitting those medical gentlemen who chanced to be in my house, many of whom had come from distant parts of the metropolis and some from the country, to witness the results of the operation, which was one of the first performed by myself. The urbanity of her manners when the proposition was made to her, which to some ladies of her rank and station would be considered disagreeable, if not offensive, entitle her to our best thanks, and shews that sound sense which is ready to sacrifice personal feelings for the advantage of science and the good of the public.

The next operation was performed at the Metropolitan Hospital, in the presence of Messrs. Easson, Acret, Johnston, and Mr. Pearsal of Hull. The patient was a young man, twenty-seven years of age, who was desirous of having the first bicuspid extracted. He had not heard of the new process, and at first objected to inhale the vapour, but after some persuasion submitted, and began to inspire it. Owing to the reluctant and consequent imperfect manner of inhalation, however, it did not produce the effect, and after trying it for three minutes I extracted the tooth, while the patient was only partially insensible. The fact was, as the man afterwards confessed, that thinking I was making experiments, and being afraid of losing his senses, he managed to breathe the atmospheric air with the vapour from the corner of his mouth, thus preventing its full effects, which otherwise would no doubt have been produced at an earlier period.

The next case which I select from among several others, as being the youngest patient I had yet operated upon, occurred in the person of a boy, eight years of age, who required the extraction of one of the permanent molar teeth of the lower jaw. On being told that he would suffer no pain in having his tooth extracted by this process, he immediately inhaled the vapour, and in less than one minute, the eye indicating insensibility, the tooth was removed. When he recovered, he said that he had not suffered any pain; that he had felt nothing; that he had been in heaven or somewhere else, for he had been exceedingly comfortable and happy.

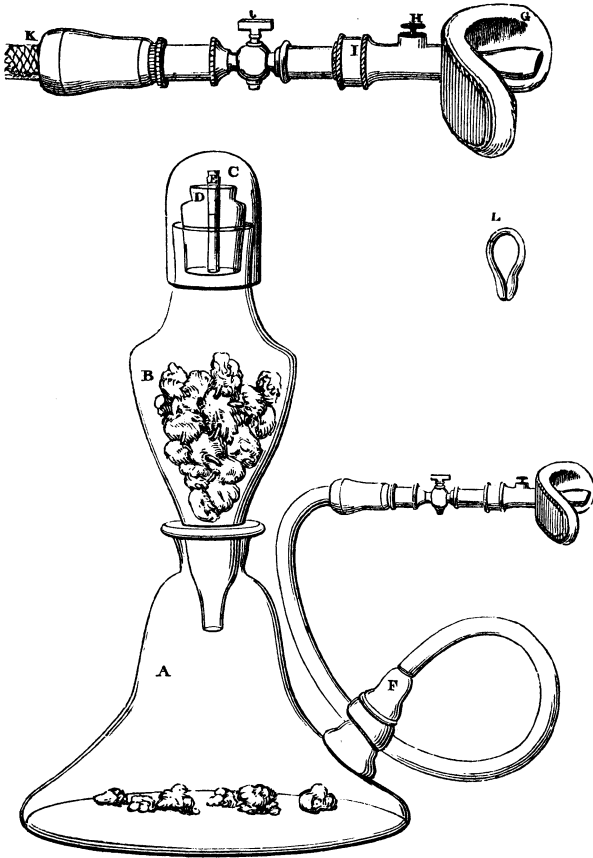
Thus far of the human species. But may not the inhalation be advantageously employed in some cases of vaccine and equine surgery? in robbing the painful, though necessary operations connected with these branches of the art, of some portion at least of their (at present) revolting barbarity? May not the same means that are employed to neutralize the pain in operations on the human, banish it from those of castration and a variety of others in the brute species, and thus raise the professors of animal surgery in the scale of society by humanizing their art?

I will now describe the apparatus before referred to, and which was employed in the operations on the teeth already reported, and subsequently in those of a more important kind performed at the different hospitals in the presence of the *elite* of the medical profession. Alterations and improvements will no doubt be made in its details, but its principle will be retained; at all events it is the first apparatus of the kind employed with general success, not only in operations on the teeth, for which it was intended, but in those of a larger scale, which have been reported in the journals of the day, and which will be more fully detailed in this publication as a collection of facts from the medical journals and daily press.

THE APPARATUS.

There are five qualities essentially necessary in the construction of any apparatus for the inhalation of the ethereal vapour.

- 1st. That the air taken into the lungs should be exclusively such as has passed through the vessel containing ether.
- 2nd. That the mask or cup for covering the mouth be made of such flexible material as to be capable of a perfect adaptation to the countour, so as to exclude the free atmospheric air.
- 3rd. That a proper passage be secured for the expulsion of the air already respired.
- 4th. That the tube be fitted with a stop-cock, so that the operator may be enabled to regulate the volume of vapour in those cases where the inhalation causes irritation and cough, or, in protracted operations, the patient may be allowed to take alternate inspirations of the vapour and atmospheric air.
- 5th. That it be fitted with a nasal spring to compress the nostrils during the operation.



DESCRIPTION.

A and B represent the upper and lower part of Nooth's glass apparatus for making soda water. Pieces of sponge, cut into a triangular form are deposited in each of these vessels, in such a manner as to present as large a surface as possible for the more rapid evaporation of the ether.

C is a glass cap inclosing D, which is a stopper ground to fit into the neck of B; E representing another glass stopper, which is removed when the patient commences the inhalation, so as to allow a current of atmospheric air to pass into the vessel containing the sponges previously moistened with one ounce of ether.

F represents a ferrule of wood, by means of which an elastic tube is fastened into the neck of the lower vessel A.

G shows a pad for covering the mouth. It is made of a sheet of copper sufficiently thin to be elastic, and shaped to fit the mouth and the upper part of the chin. This plate is covered on the inside with soft leather, and thickly stuffed and padded with wool. In the centre of this pad (which has an opening), is screwed an ivory or amber mouth-piece, which the patient keeps in his mouth during the inhalation. This pad is so flexible that by pressing its edges the operator may easily adapt it to any particular sized mouth.

H a horizontal valve, with a perpendicular action, securely fastened on the inside of the tube by means of a nut.

I a joint containing a perpendicular valve, which opens by inhalation and closes on exhaling, and permits the partially expired air to pass out by means of the valve H.

J a stop-cock for regulating the volume of vapour, and so constructed as at the same time to cut off the vapour and open an aperture through which the patient may breathe the atmospheric air, either through the tube or by the nose.

K that end of the elastic tube which is fastened to the mouth-piece containing the valves.

L a nasal spring for compressing the nostrils if necessary.

From this description the apparatus may appear of a most elaborate and complex character, while in fact its construction and operation is of the most simple kind.*

PREPARING THE ETHER.

It is of the greatest importance that the ether employed for the purpose of inhalation should be *perfectly pure*, and of the least specific gravity and of the most volatile kind. To secure this, the operator must either prepare it himself or procure it of some chemist in whom he can place implicit confidence, and who must prepare it for this especial purpose; for I feel convinced, that many of the failures that have occurred in its administration, in some measure may be attributed to the imperfect preparation of the fluid and the apparatus employed. I have myself obtained ether of various specific qualities, from different chemists, and on one occasion requiring an extra quantity for a series of experiments, and the gentleman supplying me being out of the quality he had generally furnished, sent some of a different quality which he had in his establishment, and which was administered in two cases. I found however, that I could only produce partial unconsciousness, not insensibility to pain, and therefore deferred the operations, which were on the teeth. I procured what was then considered the strongest and purest ether, which was washed in lime water, and afterwards employed in the same cases with success.

I subsequently ascertained, however, that this ether was not of the first quality, but that there were three kinds, of which the one I was using was the second.

Having been favored by Dr. Holland (who had received the infor-

* An apparatus constructed on similar principles, but of more elegant form, is now manufactured by Mr. Hooper, Operative Chemist, of Pall Mall East.

mation in a private communication from Dr. Jackson) with a description of the manner in which the Americans prepare ether for this purpose, I immediately adopted their method, which I shall proceed to describe.

Having procured the strongest and purest rectified sulphuric ether, wash it well with water to get rid of any acid that may remain, and which would cause considerable irritation, producing coughing, &c., during the inhalation.

The ether is then to be decanted from the water, drying it with chloride of calcium, to free it from any water that might otherwise remain from the washing.

Since adopting this process, I have found the effects of the vapour more uniformly consistent in its effects, producing little irritation, seldom sufficient to cause coughing, which may generally be altogether prevented by allowing the patient to take 6 or 7 inspirations of the atmospheric air, in conjunction with the ethereal vapour, at the commencement of the inhalation.

As the preparation of ether for these purposes was of great importance, I communicated the method to Messrs. Howards and Kent, requesting them to investigate the facts and forward the results of their analysis. The following communication, in reference to this matter, I received in reply :—

“ Stratford, Essex,

“ February 3, 1847.

“ Dear Sir,

“ In reply to yours of the 29th, we beg to observe,—

“ The usual S. G. of ether sold by chemists is about .750.

“ The strength does not vary much, but the article is sometimes contaminated with sulphurous acid and some empyreumatic products, which, though in small quantity, give it a very perceptible flavour.

“ The S. G. of ether washed with water and then dried with chloride of calcium, is about .725. As ether of S. G. .750 is composed of ether, alcohol and water, the proportions may vary a little ; but taking the proportion between the alcohol and the water to be the same as in rectified spirit S. G. .838, ether of S. G. .750 is a mixture of four parts of ether at .725 and one part of rectified spirits. It is obvious that ether for inhalation should *always be washed*.

“ In doing this, however, there is a loss of much more than is above indicated, unless the spirit and ether taken up by the water be recovered from it by distillation.

“ We are, dear Sir,

“ Your's truly,

“ HOWARDS and KENT.

“ To J. Robinson, Esq.”

A lady wished to have a tooth removed while under the influence of ether; she had suffered so severely that her health had become considerably affected, and was advised by her medical attendant to submit

to the extraction. From the pain she had hitherto suffered the thoughts of the operation made her extremely nervous, and she felt considerable fear, lest she should suffer pain. After being encouraged by the medical men present, Messrs. Wilkinson, Symes, &c., that no ill effects would follow. She inhaled for two minutes and became narcotized. Upon applying the forceps to extract the tooth, she screamed; this appeared strange to others, but judging from many analogous cases, I felt assured that she had had a dream, and requested that no questions should be asked her till she was perfectly recovered. On partially recovering, she enquired whether I was her brother, but in a few seconds more recognized the parties in the room, and recollected where she was.

On being questioned, she replied that she had suffered nothing, and had not even known when the tooth was extracted.

"She had dreamt that some dreadful operation or calamity was about to take place, that she was surrounded by many persons desirous of taking her away, and would not wait the arrival of her brother, whom she constantly expected; that as they tore her away she resisted and screamed, and could remember nothing more."

As in many cases which I have not reported, the very act of the tooth being extracted was the termination of the dream, and there is no doubt but that patients may have the appearance of great suffering, may even resist the operator, and yet on returning to consciousness it will be found that they have felt nothing, but have had a dream, and been disturbed by some sudden calamity, while others will become sensible without any kind of unpleasant sensation whatever.

The Rev. Mr. ——— who was anxious to have a tooth removed, was introduced to me by Mr. Kenny of Richmond, and inhaled the vapour for nearly five minutes without any other effect than that the eyes were wide open, and the pupils much dilated. He appeared perfectly conscious of what was going on around him, and we certainly thought it a failure. On being asked if the tooth should be removed, he indicated his consent by a motion of his head. He did not, during the extraction of the tooth, evince the slightest pain, either by contraction of the muscles or in any other manner, and on his recovery in two or three minutes, put his tongue to the place where his tooth had been removed, exclaiming, "I would not have believed it! I have lost my tooth! but how or when I know not, I never felt it."

He afterwards stated that at the commencement of the operation he experienced a sense of suffocation, which continued for the first three or four inspirations, but that afterwards "it became beautiful, and he was quite happy, feeling as if he had been asleep for hours."

A woman, a patient of Mr. R. Storks, had met with an accident, by which her nose had been divided, and being desirous of having the two edges brought together to improve her appearance, she inhaled for twelve minutes, when she became intoxicated, but not insensible to pain. It was afterwards ascertained that she was in the habit of taking considerable quantities of spirituous liquor daily. And it was conjectured that in her case the ether would be of no avail, as the quantity of stimulus she daily swallowed would counterbalance or neutralize its effect.

In another case of this gentleman's the ether was administered to

a girl about twenty years of age, preparatory to the opening of an abscess. She became narcotized in two to three minutes, and the operation was performed. On her recovery, she stated that she had been asleep, and that she had not experienced the slightest pain. This patient, unlike the last, was a most abstemious person.

The following case presents a scene somewhat more entertaining than those hitherto reported.

A solicitor was anxious to have two teeth removed while under the influence of ether. After inhaling for four minutes he became narcotized, and the teeth extracted. On partial recovery he took me by the hand, and in a semi-jocose tone, said, "Now we'll dance the Polka—Now we'll dance the Polka." A proposition that sufficiently proved his unconsciousness of what he was talking about: he soon however settled down into a more sober state of mind, when he assured us that he was as perfectly unconscious of any pain as of the proposal he had made, only a few minutes before.

In the next case the inhalation had a different effect, it occurred in a gentleman, between forty and fifty years of age, who required a tooth to be extracted. He inhaled the vapour, and in three minutes the tooth was removed, during which he cried out as heartily as if the operation had been performed by the usual method. Rising from the operating chair when only partially recovered, he exclaimed, "Now Sir, I will not be dictated to in this manner, and if you question my respectability—No—I'll tell you what." When recovering his faculties he went on, "Are you my brother? I never saw such a likeness. God bless me what have I been talking about? I'm quite sensible now, and know where I am, and what I came here for. You are Mr. Robinson; have I had my tooth out?" And on being assured of the fact, he repeatedly washed out his mouth, and though he had repeatedly done so previously, was perfectly unconscious of it, as he had been of all pain.

On the 24th of January, I received an invitation from my friend, Dr. Boott, to bring my apparatus to his house, to make a few experiments on himself and friends. Amongst those to whom I administered the vapour were, Prince Napoleon Bonaparte, Dr. Skey, Mr. Potter, Dr. Theophilus Thompson, Mr. Frank Boott, the Misses Boott, and the doctor himself, with whom we commenced. After inhaling for two minutes, he fell into a state of narcotism, and on recovering, observed that the sensations had been delightful. But he had no dream—the effect in his case, as in that of Dr. Skey, being entire unconsciousness, followed on first recovering by a momentary difficulty of accounting for the scene around them.

The Prince took the vapour for three or four minutes, but did not lose his sensibility, for he felt the pricking of a pin on his hand, and for a while was suspicious that patients always felt pain, nor was he satisfied on this subject till he witnessed the subsequent operations on the teeth. He inhaled again in a few minutes, and became insensible—pushing the mouth-piece violently from him, and exhibiting considerable muscular excitement. This passed off in less than a minute, and on rising from the chair he said he had felt the strength of ten men.

The effect on Dr. Thompson, on the pipe being removed from the

mouth, was similar to that of the nitrous oxyde, he laughed immoderately for two or three minutes. We supposed at first that some ludicrous idea had excited it, but none such had occurred to him. His sense of hearing had been unusually acute, and he had observed a lady in the adjoining room, who was leaning forward on a sofa, watching the inhalation, though he described her position as if she had been crouching on the floor.

Miss B. inhaled the vapour for three minutes, but as the eye during that time did not present the usual upward direction, some doubts were entertained as to the state of sensibility, and the operation of extracting two teeth was not performed. On recovering she expressed great disappointment that the teeth had not been removed, and said she had been wholly unconscious from the first inhalations. The eyes had presented a bright suffusion, and the pupil was dilated; about an hour after she took the vapour again, and the teeth were extracted, a scream accompanying each operation. When she had fully recovered she expressed much gratitude, and said she had had no pain, and on being questioned as to the scream, she became a good deal affected from the remembrance of a distressing dream, which the enquiry had recalled to her recollection.

Before this operation, her sister, Miss J. B. who had been annoyed by some sceptical friend present as to the efficacy of ether, was determined to exhibit its effects, and was the first to submit to an operation. She became insensible in about two minutes, and two molar teeth were drawn by one pull. She exhibited no sign of pain, nor was there the slightest movement, and on recovering she said that she had been all round the world, and had no consciousness of suffering. The youngest daughter had been present at this operation, but as she was an object of peculiar tenderness, Dr. B. could not bring himself to propose the trial to her. But going up to him she said, "Papa, I think everybody has had ether but me," and on his enquiring whether she wished it, she answered, "Yes," and immediately seated herself in the chair. In a minute and a half she was narcotized, and I extracted a large molar. On partially recovering, she appeared for a minute bewildered, gazing round her with amazement, and for a moment taking no notice of questions put to her, as to the recognition of those about her, but at last she responded and said, "I know him, that's Dr. Thompson;" and a smile came over the countenance, the usual indication of complete recovery. She said she had had a dream, and been "so happy."

Mr. F. B. inhaled twice during the evening, and pronounced the sensations to have been "glorious;" and as I have frequently observed in others, evinced an almost uncontrollable desire for more.

From the cases reported in our public journals it might be generally supposed that experiments on the ethereal inhalation have been confined exclusively to the unfortunate inmates of our public hospitals. Such however is not the fact. Many cases which have come under my own immediate observation, and which I have reported, refer to members of the higher classes of society, but whose names it would be indelicate and unprofessional to bring before the public, without their especial permission.

I am enabled to prove this assertion, in one instance, from permission having been graciously given me to state the result of a few experiments, made at Gore House, during the infancy of our investigation, in the presence of Lady Blessington, Prince Napoleon Bonaparte, the Marquis of Douro, Count D'Orsay, &c., &c.

On this occasion I first administered the vapour to Mr. F. Boott, who in three minutes became perfectly narcotized, and, as he afterwards described it, perfectly happy.

Prince Napoleon, on the first trial, took only sufficient to produce a partial effect, but as he was desirous of repeating the experiment, I administered a *full* dose, and after three minutes he became perfectly narcotized. On recovering and opening his eyes, which had been partially closed, he looked at me with a peculiarly piercing expression, accompanied by a frown, when his extraordinary likeness to his uncle, the Emperor, was remarked by all present. On his recovery, which took place in three or four minutes, he expressed himself as quite satisfied that I had this time given him a sufficient quantity.

The Marquis of Douro at first disliked the taste of the ether, and after a few inhalations I withdrew the pipe. His Lordship subsequently repeated the inhalation with more decided effect.

I have mentioned these trials to shew that the experiments have not been confined to the poor, but that persons holding a high position in the aristocracy of intellect and rank, have submitted to the inhalation, merely to test its effect; and this is as it should be; as the opinion of such distinguished individuals will naturally favour the practice, and lessen the prejudices against it in all classes of society.

The idea of a patent had been entertained in this country, but the following letter at once crushed it, reducing the attempt to a mere profit of an inhaling apparatus, which would be superseded by fifty inventions after its specification.

From the *Medical Times*.

SIR,—As notice has been given of a patent for the inhalation of ether in surgical operations, and as such notice may deter surgeons and dentists from using it in the mitigation of pain, I beg to ask your insertion of the following letter, which I have received from one of her Majesty's counsel "learned in the law."

Yours, &c.,

F. BOOTT.

24, Gower-street, Jan. 5th, 1847.

"MY DEAR BOOTT.—In answer to your question with respect to the patent alleged to have been obtained for a 'process for procuring insensibility to pain by the administration of the vapour of ether to the lungs,' I beg to say, that I am clearly of opinion that no patent can be valid, giving the patentee the exclusive privilege of *administering the vapour of ether to the lungs*. If the word 'process' is used to denote some particular apparatus for the convenient administration of the vapour, then the validity of a patent for such apparatus will depend

upon whether the patentee is the first inventor, and the apparatus was not known to, and in use by, the public before the granting of the patent. The power of the Crown to grant patents is *defined* by the 21st James I., cap. 3, which was passed to put an end to the abuse of the power of the Crown to grant monopolies. That power was by this statute limited to the granting patents 'for any manner of *new manufactures*.' In commenting upon this statute, in '*Rex v. Wheeler*' (2nd Barn. and Ald. Reports, 245), Lord Tenterden, describing the sort of inventions for which patents can be granted, says, 'The word *manufactures* has been generally understood to denote either a thing made, which is useful either for its own sake and *vendible* as such, as a medicine, a stove, &c.; or to mean an engine or instrument to be employed either in making some previously known article, or for some other useful purpose, as a stocking-frame, or steam-engine for raising water from mines; or it may, perhaps, extend also to a new process to be carried on by known implements or elements acting upon known substances, and *ultimately producing some other known substance* in a cheaper or more expeditious manner.'

"I could cite abundance of other authority to the same effect, but it must be sufficiently plain that *no construction* of the word '*manufacture*' can give the Crown the power to confer by patent the exclusive privilege of administering the vapour of sulphuric ether for the purpose of producing insensibility to pain, or of *administering* any particular drug, or compound of drugs, for the purpose of producing any particular effect, although an inventor may have a patent for the *manufacture* of particular medicinal preparations. But who ever heard of a patent for the performance of a new operation in surgery (as for example, that by which squinting is cured)? I can see no distinction *in principle* between such a patent, and the patent supposed to be claimed for the administration of ether. If this patent could be supported, the patentee might grant a monopoly to any particular surgeon, of all operations to be performed with the assistance of the ether, or he might grant it to such surgeons in each town as he might please to select, to the exclusion of others, for though he might sell licences to *all*, he would not be *obliged* to do so. He might almost be said to hold in his hands, in some cases, the power of life and death. Upon the whole, I am satisfied you may safely advise your professional friends to continue to use the ether in their operations, without the slightest fear of legal consequences. Whether the instruments which are manufactured for the purpose are an infringement of any valid patent, will be a question between the patentee and the manufacturers; but the operators can have nothing to do with this, and it would be most deplorable to have any interruption to such a mitigation of human suffering.

"Believe me, my dear Boott, yours ever faithfully,

"Q. C.

"Francis Boott, Esq., M.D.—Jan. 4."

VARIOUS SURGICAL OPERATIONS, PERFORMED WHILE UNDER THE INFLUENCE OF ETHER, IN ENGLAND.

KING'S COLLEGE HOSPITAL.—OPERATIONS BY MR. FERGUSSON.

CASE 1.—M. G., aged forty-three, a stout, healthy, able-bodied man, has had phymosis for the last eleven years, in consequence of contraction of the orifice of the prepuce, resulting from a chancre. Has chronic discharge from the part, and been advised to undergo an operation, to which, however, he is very averse, for fear of pain. Being told that the operation might be done without giving him any pain, he consented to its performance. On the 31st of December, 1846, at the usual hour for operations, he was laid on the operating table in the theatre, and desired to breathe by means of an apparatus constructed by Mr. Robinson, who superintended the process of inhalation. In about three minutes he became quite insensible, and the muscles, which had been in energetic movements during the inhalation, became quite relaxed. The prepuce was then slit open in front with a bistoury, to the extent of three quarters of an inch; and on the skin being drawn upwards, the mucous membrane was cut with scissors about half an inch further. The skin and mucous membrane were then fastened to each other by four stitches of interrupted suture; and so the operation was finished in less than a couple of minutes. Before the last stitch was introduced the patient awoke, but showed no indication of pain when the needle was applied. On being asked if he was aware of what had happened whilst he was asleep, he said that he was not conscious of anything having occurred, and expressed astonishment when told that the operation had been performed. He seemed confused for a minute, but then got up and walked out of the apartment.

CASE 2.—E. H., aged twenty-six, a timid, delicate-looking woman, admitted December 31, 1846. Has a large abscess in the left buttock, pointing near the anus. Has suffered great pain and restlessness for the last four days and nights, and now feels weak and exhausted. The abscess is surrounded by great induration, and there is an erysipelatous blush on the skin. The slightest touch causes great agony, and she will willingly submit to any plan of relief. The same apparatus as was used in the last case was had recourse to, and after breathing about a minute and a half she became insensible. The abscess was then opened by an incision an inch in length, and the condition of the interior of the rectum was also examined, while the matter was escaping from the wound. More than an ounce of fetid pus was discharged, and all manipulation was over before the patient awoke. Was not aware that anything particular had been done. Said she felt a pain like that of a leech-bite.

CASE 3.—E. H. (same patient), 9th January, 1847. Progress of the case been favourable since abscess was opened. Was made to inhale to-day, as formerly; was longer in becoming affected. The operation for fistula in ano was then performed. The sinus passed close upon the rectum, and its upper extremity in this direction was about an inch from the anus. There was not any opening into the gut. Besides laying open the sinus, a free incision was required through the skin so as to expose the interior of the abscess fully. It was remarked, before the knife was applied, that there was still some voluntary spasm in the muscles of the forearm, and during the operation the patient moaned a little, and seemed as if in pain; yet,

when questioned afterwards, she declared that she had felt none, although she was aware of the movements of the instrument in the surgeon's hands.

CASE 4.—M. S., aged twenty-three. Laceration in perinæum during childbirth; has already had an operation performed, which has succeeded, though not entirely.

Jan. 5th, 1847.—Has to undergo another to-day, and having been told that it might be done without causing her any pain, was very desirous to have it so. After breathing the vapour for about a minute, she became restless and unwilling to continue it, declaring that she would rather submit to the pain she had formerly experienced. The use of the vapour was given up, and the operation was done in the usual manner. She afterwards stated that she was alarmed about the effects of the vapour, and dreaded being put into a stupor.

CASE 5.—G. S., aged thirty-two. Has a tight, permanent stricture in the bulbous portion of the urethra, for which he is undergoing the ordinary treatment with bougies; has always had considerable pain on the introduction of an instrument.

Dec. 31st, 1846.—To-day was put under the influence of the vapour of ether, and a catheter was introduced without difficulty. When the patient became conscious again, he declared that he had not felt anything whatever. When made aware that an operation similar to that with which he was familiar had been done, he expressed his astonishment and gratitude.

CASE 6.—Jan. 9th, 1846.—To-day this patient again breathed the ether, which, however, had but a partial effect, although its use was longer continued than on the first occasion. A catheter was introduced, certainly with less pain than under ordinary circumstances, but the patient declared that he was quite aware of what was going forward.

CASE 7.—E. E., aged twenty-one, has a crop of warts on the glands and lining membrane of the prepuce; has been told that they may be speedily got rid of without pain.

Jan. 9th, 1847.—To-day breathed the vapour of ether, and within three minutes became insensible, when the warts were clipped off by means of scissors, without his consciousness. He was observed to writhe a little during the operation, and also to push his hand against the operator, as if to cause him to desist. On being questioned about this, he declared that he was not aware of having done so, and that it could not have given pain, as he had not felt any; he had been dreaming all the time, but what his dream was he would not tell.—*Lancet*.

Mr. Fergusson operated on four patients, on Jan. 26; two being subjected to the influence of ether.

The first case was that of a man, about fifty years of age. He had had a cancerous ulcer of the lip removed some months before. The disease re-appeared in the absorbent glands beneath the angle of the jaw, which were considerably enlarged, forming a tumor in that region, and he now returned to the hospital for the removal of the tumor. The inhalation of the ether occupied between three and four minutes. The first incision was performed without the slightest evidence of pain; but towards the end of the tedious dissection, requisite in all operations on a part so freely supplied with important vessels and nerves, he showed signs of suffering: he groaned, cried out, and was exceedingly restless. After the completion of the operation, he still appeared somewhat intoxicated, but replied to questions put to him by the operator. When asked if the operation had been performed, he answered in the negative; and expressed his willingness that it should be immediately done, showing that he was not conscious of, or did not remember the pain caused by, the operation, although he had shown the ordinary physical signs of suffering.

Mr. Fergusson made some remarks on the variations of the action of ether on different patients, and said that, although this man had shown many of the symptoms of suffering, he had declared himself unconscious of the occurrence; although he remembered crying out about his wife and family. Mr. Fergusson then observed that there had been some difference of opinion as to the propriety of operating in such a case as the present; but that he had been induced to operate for two reasons. First, that the tumor was in all respects in a favourable state for removal, as it was not of large size or so intimately connected with large blood-vessels and nerves as to incur more than ordinary hazard in its removal; and secondly, that the patient had

been sent into the hospital by a gentleman who had been operated on with complete success under similar circumstances.

The second patient was a boy of about sixteen, with a tumor seated on the masseter muscle. The inhalation of ether was continued about two minutes and a half, when the patient sank backwards apparently in a state of insensibility. The operation commenced, but the boy appeared perfectly sensible to pain, and cried out lustily during the whole time occupied in the removal of the tumor. The ether certainly failed in this instance. Mr. Fergusson remarked, that although the cases had not, to-day, been so successful as previous results, the inhalation of ether was doubtless, an important discovery, and that it would furnish a most useful adjunct to surgical operations.—*Medical Times*.

Letter from W. Fergusson, Esq.

"8, Dover Street, 2nd February, 1847.

"My dear Sir,—I have not, in any of the instances in which I have used ether seen any evil consequences which could be attributed to it. The patients have gone on much as after the ordinary method of operating.

"Under the usual circumstances those who have undergone any severe and painful proceeding, afterwards occasionally allude to their sufferings at the time. I have noticed that those who have been treated under the new method, have never during their convalescence referred to this period.

"I am, my dear Sir, yours very faithfully,

"J. Robinson, Esq."

"WILLIAM FERGUSSON.

WESTMINSTER HOSPITAL.

A number of surgeons assembled in the operating theatre of the above named hospital to witness certain operations performed by Mr. Hale Thomson on patients rendered previously insensible to pain by the inhalation of ether. The vapour was administered by Mr. Robinson, dentist, of Gower Street, to whom society is much indebted for the invention of an apparatus by which the ether may be employed with security and certainty. The first patient was a woman of middle age, suffering under condylomatous growths from the labia. After an inhalation of about four minutes, the patient was pronounced in a state fit for the operation. The morbid growths were then dexterously shaved away by Mr. Thomson, without any expression of pain on the part of the patient, and without any signs of suffering apparent on her countenance. The only indication of the nervous system being awake to the operation was the spasmodic action of the lower limbs, which took place at the moment of excision; but it was quite obvious that this was an excito-motory phenomenon, and had no connexion with sensation.

On the completion of the operation, some wine and water was given to the patient, who seemed awakening from a dream, and appeared for some minutes uncertain of her own identity, and of the reality of the new world which was opening gradually to her senses. Her manner was that of a delirious person communing with herself, and exhibited a strong manifestation of Dr. Wigan's theory of the duality of the mind. After sundry ejaculations of wonder and surprise, she turned her head on her pillow, and recognized one of the physicians as a "real man," and discovered, to her infinite delight, that she was still a denizen of earth, although her next exclamation, that she thought herself in a "beautiful heaven," exhibited little gratitude for her temporary transition to a celestial abode. Upon being told that she was to submit to an operation, she said she knew it, and was ready; and when informed that the operation was over, seemed unable to believe it. A little hysterical crying, the combined result of apprehension, wonder, and delight followed, and she was taken back to her bed. Before we left the hospital, we learnt that she was fast asleep.

The second patient, a young man, was operated on for phymosis. He was ready in about four minutes from the commencement of inhalation, and the operation produced no evidence of the presence of sensation. Indeed, in his case, there was an absence of the excito-motory movements exhibited by the female patient. Some little time elapsed before the ligatures were completed, and the last was passed after

he had to all appearance recovered from the stupor caused by the operation. He evinced the return of sensation by an ejaculation of pain, but relapsed immediately into a forgetfulness of the operation, being more intent upon the "delightful dream" which he had just experienced than upon the dull realities around him. On being asked if he had suffered pain, he said that he had felt nothing; and upon being further interrogated as to his sensations, replied that he would answer the question to-morrow. Like the female patient, there was a little hysterical sobbing after the operation; apparently occasioned by the recollection of previous illness and suffering; so that, in point of fact, a surgical operation has now come to be a source of regret, as an enjoyment too quickly passed away.

The impression made by these operations on the minds of the gentlemen present, among whom we noticed Mr. White, Mr. Guthrie, Mr. Fergusson, Mr. Erasmus Wilson, and Mr. Fisher, appeared to be one of perfect satisfaction, and Mr. Robinson was deservedly congratulated on the success of his mechanical contrivance for the administration of the vapour.—*Lancet*.

PAINLESS OPERATION AT THE WESTMINSTER HOSPITAL.

An unusually large meeting of the medical staff and noblemen and gentlemen interested in the important improvement in the operative department of surgery produced by the introduction of ether as a means of abrogating pain, took place in the operating theatre of this hospital, yesterday. The operator upon this occasion, as upon the former successful trial of ether, was Mr. Hale Thomson, surgeon of the hospital, and the apparatus employed was that of Mr. Robinson, on whom the duty of administering the vapour devolved. The patient, a fine young woman, 35 years of age, suffered from a painful tumor connected with the trunk of the body. In about three minutes insensibility was produced, and the operator with a few strokes of his knife succeeded in severing the tumor from an unusually broad connection with the skin. The operation was rapidly and dexterously performed, and although the patient uttered some expression of impatience, yet it was some minutes before she was sufficiently recovered from her dream to answer the questions addressed to her. Under usual circumstances the operation would have been one of intense suffering. Among the visitors on the present occasion were Prince Napoleon Bonaparte, Lord Falkland, Lord Walsingham, Lord Morton, Sir H. Mildmay, Sir George Womwell, Admiral Napier, and many distinguished foreigners.—*Morning Herald*.

WESTMINSTER OPHTHALMIC HOSPITAL.

Another of these highly interesting operations was performed on Wednesday, in one of the large apartments of the Ophthalmic Hospital, in presence of several distinguished professional men. Prince Napoleon Bonaparte, and other individuals of note, though in no way connected with the healing art, were also among the visitors. The patient was a young man, apparently an agricultural labourer, about twenty-five years of age; his affliction, the stone. Mr. Charles Guthrie was the operator. About two o'clock, everything being ready, the patient was led into the room, with a bandage over his eyes; he was immediately placed upon the operating table, and the necessary preliminaries having been gone through, the inhalation commenced. Mr. Robinson, the gentleman who superintended this very needful portion of the ceremony, cheered the patient on, told him to do as he liked, but especially to take a long pull; the poor fellow, who lay on his back, and had been previously strapped down, did as he was desired. The process went on; in a minute or two the attendants raised the bandage over the eyes of the patient, their fixed and glassy appearance indicated that all was ready; Mr. Guthrie made the incision, remarking to the gentlemen immediately around him that he had rarely observed so confined a peritoneum—a disadvantage all professional readers will understand. Once or twice the patient appeared to suffer mental pain, he ejaculated in an incoherent manner, but the operator continued groping for the calculus; in a brief period he detected it, and seizing it with his forceps, brought it out. The stone was about the size of two large horse-beans, extremely rough on the surface, and nearly as heavy as lead. It was declared to be a mulberry calculus,—impossible to be broken. No sooner had it been removed, than the patient, apparently enduring no suffering, ex-

claimed, in a wild, yet joyful, manner, "It's all right." He then said, still in a confused and insensible state, "How tight my boots are;" referring, no doubt, to the bandages which had been about his ankles. He was now released, and had almost reached a state of consciousness. He appeared rather loquacious,—talked about having had a dream of wandering about with a friend at Woodbridge. The operator and the other experienced professional men around him, however, aware of such a hazardous mode of procedure regarding the patient, stopped the narrative of this dream *in limine*, and he was carried off to bed, rejoicing. The success of the operation was complete.—*Times*.

"19, Saville Row,

"Feb. 6, 1847.

"MY DEAR SIR,—The man Perkins, on whom I performed the operation of lithotomy while under the influence of ether, not only felt no pain, but declares that his feelings were, on the contrary, those of pleasure. No ill effects arose from the inhalation, and the man is now convalescent.

"I have since then removed two breasts, one testis, and sundry other severe operations besides. I have in no one case found any bad symptoms caused by the ether, and all my patients are nearly well.

"Yours, very truly,

"J. Robinson, Esq., Gower-st.

"CHARLES G. GUTHRIE."

This institution was again yesterday the scene of three operations on patients while under the influence of etheric vapour. The cases being of a very serious nature much interest was excited, and the theatre was very full of medical and other gentlemen. Among those present were Sir Charles Napier, M.P., Hon. H. Fitzroy, M.P., Hon. Rice Trevor, M.P., Sir Henry Hunloke, Bart., Sir Henry Webb, Bart., Captain Otway, Mr. Henry Fenwick, Mr. Hale Thomson, Mr. Lewis Powell, Mr. Guthrie, &c. The first patient was a female suffering from cancer in the breast. She entered the theatre at a few minutes after two o'clock, and took her seat in the operating chair without any manifestation of fear. Mr. Hooper was in attendance with his apparatus for administering the ether, and the mouthpiece having been properly applied, in a very few minutes the patient was in a complete state of insensibility. Mr. Charles Guthrie, who again operated yesterday, immediately applied the knife, and having laid bare the right breast, in which the cancer existed, proceeded to cut away the whole of the diseased parts, an operation which he performed with remarkable skill and dexterity. During the whole time the patient exhibited no symptoms of pain. Her eyes remained open, and as the ether was now and then applied to her mouth, she called out sharply, "Take that away; take that away!" In the midst of the operation she was asked if she felt any pain, when, to the utter astonishment of all present, she pointed to a window partially lowered opposite to where she was seated, and said, "I feel that window." The sash was immediately raised, and the poor creature appeared satisfied. The operation lasted five or six minutes, and at its close, after the wound had been sewn up, the patient fainted for a few moments, but soon recovered, and on learning that the cancer had been removed, she said emphatically several times, "I am *very grateful* to you, gentlemen, I am *very grateful*." Several of the spectators, incredulous of what they had observed, pressed towards her, and inquired whether she had not suffered very much during the operation. She replied alike to all that she had been quite unconscious of what had been going on. The poor creature was sufficiently recovered in five minutes to walk out of the theatre almost without assistance. The cancer removed weighed about four ounces, and was one of the most dangerous description. The next operation was the puncture of a very large tumor in the neck of a man, about forty years of age, from which nearly a pint of fluid was extracted. The incision made by the lancet was nearly two inches deep, but the patient was entirely unconscious of the application of the instrument, though he recovered within a few moments after it had been withdrawn. A gentleman suffering from severe toothache next submitted himself, and having been duly prepared, a large double tooth—the seat of his affection—was removed by a professional dentist. This case was not quite so satisfactory as the preceding ones, the patient remaining some time in a state of insensibility.—*Morning Post*.

GUY'S HOSPITAL.

Two patients were operated on to-day whilst under the influence of ether, inhaled: one, a case of lithotomy, by Mr. Morgan; the other, a case of strangulated inguinal hernia, by Mr. Key. There were present, Mr. Callaway, Mr. Cock, Mr. Hilton, and other officers of the hospital, in the densely-crowded theatre by students and professional men.

The subject of the stone case—a boy about fourteen years old—had, a few days before, been put under the influence of the ether very satisfactorily, for the purpose of avoiding the intense pain he had on a previous occasion suffered by the introduction of the sound. He was rendered quite insensible to the pain—indeed, had not felt the sounding. To-day, alarmed by the number of persons present, he for some time refused, when on the operation table, “to take his pipe,” as he termed it; but ultimately, yielding to the solicitations of those about him, he inhaled, somewhat irregularly, from an apparatus, under the direction of Mr. Robinson, for about three or four minutes, when he became perfectly unconscious, breathing slowly, and the face much congested. During the persistence of that condition, Mr. Morgan began and completed the operation in about two minutes, without the slightest manifestation of pain by the patient. Vapour of ammonia and other stimulants were used as soon as the operation was finished. The patient was taken from the theatre in an insensible state. In a few minutes he recovered from insensibility, after being in his bed, but continued confused for some time. On being told that the operation was concluded, he did not believe it, as he had not felt anything; still persisting in his doubts, the stone was shewn to him, yet he disbelieved, saying, “No, no, that wont do! that stone never comed from I, I know!”

The other patient, a young man, had a strangulated inguinal hernia, of three days' duration. The same inhaling apparatus was employed: ten or twelve minutes elapsed before the patient manifested complete stupor. The first incision was then made; there was an appearance of sensibility in his immediate struggles, but no other expression of it. The inhalation was continued, and the operation also, and in a minute, or thereabouts, all evidence of sensibility had vanished, nor was there the slightest return of it during the fifteen or twenty minutes required for the completion of the operation. This patient's face never presented the same interference, as did the boy's, with the respiratory function, for he breathed the ether more calmly, and had, altogether, much less appearance of distress. He required the aid of the ammonia and some wine for his recovery, and then gave the most positive assurance that he was not, nor had been, at all conscious of any pain; indeed, he had not felt anything of the operation.—*Lancet*.

Within forty-eight hours after the operations, a report was circulated that both patients had died—their symptoms were *scientifically* and *accurately* described—and their dissolution attributed to “ether.” The following report from the medical men who operated, will soon disclose the *truth* of the report.

“Jan. 21st, 1847.

DEAR SIR,—The reports that have reached you about the two patients, who underwent the operations at Guy's, being dead, are quite false. The boy from whom the stone was removed, by Mr. Morgan, has had a severe attack of peritonitis, from which he has not yet recovered; but the ether does not seem to have had any share in producing it. Peritonitis has been prevalent among all classes of patients, especially puerperal women.

“The young man, on whom I operated for strangulated congenital hernia, has gone on favorably and is now convalescent. He had a slight cough after the operation, but to this he is subject. He has had no inflammation of the peritoneum, nor any untoward symptom of abdominal mischief. The result of the action of the ether has been in his case most satisfactory.

“Yours, very truly,

“C. ASTON KEY.

St. Helen's Place.”

“DEAR SIR,—The hernia case is nearly well. Mr. Morgan's case of stone,

(the boy) died last week, and a *post mortem* inspection disclosed extensive peritonitis, and a disease of the colon of some standing.

"Yours, truly,

"C. ASTON KEY.

"January 27th, 1847.

"St. Helen's place."

"41, Finsbury Square,

"Jan. 28th, 1847.

"DEAR SIR,—The patient died of peritonitis, in addition to which a *post mortem* examination exhibited a bladder highly diseased, and a morbid condition of the kidneys and colon.

"I am, yours obediently,

"JAMES MORGAN.

"J. Robinson, Esq."

LONDON HOSPITAL.

On Thursday afternoon an Irishman was brought into the London Hospital with a compound fracture and dislocation of the tarsal bones of the foot. The man, after considerable reluctance, at last consented to amputation of the leg, provided the pain was in some way diminished. The vapour of ether was had recourse to, and applied in the presence of Dr. Pereira, and a numerous assembly of medical gentlemen. In five minutes the inhalation proved successful, and in less than another the leg was amputated by Mr. Adams, the patient during the time giving sly winks and facetious nods to those surrounding him. During the intervals of the inhalation his observations were of the most facetious character, forcing from the bystanders involuntary laughter, and converting that which to the poor fellow was a most tragical event into little short of a farce. Upon removing the ether he called out, "Hold hard there a bit: let's have another go at the grog," which he drew in with the greatest avidity. Not for one moment during the operation did he exhibit the slightest symptoms of pain, but, on the contrary, his countenance was expressive of the greatest hilarity; and at the conclusion of the operation, after the effects of the ether had passed off, he could scarcely believe that his leg had been so painlessly removed. His ideas whilst under the influence of the vapour were similar to those of a person enjoying a pleasant dream; he had fancied himself walking in the streets of Cork with his sweetheart, and to use his own expressions, "enjoying most pleasurable sensations." He has slept well during the night, and is in every respect progressing favourably.—*Times*.

John T—, an Irishman, aged twenty-nine, was brought into the London Hospital in consequence of an accident received in St. Katherine's Docks. A cask of sugar fell upon the outer side of his left ankle whilst he was attempting to raise it. A compound dislocation of the astragalus was produced, and the head of the bone was forced through his stocking. He was brought immediately to the hospital. The following was the condition of parts when admitted:—There was a transverse wound, of about three inches in extent, over the tarsus, through which the astragalus attached to the lower end of the tibia protruded. The bone was fractured across its neck, and it was somewhat comminuted beneath; the lower end of the tibia was much contused, but not fractured; the upper surface of the calcis was fractured, and the posterior tibial artery completely divided, but no bleeding occurred. The sole of the foot was turned outwards, as in Pott's fracture; no fracture of the fibula could be felt. From the extent of the injury, I had no hesitation in recommending the immediate removal of the limb. He refused to submit to the operation until he was told that it could be done without giving him any pain, and he then readily assented. He was put under the influence of the vapour of ether, and the leg was amputated below the knee, by the double-flap operation. Many vessels were secured, and the flaps were brought together with the interrupted suture. After the amputation, the man, on being questioned, said that he had felt no pain, but that his sensations were of a very pleasant description: and whilst securing the arteries, after the effect of the vapour had somewhat subsided, he begged

for another draught to lull the pain thus occasioned. He took a second dose and again became insensible to pain. His remarks throughout were of the most comic and ludicrous description. No congestion of veins was perceptible, but the conjunctival vessels were more distended than natural, and the full influence of the vapour was indicated by the rolling upwards and inwards of the eye. No perceptible effect was observed on the pulse. In the evening, some bleeding had taken place from the stump, and it was requisite to tie three or four more arteries.—*Lancet*.

ST. GEORGE'S HOSPITAL.

There was a large concourse of spectators at St. George's Hospital on the 14th inst., to witness the administration of sulphuric ether to some persons who were to be subjected to surgical operations. The first patient who was placed upon the table appeared to be a weakly lad of nineteen or twenty years of age, labouring under disease of the great toe. He was under the care of Mr. Cæsar Hawkins, who was prepared to remove the part, if the boy could be reduced to a state of insensibility. All attempts, however, to induce him to inhale the ether were fruitless. What with fright, and what with coughing, he always stopped before a sufficient effect could be obtained. He was removed, without any surgical operation being had recourse to. The second person who was brought in was a robust young man, a patient of Mr. Cutler's, with a diseased finger. He set about the inhalation *con amore*, and carried it on, with some persuasion and an occasional struggle to abandon it, for ten minutes at the least. He appeared to suffer a good deal from it, turning very red, or rather purple, in the face, and resisting at times somewhat violently. The effect on the bystanders was anything but favourable, several declaring that the ether was as bad as the operation, or worse. At last, the seeming insensibility and concurrent circumstances warranting a resort to the knife, Mr. Cutler proceeded to remove the finger. The patient was at once restored to his senses, and shouted so loudly, and snatched his hand from the operator so vigorously, as to leave no doubt that he suffered pain as acutely as if no steps had been taken to deaden it. This case, then, was a total failure. The third and last patient was a young man of powerful frame, who laboured under disease of the ankle-joint. He was a patient of Mr. Henry James Johnson, who exhorted him earnestly to inspire the ether until he felt its full effect. The poor man followed the advice implicitly; and, in three or four minutes, insensibility having taken place, Mr. Johnson at once performed amputation below the knee. The operation was executed with such rapidity that in less than a minute the limb was off. The patient regained his senses while the saw was being applied to the bones, when he remarked that he felt the instrument. During the cutting of the skin and muscles he did not evince the slightest consciousness of pain, and altogether the case was very satisfactory.—*Times*.

ST. BARTHOLOMEW'S HOSPITAL.

The operating theatre of this hospital was much crowded on Saturday last by practitioners as well as students anxious to witness the exhibition of the vapour of ether. Before the first patient was brought in, Mr. Lawrence addressed the assembly. He said, that on the previous day he had removed a diseased eye from the orbit of a patient under the influence of ether, and the result was so satisfactory that he had felt no hesitation in recommending Mr. Stanley to have it administered to his patient. Mr. Hooper had given the vapour in the way he was now about to give it, and the patient, after inhaling it for about two minutes, gave a slight convulsive struggle, and immediately became insensible, when the operation was performed, and on his reviving he said he had experienced no pain.

A middle-aged man was brought in, and commenced the process of inhaling, which he continued for about ten minutes, and Mr. Stanley proceeded to remove one of the middle fingers at its articulation with the metacarpus; the patient, however, not only cried out as much as the tube would allow him, but struggled so hard that he was with difficulty kept on his seat, and at the conclusion of the operation, he

said that he had felt more pain than he expected. After his removal, Mr. Stanley said that the man confessed that he had at one time been a free drinker, and this was probably the cause why the ether did not affect him.

The next patient was a little boy who had ruptured his urethra by a fall, and required an operation to reëstablish the natural current of the urine. The vapour was administered by Mr. Tracy, by means of an apparatus of his invention, and in about four minutes Mr. Skey commenced the operation, which was necessarily a tedious and, a little time ago, we might have added, a very painful one. The boy, however, showed little, if any, symptom of suffering. With one or two short intermissions, the inhalation was continued during the operation. His breathing was once or twice laborious, the abdomen heaving a good deal, but the withdrawal of the tube from his mouth quickly removed this state. His face, and even the whole surface of the skin, was somewhat purple the greater part of the time. At the end of the operation, he seemed very cheerful, and when questioned, said, that when he began to feel a little pain, they told him to "breathe again, and then he did not feel it." This patient went on inhaling for about twenty-five minutes, with short intervals.—*Lancet*.

ST. THOMAS'S HOSPITAL.

1. The ether was first inhaled by a patient, a strong man, of full habit, with disease of the hand, requiring operation. The inhalation was performed by means of an apparatus, as devised by Dr. Boott and Mr. Robinson, and perfect insensibility was produced. There were, however, so much coughing, turgidity of the face, quickened circulation, with dilatation of the pupils, threatening congestion of the brain and lungs, that it was not thought proper by Dr. Leeson and Mr. Mackmurdo to continue the inhalation, or to operate upon the patient.

2. A child, aged six years, inhaled the ether in the operating room, and became perfectly insensible for the space of two minutes and a half, during which the index finger of the right hand was taken off by Mr. Mackmurdo. No pain was felt during the operation, and even when the hand was held before him, the child would not believe that the finger had been removed.—*Lancet*.

MIDDLESEX HOSPITAL.

On Monday last, at the Middlesex Hospital, the efficacy of the ether was put to as severe a test as it has yet been subjected to. A man of 68 had been admitted with symptoms of stone and diseased bladder; so much pain, straining, and struggling attended the attempts at sounding, that it was with difficulty satisfactorily accomplished. The vesical tenesmus was incessant, amounting to incontinence of urine. Endeavours were made for several weeks to allay this extreme irritability, so that some urine might be retained or some water received as an injection, but in vain, neither could be endured; lithotripsy was consequently out of the question; and Mr. Arnott determined to perform the operation of lithotomy, unpromising as the case was, but, if possible, whilst the patient was under the influence of the ether. In seven minutes from the commencement, but in reality only two from the effectual inhalation, its influence was obtained. The catheter was then introduced, and some water attempted to be injected, but not above two or three ounces could be borne, and this, retained by pressure, was ejected immediately on the introduction of the staff, which, owing to the state of the parts, was effected with some difficulty and consequent delay; the bladder was cut into; the stone was grasped at once, but crumbled under the forceps, requiring their re-introduction several times; the scoop was employed to remove calculous matter like mortar; and, lastly, the bladder was injected four or five times, so as to wash it out. During the whole time, from first to last, the patient gave not the slightest indication of suffering; indeed, it was not until he was removed to bed and had been

some time in it, and taken some brandy and ammonia, that he did so, and then of soreness merely. Nor was the influence of the ether limited to this, its anodyne effect was maintained during the evening, the man remaining in a dreamy and "very comfortable state," as he termed it. He declares he suffered no pain; he knew that something was being done, but he recollects nothing distinctly "after blowing the horn." Up to this time, Wednesday evening, he is going on very favourably. Without ether, the pain in this case must have been most severe, and, from the circumstance mentioned, of more than ordinary duration, but happily the patient was spared it all. The apparatus employed was one invented by Mr. Bell, chemist, of Oxford-street, who was present, and assisted Mr. Tomes in its application.—*Medical Gazette*.

MELANOSIS.

By WILLIAM LAWRENCE, Esq., F.R.S.

I had occasion last week to perform one of the most painful surgical operations; and I gladly embraced the opportunity of submitting to what will, I think, be deemed a complete test, the recently introduced practice of inhaling the vapour of sulphuric ether. The great interest excited throughout the medical profession, and in the public generally, on a matter of which the importance can hardly be overrated in reference to operative surgery, induces me to communicate to you the particulars without delay; the result having been perfectly satisfactory, not only for the immediate purpose of preventing pain, but by proving, as far as a single instance can go, the safety of the proceeding, both in its direct operation, and in reference to the subsequent progress of the case.

A gentleman, fifty-two years of age, residing in the country, of good constitution, excitable temperament, and active habits, who at one time had lived rather freely, indulging a little in the use of spirits, but not intemperate, lost the sight of his right eye. After he had been blind for a year and a half, a swelling came in the orbit, and had gradually increased for about a year, when I saw him. I found it to be a case of melanosis, in which the eyeball, together with a morbid growth which had pushed through the tunics, constituted a large mass, not only filling up the bony cavity, but projecting in front, distending the lids, and separating them to the width of an inch. It was covered by the conjunctiva, thinned at one point so that the colour of the melanotic structure was clearly distinguishable, but principally thickened and red as in chemosis.

The inevitably fatal termination of such an affection induced the patient to submit to the operation as the only alternative.

During the development and progress of the complaint there had been much treatment, including repeated loss of blood by cupping and leeches, and mercurialization. The spirits were depressed, as might be expected under such circumstances; but this symptom was relieved by mild opiates, which agreed well, and procured rest. The usual habits of diet, with a moderate quantity of light wine at dinner, were continued to the time of operation. The mind was tranquillized by the belief that the new process would lessen or prevent pain, and the patient slept well on the night before the operation. This was performed on the 15th instant, in the presence of Dr. Waterfield, a friend of the patient, and of Mr. Holmes Coote, who gave me his assistance; the inhalation being managed by Mr. Hooper, of Pall Mall East.

The entrance of the vapour into the chest caused slight irritation about the throat. The arms and legs became powerfully contracted, so as to require a strong effort to control them; they were soon completely relaxed, and the patient sunk back into the reclining posture completely unconscious. There was some congestion of the face and head, the colour being somewhat livid, though, as I proceeded immediately to the operation, I did not make a minute observation. It was necessary to separate the lids at their commissure, and to turn them back freely, especially the inferior, which was tightly stretched upon the swelling. During this process, and the further dissection of the diseased mass from the orbit, the patient lay like a body on a dissecting table, without the

slightest manifestation of suffering or even consciousness, without a movement of any part. In about a minute after the conclusion of the operation, partial recovery of sense was observed: the patient was raised into the sitting position, and opened his left eye. Recognizing Dr. Waterfield, who had been sitting with him for an hour before the operation, he said, "Ah! how do you do? I am happy to have you here." He then expressed a fear that he had not had enough of the ether to produce the desired effect. When told that the operation had been performed, he said, "Operation! operation! What operation?" and seemed quite puzzled. Nothing further was said; but he was placed in a reclining position, and remained quiet. Persons engaged in a scene of this kind cannot estimate time very accurately. A friend, in an adjoining apartment, stated that from the time of the patient's entering the chamber for the operation till I came out to tell him that it was over (about two minutes after the conclusion) was eight minutes. The inhalation and the operation together may therefore have occupied about six minutes. The pulse was steady and quiet at the beginning, and, according to the report of Dr. Waterfield, who carefully observed it, continued so throughout: it was precisely of this character at the conclusion. After the conclusion of the operation, and before going to bed, the patient took two small glasses of Marsala wine, and a liqueur glass of brandy and water, by his own desire, and not from any failure of the circulation. There was free but not profuse bleeding, which continued so long that the application of ice was resorted to, under which it soon stopped.

The patient continued nearly free from pain throughout the day, and passed a tolerably comfortable night without an opiate. The progress has since been favourable, the only drawback having been erythematous affection of the lids and temple, with sense of distension and pain, causing some restlessness at night. These inconveniences are now nearly at an end, and the patient sat up, in a room adjoining his bedchamber, about four hours yesterday evening, nearly free from pain.

To inquiries respecting what he had felt, the patient said that it was like drowning—a sense of water rushing and overwhelming him: then came a snap, and he felt nothing further. It was clear at the time that he did not know that the operation had been performed, and this subsequent statement shows that he must have been entirely unconscious. On the last occasion of my performing a similar operation, the sufferings of the patient were intense: although not deficient in firmness, he writhed in agony, not being able to control himself, and thus considerably protracting the operation. Severe pain continued for many hours, and lasted in a less degree, with restlessness at night, for three or four days.

Considering the nature of the ether vapour, and the mode in which it influences the sentient and moving power, we may infer that its influence on the sensorium is analogous to that of intoxicating liquors introduced into the stomach. Many years ago a middle aged woman was brought into St. Bartholomew's, drunk, with a compound fracture and other serious injury of the leg requiring amputation. Having reflected on the circumstances, I could see no reason why the state of intoxication should prevent the performance of an operation absolutely necessary, and I accordingly removed the limb at once above the knee in the ward. The gentlemen present and myself were perfectly satisfied that the patient was unconscious of the proceeding, though being subsequently jeered on the subject by some of her fellow patients, she contended that she knew what was done at the time, but did not feel pain.—*Medical Gazette*.

Whitehall Place, January 20, 1847.

OPERATIONS BY R. STORKS, ESQ.

My dear Sir,—In reply to your note I beg to inform you, that I have employed your apparatus for the inhalation of ether in three cases, in addition to

those with which I had the advantage of having your assistance. In the first case, one of amputation of a finger for disease, the result of whitlow; the patient inhaled the ether between two and three minutes when she passed into a state of profound coma; the finger being removed she gradually recovered, and declared both to Mr. Whidborne (who assisted me) and to myself that she had experienced no pain. The operation resembled a similar proceeding on the dead body, no assistance being required to restrain her hand during the necessary incisions. Since the operation, I learn that she is subject to epileptic fits; the stump is now, however, nearly healed and no untoward symptom has occurred.

The second case was one requiring an incision for the exposure of an exfoliation from the tibia. The ether was inhaled for eight minutes without any decided effect being produced, I therefore proceeded with the operation, thinking that she would suffer as much as usual from the incisions that were necessary to expose the exfoliation. I however at once discovered, on introducing a probe, that her sensibility was much less than on a previous occasion when I had examined the condition of the bone. Having completed the operation, and after giving her a few minutes to recover herself, she declared that she had suffered but slightly from what must have been a very painful proceeding under ordinary circumstances.

In the third case, the ether was inhaled for twelve minutes without effect, and having some reasons to suspect intemperance upon the part of my patient, I at once proceeded to shave off some condylomata from the vulva; she cried out lustily and was perfectly conscious of all that was being done but declared subsequently to Mr. Collins (who assisted me with these cases) that she had not experienced so much pain as on a former occasion, when I had removed some similar growths.

In the first case the success was complete, in the second partial, and I think might have been complete had I persevered; in the third, the ether in my opinion failed.

No untoward accidents have occurred in any of the cases I have had an opportunity of testing the practice.

I am, dear Sir,
Truly yours,
ROBERT STORKS.

44, Gower Street, Bedford Square.
February 1, 1847.

OPERATIONS ON THE EYE.

By F. H. BRETT, M.D., F.R.C.S.E., &c.

No. 1 was the case of a female, aged sixty-five. The apparatus, as constructed by Dr. Boott and Mr. Robinson, and sold by Mr. Hooper, the talented chemist, of Pall Mall, was used by Dr. Brett, late Superintendent of the Government Ophthalmic Hospital, Calcutta, and now surgeon of the Western Institution for Diseases of the Eye, in the presence of several gentlemen. Some tact and perseverance are requisite to render the patient perfectly insensible. This occurred in about four minutes. The operation was performed and the cataract extracted in about a minute. The patient remained insensible for about two minutes longer, then revived; knew nothing of what had happened. Was your eye cut? No. Had you any pain? No. Was anything done to your eye? Not that I know of.

No. 2 was a case of squint, in a boy, aged twelve. He became insensible in two or three minutes; the operation was performed in less than a minute. The patient, on reviving, was quite unconscious of what had taken place.

No. 3 was a case of amaurosis and ptosis, (dropping of the lid.) The former affection had yielded to medical treatment under Dr. Brett, but though sight was restored, the dropping of the lid, or palsy of the muscle which raised the lid, remained, for which Dr. Brett proposed removing a large portion of the skin, with some fibres of the subjacent orbicular muscle. The patient remained in a state of utter insensibility during the incision of the skin and the application of three liga-

tures to unite the divided edges. On recovering, "she had felt nothing," and was not aware that the operation had been performed. On presenting her a mirror, she perceived that the lid was now open as that of the opposite eye.

As these are the first operations performed on the eye since the introduction of this valuable discovery, they call for some special notice as to the great tranquillity of the organ—a most important object, especially in so delicate an operation as that of extracting the cataract. Reasoning *a priori*, it might have been presumed that the eyeball would have turned upwards, so as to embarrass the operator, but this was not the case.

Dr. Brett is not aware that Mr. Robinson's apparatus failed in any instance to produce the desired effect. Mr. Griffin, Mr. Hooper's assistant, gave the vapour. — *Medical Times*.

LIVERPOOL HOSPITAL.

CURE OF BLINDNESS.

At the Eye and Ear Infirmary, No. 90, Mount Pleasant, a series of very important and interesting operations were recently performed by Hugh Neill, Esq., the honorary surgeon, for the cure of cataract and other diseases of the eye, some of the patients being in a state of unconsciousness to pain, produced by the inhalation of the ether vapour. With the view of removing the impression which generally prevails, that operations for the cure of blindness are attended with great pain, the gentlemen connected with the press of the town, and a select company, were invited to attend. Amongst those present we observed the Rev. Dr. Raffles, the Rev. Dr. Hume, the Rev. Mr. Brown, the Rev. E. Hull, Dr. Edwards, one of the medical officers of the institution, Dr. Sutherland, Mr. Bickersteth, Sir Arnold Knight, Mr. Higginson, and Mr. Blore, Surgeons; Mr. George Grant, Mr. S. L. Trotman, Mr. H. Crosfield, Mr. F. Hull, Mr. J. Smith, Captain Greig, Major Vickers, &c.

The first patient operated upon was John Davies, horse-shoer. He had a cataract in the left eye, which had been injured by a kick from a horse. The ether, which was administered by Mr. Higginson, surgeon, was placed in a bag, the mouth-piece of which resembled that of a speaking-trumpet. The patient, who appeared a little excited, inhaled the vapour without producing insensibility, but the operation was skilfully performed in one minute and a half, the man afterwards stating that he had experienced little pain.

Mr. Neill explained that in operating in that institution for cataract, they adopted the plan of reclinatio, not that of couching or extraction.

The next patient was Wm. Massey, aged sixty-six, from Runcorn. He had been blind in the left eye for six months, and the right eye had been diseased nearly all his life. When the right eye was closed he could barely see a man standing in the window before him, and it was with difficulty he could discern two fingers held close to his eye. This operation was for a hard cataract. As soon as the patient had inhaled a little of the vapour, he called out, "You'll have me drunk!" "O, you blackguard!" "I know what you are!" The inhalation, which at first produced coughing, occupied two minutes, and the operation only one minute. Although the patient appeared to know what was passing around him, and attended to what was said to him, he did not display the slightest symptom of pain, and when he recovered he stated that he had felt no pain whatever, although the operation had restored the sight of his eye. This operation was considered highly satisfactory by the medical and other gentlemen present.

Jane Evans, a young woman from Runcorn, who had been thirteen years blind in the right eye, was the next operated upon for soft cataract. After inhaling a little, she called out, "Oh dear, I am falling," and the vapour subsequently produced hysterics. In this case Mr. Neill had to operate with the left hand and break down the cataract. He did so, however, successfully, the operation only lasting one minute, and the young woman stated she experienced no pain from the use of the instruments. After the operation she still retained the sensation of falling, but a glass of wine restored her to perfect consciousness.

Mr. Yaniewicz applied the ether in the next case, that of Robert Maclaughton, aged thirty-seven, who works under Mr. Jesse Hartley. The patient was a very strong man, and the ether did not appear to take proper effect upon him. After the operation he said he had felt pain, and preferred the old system, thereby intimating that that was not the first time he had been operated upon.

Ambrose Rossiter, aged twenty-five, of Birkenhead, was next operated upon for strabismus, or squinting. This is generally considered a very painful operation, the hooking up of the muscle, and the cutting of it, trying the nerves of the stoutest. It was in this instance, however, very skilfully performed in one minute and a half, the patient stating at the close that he only experienced a slight pain at the conclusion. On being removed from the room, however, he appeared to be still labouring under the effects of the ether, and said no operation had been performed. Upon looking at the eye all present could perceive that it was perfectly straight.

The next operation was upon a little boy; and in this case the ether was not used. The boy had no pupil in his right eye, and by removing a portion of the iris a false pupil was made. This concluded the cases, and Dr. Sutherland thanked Mr. Neill for his courtesy in inviting the company to witness the operations.

AMPUTATION OF A LIMB.

A number of the medical gentlemen of this town lately met in the theatre of the Northern Hospital, to witness the amputation of the left leg of a young man named Macpherson. The patient some time ago received a severe injury of the knee, was admitted to the hospital, and dismissed as cured, but a chronic disease of the joint afterwards set in, and he was compelled to return again. Mr. Stubbs, the operator, stated that the case was a precarious one. There had been large suppuration, which had reduced the patient considerably, and there was no doubt that death would have ensued. The young man had only given his consent at the eleventh hour to have the limb amputated. After inhaling the vapour two or three minutes the patient evinced all the symptoms of stupor. In a few seconds the limb was amputated, and the patient displayed no sign of pain till the arteries were being tied up, when he called out, "Oh." On recovering from the effects of the ether, he stated he had felt no pain till then, but had "dreamt he was in heaven, which was very pleasant." The operation was highly interesting to all present, notwithstanding the patient's returning to sensibility before the operation was quite finished, but even then he appeared to suffer very little from pain. The instruments used on the occasion were made by Messrs. Reay and Robinson, of Church Street.

Two or three days ago a young man named Parker, in the same hospital, had his great toe nail cut off at the quick, during the effects produced by the ether; he experienced not the slightest pain.—*Liverpool Paper*.

OPERATIONS FOR STRABISMUS.

From *The Lancet*.

Though the utility of sulphuric ether in producing insensibility to pain has been pretty clearly substantiated, it may nevertheless not be uninteresting or unprofitable to add to the testimony which has already appeared in its favour. No remedy probably has ever been proposed capable of producing such astounding, such gratifying effects, and few, indeed, have in so short a time so fully realized the promises which have accompanied their announcements. As the process is only just in its infancy, I cannot but imagine that every fact relating to it must be of importance in enabling the profession to form an opinion of its merits, and to judge accurately of the extent and capabilities of what promises to be one of the greatest boons ever conferred on humanity. With this view, I beg to state the result of two operations for strabismus, (in which I was assisted by my friend Mr. Harris,) performed after "letheonizing" the respective patients. They were both boys, about nine years of age. The first, after inhaling the ether from a common bladder for two or three minutes, fell back in his chair, and appeared to be completely under its influence. The operation was proceeded with. At the moment of dividing the tendon, he uttered a faint "oh!" and shortly after awoke, as it were in a state of surprise. On being asked if he felt much pain, he said that I had "pricked his eye." The slowness of his suffering

may be judged of from his immediately consenting to have his other eye operated upon, which, under ordinary circumstances, few or no youthful subjects would submit to. This, however, was not deemed advisable. The second case was less satisfactory. The patient inhaled the vapour for several minutes, then stared about him in a vacant manner, and was so far insensible as not to complain of pain on being sharply pinched. The operation was proceeded with, and though the signs of suffering were not to be mistaken, he nevertheless made much less resistance than is usually met with in children; and on being questioned afterwards, said the pain was not great. As the whole of the tendon did not appear to be divided, it was necessary to re-introduce the blunt hook, and incise a small portion which had escaped. This second incision, he stated, was much more painful than "all the rest."

From the result of these cases, I cannot but conclude that we are in possession of a most powerful means of alleviating human suffering, and am of opinion that it will be found of especial utility in operating on young subjects, whose struggles during the performance of an operation are generally the greatest difficulty the surgeon has to contend with. I may mention, that neither nausea, vomiting, nor any other disagreeable effect was produced in either instance.

EDWARD PARKER,

Surgeon to the Industrial School.

Kirkdale, Liverpool, Jan. 1847.

QUEEN'S HOSPITAL, BIRMINGHAM.

In the presence of a numerous assemblage of students and influential practitioners of the town, ethereal vapour, as an antidote to pain, was tried at the above institution. The subject of the operation was Mary Ann Chambers, an interesting female, twenty-two years of age. She was suffering from scrofulous ulceration of the foot, implicating some of the more important of its bones. The disease had existed above two years; nine months of which she had passed in the hospital, under the care of Mr. Knowles. Before entering therein, various remedies had been used, but without avail; and after her admission, other plans having proved ineffectual, amputation was determined upon. Professor Parker kindly lent his inhaling apparatus (a modification of Robinson's, and which we understand has lately received some further improvements) to be used upon the occasion. The patient had had two experimental trials with ether, which was found to produce, to all appearance, complete temporary insensibility. At a quarter to eleven yesterday morning, she began to inhale the ether preparatory to the operation; in two minutes and two or three seconds she was under its influence, when the knife of the operator, Professor Knowles, made a sweep through the integuments of the anterior part of the leg; a sudden but transient frown was all the change that passed over the features. The knife was next passed through the leg, close behind the bones, whence it was directed backwards, slantingly, cutting all before it. During this part of the operation the patient uttered an audible moan, but it was evident to those who heard it, that it was very different to the cry or shriek of an individual in a state of consciousness. There was no bandage over her eyes, and it was quite clear that she was in no degree apprehensive of what was passing around her. Directly that intelligence returned, she asked if the foot were off? On being told in the affirmative, she seemed to doubt the truth of it, and asked to be raised that she might look. In a short while, when the effects of the inhalation had further passed away, she complained of the pain she suffered from the exposed stump, though, of course, at this time the pain was incomparably less than it had been a few minutes previously. She was now asked, consciousness having fully returned, whether she felt the operation, or was in any wise apprehensive of it, when she unhesitatingly said "*No*." Two or three times was she re-questioned as to whether she had felt any pain during the amputation, and she invariably answered in the negative. The question was mooted, whether the knitting of the brows, and the moaning did not indicate suffering? That mentally there was none, was proved in the fact, that directly the girl awoke from her lethargy, she was unconscious how far the operation had advanced, though the foot had been off two or three minutes; and she herself repeatedly averred that she felt no pain

whilst the knife was in use. This is perfectly consistent with the fact, that people may cry and shriek, and scream in their sleep, without knowing anything of it or its cause after having awakened; and that, during profound states of coma, they will sometimes start and make noises while there is plainly nothing but organic sensation remaining.

Further to ascertain, however, the effects of the ether, the patient was again put under its influence, prior to the sutures being placed in the flaps of the stump. This operation is often a very painful one, if the needle be passed through the skin from *without, inwards* (as was intentionally done in this case), yet the patient gave no proof whatever of being affected by it, and, on recovering herself, was totally unconscious of what had been done. She was very comfortable after the completion of the operation, and we understand is doing remarkably well.—*Medical Times*.

SUFFOLK GENERAL HOSPITAL.

A large assemblage of the professional gentleman of this vicinity took place at the Suffolk General Hospital, to witness the operation of removing a tumor from the breast of a female, while under the influence of the vapour of ether.

Some difficulty was experienced in bringing the patient fully under the influence of the ether; but this was at length effected, and she was laid back on the pillows in a state of complete insensibility. The operation was then commenced, and the tumor, about the size of an orange, was rapidly removed by Mr. Image, the patient making only an indistinct moaning noise. As some dissection was necessary in order to separate the diseased part, the woman had a second application of the inhaler, so that the insensibility was maintained as long as was required. And now came the most interesting part of the procedure. A towel having been laid over the bosom, so as to conceal the effects of the operation, and the patient having recovered her senses. Dr. Ranking asked her how she felt, and whether she was now ready to undergo the operation? She replied that she was quite resigned and willing; that she knew that it must be painful, but that Mr. Image might commence as soon as he liked. This answer was elicited from her several times by Dr. Ranking, that the spectators might have a full opportunity of ascertaining that she was perfectly unaware of any operation having been performed. Dr. Ranking then informed her that the tumor had already been removed, and that nothing more was to be done, upon which her countenance put on an expression of delighted and grateful astonishment which it is impossible to depict. In fact, she appeared quite incredulous, until she had raised her head, and herself inspected the wound, when she could not sufficiently thank those around her for having been spared an amount of suffering which she had justly supposed would, under ordinary circumstances, have been extreme.

Nothing could in the estimation of the majority present, have been more demonstrative of the power of this agent than the present case. It was one which required careful dissection, and was not, therefore, so rapid as others. The expression of willingness to submit to the supposed impending operation was genuine, as were also the incredulity and subsequent gratitude. The woman has since positively declared, that "*she felt nothing*, but was in a dream, and taken away from the present world." Her pulse and general aspect were not like those of a person who had so large a portion of the body excised.

The application was tried last week, by Mr. Smith, at the hospital, in a severe case of cancer on the lip, but the symptoms of congestion of the brain were so apparent, that he thought it more prudent to delay the operation. Several successful cases of extraction of teeth have been performed at the same institution, under the influence of the vapour; and it has been repeatedly tried upon a medical student, for the purpose of showing the insensibility to pain which it produces, and the general harmlessness of its operation.—*Bury Herald*.

LOWESTOFFE, SUFFOLK.

OPERATIONS, by W. C. WORTHINGTON, F.R.C.S.

Lowestoffe, Jan. 29th, 1847.

Dear Sir,—My experience with reference to the ether has at present been

limited. Hitherto I have confined myself to dental surgery with a view of personally ascertaining its effects previous to its employment in any capital operation. I may observe however that I am so thoroughly convinced both of its safety and utility that I propose employing it at our infirmary the next operation I am called upon to perform.

My first experiment was upon my man-servant, whom I narcotised simply for the purpose of watching its effects. In less than three minutes, he became completely unconscious, the pupil dilated, the muscle relaxed, and apparently insensible to pain. In about three or four minutes, he recovered and expressed himself as having experienced a most delightful vision. At the end of twenty minutes the inhalation was repeated and the same results obtained. No inconvenience whatever followed; the second experiment was upon a young man, who after being narcotised, submitted to the extraction of a large firmly fixed molar tooth. He remained insensible for about two minutes after its extraction, when recovered, he said he was prepared to have his tooth out. When informed it had been extracted, he said it was impossible, and would not believe the fact, and even when the tooth was shown to him, he accused me of having secreted one for the purpose of deceiving him. The third experiment was on a female, whose tooth was extracted without suffering any degree of pain. Another female, whose tooth was removed at the same time, complained of pain, but in this case I have reason to believe, she was, but very imperfectly narcotised.

One of my pupils afterwards inhaled, he described the feeling produced by it as being most delightful. On recovering from its effects he complained of slight vertigo and looked pale. Otherwise he suffered no further inconvenience.

At a future time, I shall be happy to furnish you with any further information.

Believe me to remain, yours truly,

W. C. WORTHINGTON, F.R.C.S.,

To J. Robinson, Esq.

And Senior Surgeon to the Lowestoffe Infirmary.

BECCLES, SUFFOLK.

From the *Medical Times*.

SIR.—I have much pleasure in forwarding to you the following case of lithotomy, performed under the influence of ethereal inhalation.

On Wednesday, Jan. 20, I was requested by my friend, Mr. Beales, of Halesworth, to accompany him to a case in which he proposed to perform the operation of lithotomy, and to bring with me Robinson's ethereal inhaler, which I had just received from London, as he wished to try its effects. The patient was a healthy man, aged sixty-seven, who had suffered for five years from his disease. Immediately upon our arrival we tried the effect of the inhalation upon him, and in one minute and a half he became so entirely insensible that we might have done anything to him without his being aware of it. At the end of one minute he awoke, and experienced no disagreeable sensation in consequence of it.

Having thus satisfied ourselves that the desired effect would be produced without injury to the patient, the operation was at once commenced. The patient having been secured in the usual way, and the staff introduced, I applied the mouthpiece of the inhaler and closed the nostrils; in two minutes he became perfectly insensible, of which I gave notice to Mr. Beales, who at once proceeded to perform the lateral operation, and, with his accustomed dexterity, at the end of four minutes, extracted a large stone, weighing two ounces and a quarter. As soon as the stone was extracted I withdrew the inhaler, and the patient awoke; he then stated that he was not at all aware of what had passed; that he had suffered no pain of any description, and that the first circumstance of which he was conscious was hearing one of the bystanders observe, "There is the stone!" which occurred at the moment at which he awoke; he has not had a single unfavourable symptom since the operation, and slept unusually well the two following nights, without taking any anodyne.

During the whole period of the operation I retained the inhaler in the mouth of the patient, but after insensibility had been once produced, at every fourth or fifth inspiration, I turned the stopcock of the instrument, cutting off the communication with the ether, and, at the same time, removing my fingers from the nostrils, allowed the patient to take two inspirations of common air,

and thus, successively, till the completion of the operation : by this means the state of insensibility was kept up during the whole operation, and might, probably, have been maintained during a much longer period with perfect safety to the patient.

The ingenious apparatus constructed by Mr. Robinson appears well adapted for the continued exhibition of the ether, in consequence of the facility which it affords of proportioning the amount of ethereal inhalation to the effect produced, and of maintaining the desired insensibility without producing any injurious effects upon the patient.

I cannot conclude these observations without expressing a hope that the person who first suggested so valuable a remedy will not be lost sight of: for if the accidental discovery that the juxtaposition of two pieces of metal produced an electrical current was sufficient to immortalize the name of Galvani, surely the name of the individual who first applied ethereal inhalation to the alleviation of suffering should be associated with a discovery so fraught with blessing to the whole human race.

I remain, your obedient servant,

WILLIAM E. CROWFOOT, F.R.C.S.

Beccles, Jan. 23.

NEWCASTLE INFIRMARY.

At the Newcastle Infirmary, Mr. H. G. Potter performed two operations:—one, an old man with fistula, the other a young woman suffering from diseased bone. In both cases the vapour of ether was tried; a new apparatus (such as is used, we believe, by Mr. Robinson, of London) having been procured. As soon as the patients were under the peculiar influence of the ether, the operator very quickly performed his duties, and evidently without causing the slightest pain in either case. Mr. Potter remarked that he believed there was no danger in the administration of the vapour of ether, except in persons who were either labouring under inflammatory conditions of the brain or lungs, or predisposed to certain affections of those organs, or in very young children. He thought its action was twofold: first as a stimulant, and afterwards as a sedative.—*Medical Times.*

EDINBURGH.

A variety of instances have lately been recorded in the public journals, in which severe surgical operations have been performed, without the patient having the consciousness of pain. The principle seems capable of being extended much farther. A few days ago, Professor Simpson stated to his class, that he had practised, with entire success, the inhalation of sulphuric ether in a case of the most difficult form of labour, and where otherwise the sufferings of the patient would undoubtedly have been extreme. The mother was lame and deformed. At a former accouchement, the labour lasted three or four days; and from the necessarily protracted use of instruments, the patient's agonies were very great. On the present occasion, Dr. Simpson had previously determined to avoid, if possible, the use of all instruments, and to attempt to extract the infant by the feet. He expected to be aided in this by the use of the ether inhalation. Accordingly, when labour had set in for a few hours, the patient was put under the influence of ether, and in a few minutes the child was turned and extracted, while the mother was altogether unconscious of the operation, and that, too, although the delivery was rendered excessively difficult, by the degree of compression to which the child's head required to be subjected. On afterwards awakening, or passing from her "etheralised" condition to the state of common consciousness, one of the first circumstances of which the patient became aware was the noise attendant on preparing a bath to resuscitate the infant. A remarkable circumstance pointed out in the case by Dr. Simpson was, that, whilst breathing the ether, the labour pains or throes continued, and yet the mother (to speak paradoxically) *felt* no pains. We hear she is rapidly recovering, and was dressed and walking about the house

on the fourth day, while on her last confinement she could not leave her bed for four or five weeks. This is, we believe, the first instance in which this new and extraordinary agent has been employed in the practice of midwifery.

EDINBURGH ROYAL INFIRMARY.

The subjoined case, in which an operation was performed by Professor Miller, shows that the production of a narcotic or stupifying effect is not absolutely necessary in the employment of ether vapour in surgical operations.

An experiment with the inhalation of ether was made in the Royal Infirmary recently, by Professor Miller, and proved eminently successful. The patient was a middle aged Irishman, a "navy," who had sustained compound fracture of the leg nine weeks before. The fracture had not united, in consequence of the presence of a piece of dead bone; and it became necessary to remove this by a painful operation. The patient was seated on a table, and the inhalation was applied by means of a very beautiful yet simple apparatus, made by Squire of London, and which, we understand, had been sent to Professor Miller by Mr. Liston—a very suitable gift, under present circumstances, from that eminent surgeon to his old pupil. At first little effect was produced; but after some minutes the patient fell backward as if in a swoon. The operator was then about to proceed, but the man immediately objected—saying, "that he was not asleep, and that he trusted that nothing would be done till he was asleep." For full twenty minutes more, the inhalation went on; the man confused and talkative, but wide awake, and occasionally expressing, very emphatically, his conviction "it would not do." At length, however, while in this wakeful state, the operation was begun. Incisions were made on the shin; and flaps were dissected off, so as to expose the bone beneath. A portion of this was sawn and clipped through, and then the dead bone was removed. Only during the clipping of the bone with strong straining pliers did any sign of feeling escape from the patient, who was busy inhaling all the while, and now and then protesting that "it would not do." The operation occupied about ten minutes, and from the highly sensitive nature of the parts implicated must have been attended with excruciating suffering in ordinary circumstances. After it was over, the professor said to the patient, "I suppose you won't let me operate to-day?" "Certainly not," said the patient; "it won't do, I must be asleep. The thing has'n't succeeded with me, and I am sure it can't succeed with any one else, for I did everything I could to get asleep for my own sake, and I'd do anything to please you." "You won't even let me make a cut in the leg?" "No; I must be asleep; we can try it another time." This plain proof of his utter unconsciousness of the operation having been performed was acknowledged by the spectators in a hearty round of applause. The patient then sat up, and seeing the wound, burst into an immoderate fit of laughter, saying, "No doubt there's blood, or something very like it; but I haven't felt a single thing done to my leg. That *bates* the globe;" and on being asked decidedly as to his having "felt anything," he repeatedly answered, "Not a haporth." He got into amazing spirits, and refused to leave the table until he had told "all about the toldrums of the business. And then, with the manner of a tipsy man, and very happy, he kept surgeons and students in a roar of laughter for some minutes with a narrative of his condition during the inhalation, which, Irish like, seemed to have been a strange medley of imaginary fights and "killings" going on around him, but wholly irrespective of his own leg and the operation. On being carried out, he declared triumphantly, "this is the very best thing that has ever happened in the three kingdoms." The Professor stated that he considered this case quite conclusive as to the powers of the ether, because there was no more painful operation in all surgery, and because the patient having being avowedly a hard and habitual drinker of spirits, was one of those persons who are least susceptible of the ether's influence. The whole proceedings seemed to give the greatest satisfaction to the medical and surgical officers of the institution, and to a large assemblage of interested spectators. Perhaps the most remarkable thing in such a strange tale is, the circumstance of the man being so wide awake and talkative, while all the while quite insensible to the cruel cutting of his limb. On

the following day he was doing well, having experienced very little pain after the effect of the ether had ceased.

The next day, Professor Miller again operated after administering ether, and with equal success. The patient, who was a young man, had an extensive incision made on the thigh on account of *sinus*, the wound being afterwards searched with the finger. After the operation had taken place, he was asked, "Shall we make the cut now?" He answered, "Oh yes, I dare say you may." "Did you feel anything done to the leg a little ago?" He answered, "Nothing." On being then shown the wound, he was surprised, and said, "Well, I had a kind of a dream as if something was done to my leg—just a dream like." He was then asked as to the present sensation. "Just about half drunk." "You have then been tipsy before?" "Yes, twice. But never so comfortably drunk as now?" "Never so lightsome."—*Edinburgh Witness*.

NOTTINGHAM HOSPITAL.

On Tuesday, Samuel Holland, aged twenty-one, of Mansfield, met with the following accident;—He was at work on the Erewash Railway, at the Aldercar cutting, near Langley Mill. While leading a horse and cart he fell over a heap of rammel, and the wheel passed over his right leg, causing a severe compound fracture. He was taken to the hospital, where he arrived at twelve o'clock at night; and the surgeon perceiving that it would be necessary for the leg to be taken off, procured the necessary apparatus; the patient had no sooner inhaled the vapour than he was thrown into a most eccentric mood, testifying the pleasure he derived from it by saying "he would sing a song, and treat them with a gallon of ale for giving him such good stuff—it was better than pop." The joint was taken off by Mr. Attenburrow in two minutes, and the operation completed in thirty-five. When it was cut off, he was asked when they should begin, and replied, he would tell them to "go the rig" when he was ready.—*Nottingham Journal*.

BRISTOL GENERAL HOSPITAL.

From *The Lancet*.

I find, from Dr. Fairbrother, that he has sent you a letter respecting the operation I performed on the 30th ult., whilst the patient was under the influence of ether. I suppose he has described the exhibition of the ether, and its results. The operation was the double, at the middle of the thigh. On Saturday last I removed a testicle; the ether was again tried with a common bladder and mouth-piece. Upon this occasion it was a failure; nothing passed from or into the bladder during the time the patient held it to his mouth. In the evening, there was so much general oozing, that I requested Mr. Mason, our house-surgeon, to remove the sutures, and keep the part open. Yesterday, having to apply the sutures, I determined upon trying the ether a second time with him; we then found, that the day previous it was most probable the inner end of the mouth-piece had been covered by the bladder. At this second trial, the man became quite insensible to pain; although, when talked to, he readily answered any question. I have used it once since with success, while dressing a boy's stump; this boy also replied to questions while asleep. To-day I removed the right leg of a woman, aged sixty-two; the operation the double flap, anterior and posterior. This time, Dr. Fairbrother used an apparatus, constructed under the direction of Dr. Boott and Mr. Robinson. The time occupied before the ether had taken effect was longer than upon the previous occasions; when it was produced, it was most perfect. After the leg was removed, and the stump completely dressed, we could not convince the old lady that she had lost her leg, because she had not felt the slightest pain. The gentlemen present, to the number of about twenty-five, were perfectly astonished, not only at the removal of the limb without any pain, but also at her disbelief that she had lost her leg, even after she had been

removed from the table, and was placed upon a bed to be carried to her ward. Neither of these patients have felt any ill consequences arising from the ether vapour, either during the time of the inhalation of the vapour, or since.

St. James's-sq., Bristol,
Jan. 1847.

I remain, Sir, yours respectfully,

J. G. LANSDOWN,
Surgeon to the Bristol General Hospital.

From The Lancet.

Yesterday, a second operation was performed, at the Bristol General Hospital, upon a female aged sixty-three years. Her leg was amputated by Mr. J. G. Lansdown, the operating-surgeon, and completed in less than five minutes.

In this case, I administered the ether, by means of Robinson's apparatus, with the most complete success. It took about eight or ten minutes to procure a state of insensibility. During the time she was perfectly quiet; and on being interrogated afterwards, said she had not suffered any pain; nor could she believe her leg was removed, until the nurse had turned down the bed-clothes, and shewed her she had undergone the operation. During the operation, alternately brandy was given with the inhalation of the ether. The patient, though aged, is going on well.

I am, Sir, your obedient servant,

Park-street, Bristol,
Jan. 1847.

A. FAIRBROTHER, M.D.,
Senior Physician to the Bristol General Hospital.

From The Lancet.

In the introduction of any novelty in our profession, I consider the best mode of forming a correct judgment of its merits is to procure a collection of plain, unvarnished facts bearing upon the point. This is most particularly applicable with regard to the operations while the patients are under the influence of ether. Since my last letter, I have had frequent opportunities of trying its effects, and will give the cases according to their several dates.

CASE 1.—Jan. 12. A young lady, about twenty years of age, called to request I would remove a tooth for her. Upon examination, her teeth were all sound. It was a case of neuralgia, from which she had been suffering day and night for three weeks. I recommended and used the vapour; she soon became perfectly insensible, and remained motionless for about five minutes; she then appeared to be awakening, and instantly passed into an hysterical fit; in five minutes more she opened her eyes, wondering where she was; and when she saw me, she exclaimed, "Oh! my pain, where is it gone?" It had quite left her; she was not aware of the fit. I questioned her as to whether she had ever suffered in that manner. She was not conscious that she had; but fancied she must have done so; for a few weeks previous, when her servant came into her room in the morning, she was sobbing, of which she was not at the time conscious. In a few minutes she left my house by herself.

CASE 2.—A very painful stricture of the urethra in a gentleman, aged sixty-four, for which I had passed a bougie twice a day for ten days; so great was his agony, that he could scarcely restrain himself from crying out aloud. Jan. 14 to 18: I continued to pass it twice a day, using the ether, then once daily, each time with complete success, until the 27th, at which latter time it was a partial failure. This gentleman expresses himself as "its being a great blessing to mankind;" he looked forward to his ether with much pleasure, as it relieved him from so much suffering.

CASE 3.—Jan. 16. William Prichard, aged sixty, cancer of the lip. This I expected would have been a difficult case, as the inhalation of the vapour could not be so well continued, the supply by the mouth being necessarily prevented as soon as I commenced my first incision. The patient took enough by the mouth to last through the removal of the portion of lip and the introduction of two pins. Fearing he might not have had sufficient, I directed the pipe to be passed into the nostril; but his mouth being open, in consequence of his desire to relieve it of the blood collected there, it did not take effect.

CASE 4.—Jan. 16. Requested to remove an upper bicuspid tooth for a tall, stout young woman, about twenty-six years of age, of delicate health, subject to hysteria, assuming the form of epilepsy. When I went to the house, her mother expected she would have a fit from the mere fact of my coming to extract the tooth,

which was one likely to be broken as soon as the instrument should be pressed against it. I administered the ether; she immediately went off, and as I was preparing to stand on a chair behind her, she slipped from off her own; I then crossed that one, caught her head before it fell, and extracted the tooth, sound, and with ease; in a minute or two she went off into one of her usual fits, during which she screamed, and from which she awoke in about five minutes, unconscious that she had had a fit, but heard some person screaming, and thought it was her mother; did not know the tooth was out; felt exceedingly grateful for what I had done for her. She was quite well before I was ready to leave the house.

CASE 5.—Jan. 20. My own son, fourteen years of age, suffering from a bad tooth, wished me to remove it while he was under the influence of ether; with a few inhalations he went off; I then lanced the gum without his knowledge, but consciousness appearing to be returning, I desisted from extracting the tooth. Having passed him off a second time, and desired one of my children to "give me the instrument," I extracted the tooth, which was a difficult one, having one of the fangs much expanded. During the operation he raised his hands and cried out. A servant entering the room to speak to me, I called out, "Come in, Charles, and shut the door." When my son recovered, he said he had felt no pain, but had seen me standing over him, it being an upper tooth, and placing the instrument in his mouth; he heard his scream, as also my request for the instrument and to have the door shut; he repeated my words; he dreamt there was a number of persons dancing about in the air, (his brothers and sisters were moving about before him,) and that as I called out so they all repeated my words.

CASE 6.—Jan. 19. A young gentleman, twelve years of age, requiring a portion of the nail of the great toe to be removed, wished to take the ether for the purpose of avoiding the pain necessarily attending such an operation. Upon this occasion he took a few inhalations, and then dashing the pipe from him, said he would take no more, and commenced dancing about the room, tossing up his hands, and declaring he was mad. His mother was much alarmed, but I assured her he would be quite well in a few minutes; this proving to be the case, gave her and the boy confidence for the following day, when he inhaled the ether, and upon its effects passing off, told his mother he had had a beautiful dream about her, but he could not recollect what it was, and looking at his foot, he exclaimed, "What! has Mr. Lansdown cut out the nail? I did not feel it."

CASE 7.—Jan. 23. The extraction of another tooth. A very delicate lady, about twenty, who all but fainted at my passing a probe into her mouth to be certain which was the tooth. She readily became insensible; the gum was lanced and the tooth extracted with ease, although a very large one, with three diverging fangs. This patient held the tube so firmly in her mouth, that there was no room to withdraw the tooth from it until she awoke.

CASE 8.—Jan. 28. Elizabeth W., aged fifteen, diseased knee of seven years' duration. Had recovered with partial ankylosis. The head of the tibia had passed backwards under the condyles of the femur, and had there found a resting-place, the under halves being absorbed for its accommodation. This girl, in consequence of the ether, sent to request I would remove her limb, on account of the inconvenience of its position, and also its occasional pain. She entered the operating theatre very cheerfully, and was apparently readily affected by the ether. The operation was with the anterior and posterior flaps. Considering her perfectly insensible, I thrust in the knife; this appeared to give her pain. I kept the knife steady, without withdrawing it, for probably half a minute. I then made my incisions: with these she still appeared to feel, but not so much. During the progress of the operation, she shrieked out several times. To a person who had not seen a case before, it would have appeared a complete failure; indeed, that was almost the impression upon my own mind. When the limb was bandaged up, I aroused her, and enquired—had she felt anything, any cutting, sawing, or pricking? Her replies were all in the negative. She said she had had a very unpleasant dream about being at the bar of judgment, and being punished for her sins. She further said she did not know whether her leg was off or not. In the course of the evening, she remarked she knew nothing of the conversation in the operating room; that she was not conscious until she was in her own bed, and there saw some gentlemen standing around her, which was about twenty minutes after she had been removed to her ward.

From the above cases, as well as from others already published, it is evident that persons, while under its influence, can both see and hear; that they will act from their sight, and reply to questions proposed to them, and give reasonable answers without being aware of what they are doing. It is therefore well to have the eyes bandaged previous to even the slightest operation, and also, if possible, to have silence observed during the period the effect is required to be kept up. I have now administered the ether thirty times, and in no instance has there been anything like a tendency to apoplexy, neither have I seen any injurious effects resulting from it.

I remain, Sir, yours obediently,

Feb. 1847.

J. G. LANSDOWN.

WOLVERHAMPTON.

INHALING ETHER.

The efficiency of this highly valuable discovery was tried on a patient named Joshua George, residing at Wednesfield. He was one of the four unfortunate miners who were precipitated down a coal pit by the stranding of the rope, and every effort was made which professional skill and constant attention to the case could effect to save a portion of the leg below the knee joint, but the fracture proving to be too extensive and stubborn to be reduced, amputation of the thigh became imperative. To spare the patient as much pain as practicable, Edward Best, Esq., of Bilston, who was the medical attendant, accompanied by his brother, Norris Best, Esq., and the Rev. J. B. Owen, appointed a meeting at the patient's house with Messrs. Coleman and Edwards, Surgeons, of Wolverhampton, gentlemen who had already succeeded by the inhalation of ether in producing in their patient insensibility to pain under an operation. Precisely the same means were employed in the present case, and the inhaling process was conducted by the same operator as in Mr. Coleman's case (an assistant of Mr. Bailey's, of Wolverhampton), but without any visible effect. Though in some cases reported a total insensibility resembling mesmeric syncope has ensued in four and even in two minutes, in the present case the patient inhaled the ether for twenty-three minutes, and for the last ten minutes, the vessel containing the fluid was steeped in boiling water, yet no stupefaction, nor even a partial insensibility ensued. This fact may possibly be accounted for from the patient's previous habits of smoking and drinking having impaired the susceptibility of his nervous system to narcotic or other analogous influence; or there may be in his case an idiosyncrasy which he shares with other individuals of a similar constitution, tending to disprove the universal or specific character of the discovery. This fact is published not to disparage the value of the discovery in cases where it is applicable, but to serve the cause of scientific truth, as well as to keep faith with the public, by giving equal publicity to cases which do not, as well as to those which do succeed. The expression of the patient's sufferings under the amputation which immediately followed, most painfully attested the utter failure of the experiment. We are happy to learn the case is otherwise progressing favourably.—*Wolverhampton Paper*.

From *The Lancet*.

As the medical profession at this moment must feel deeply interested in the late discovery made by our Transatlantic friends, of the inhalation of ether producing that state of narcotism which renders persons insensible to the pain arising from surgical operations, I offer no apology for sending you the following brief account of an experiment, as to its effect, which came under my own observation yesterday. My partner, Mr. Coleman, having occasion to perform amputation of the thigh upon a young woman of a highly nervous temperament, and who dreaded the pain of the operation exceedingly, we deemed it a favourable opportunity to test the efficacy of this new discovery. By the kind assistance of Mr. Julion, a talented young chemist, we prepared the necessary apparatus to conduct the experiment. The patient being brought to

the edge of the bed, the tourniquet applied, and everything prepared to commence amputation, she began to inhale the ether, which produced a good deal of coughing, and it was with some difficulty we prevailed upon her to persevere, which she at length did,—not, however, in a very satisfactory manner, drawing only short inspirations, and then removing the tube from her mouth. After using it for the space of three or four minutes, her teeth became fixed, her eyes closed, and she sank back into the arms of an attendant, as if in a state of complete intoxication. Mr. Coleman now seized this favorable moment, and very adroitly and expeditiously performed the flap operation. The patient struggled with her hands, and cried out for her mother, (who had been dead for some years.) The sound limb was not held, nor did she move it, but frequently said “she would not have her leg cut off then;” indeed, it was quite evident she was not aware of the operation having been performed; for after the stump was dressed, and she was comfortably placed in bed, she said “it was not off, for her foot was asleep,” and begged of some of us to rub it. On inquiring of her, some hours after the operation, what she had felt, she said “she thought she had been in a dream, and that we had hurt her leg, to see if she could bear the operation, which was to be performed the next day.” She had no recollection of any cutting pain, nor could she tell the kind of pain she had suffered, but thought she remembered “hearing the bone sawed.”

The narcotic effect of the ether soon subsided; for in putting in some sutures, to bring the edges of the stump together, the passing of the needle through the skin produced cries of the most agonizing pain, though her mind was not sufficiently restored to consciousness to be aware of what was going on.

The result of this trial I cannot but think highly encouraging, and fully believe, that if the inhalation had been more perfectly accomplished, the state of insensibility would have been most complete. So satisfied am I that we now possess a means of narcotizing pain, that I shall not hesitate to adopt it in any case where a painful surgical operation has to be undergone, taking care, in future, to render my patient thoroughly conversant with the mechanical process of inhalation, previous to the use of the ether.—I remain, Sir, your obedient servant,

GEORGE EDWARDS.

Wolverhampton, Jan. 1847.

P.S. Jan. 3rd.—Our patient is going on very favourably, and still persists she had a dream during the operation.

OXFORD.

63, High Street, Oxford,
Feb. 4, 1847.

MY DEAR SIR,—In answer to yours of yesterday, inviting me to report to you my cases of the application of the vapour of ether, it appears to me useless to encumber the pages of your forthcoming work with a repetition of cases such as you see hourly in your surgery. I will nevertheless detail two cases which present features out of the common.

CASE I.—Saturday, Jan. 23. Dr. R. Dickson being desirous of administering the vapour to a patient under his care, I attended him, by appointment, at the lady's house, in Queen-street, Mayfair. Present, Dr. R. Dickson, Dr. Brett, the lady's husband, a *femme de chambre*, and myself.

The lady, aged about 45, had been labouring for many months under confirmed hypochondriasis, accompanied by almost total absence of sleep. She had been previously under the care of Drs. Bright and Paris in London. Dr. Dickson wished to try the effects of the ether, in the hope that it might possibly change the action of the brain, and that at all events the experiment was worth the trial. Mrs. P., having made two ineffectual attempts to inhale, resolutely refused to proceed. Her maid, Ann Cotton, a delicate-looking female, urged her to persevere, offering herself to inhale, as an encouragement to her to do so. This was accordingly done, and in one minute she went off superbly, remaining unconscious for about five minutes, during which time, biting her fingers severely; pricking and pinching produced no effect

whatever on her. At the end of this time a placid smile came over her features ; she gradually recovered her senses, and in a minute or two was again in attendance on her mistress. After some time, Mrs. P. was induced to renew her efforts, and this time, in about two minutes, insensibility was produced, accompanied with violent reflex muscular action. She was then placed upon her bed, when this effect almost immediately subsided ; she became perfectly tranquil, slept for several hours, and, on enquiring some days after, I found that she considered she had derived considerable benefit from it.

CASE 2.—Feb. 2. Mary Ann Spackman, a fine healthy young woman, servant to Mrs. Bookworth, of this city (Oxford), wished to have the fangs of an upper lateral incisor and canine removed, if I could do so while she remained insensible. This case is the most remarkable that I have met with for the rapidity of the action of the vapour. It seemed to me that I had scarcely applied the tube to her mouth, when she became perfectly narcotized. I removed the two fangs. She recovered her consciousness in two or three minutes, proceeded to narrate her sensations to those present, laughed heartily, and was entirely herself : but what is extraordinary, is, that having requested her to remain in the chair a minute or two longer, she felt an irresistible sensation of drowsiness stealing over, which lasted nearly half an hour. Had she put herself in motion at the time she originally desired to do so, I have no doubt this would have completely passed away.

I remain, yours very truly,

To J. Robinson, Esq.

W. STANLEY STOKES.

DERBY INFIRMARY.

The first surgical operation in Derby, under the inhalation of sulphuric ether—and one too of a formidable character—was performed by Mr. Rudkin, surgeon to the Dispensary, in presence of Mr. J. B. Murphy, surgeon-dentist, who administered the vapour to the patient, the Editor of this journal, and Mr. James Storer. As well authenticated narratives of the effects of this remarkable discovery are not only read with interest, but may be productive of much good in inducing others to submit to the treatment, we publish the following particulars of the case :—

A young woman, aged 19, residing with her parents at Repton, consulted Dr. Brigstocke, on account of a disease from which she had been suffering for between six and seven years. On examining the case he found that in the year 1840 she suffered severely from scarlatina, which left as one of its consequences, an extensive inflammation of the periosteum of the tibia of the left leg, which, partly from neglect, and partly from inefficient treatment, eventually involved nearly the whole of the shaft of the bone, accompanied by extensive ulceration, deep sinuses, copious and remarkably foetid discharges. The constitutional irritation arising from these causes had most seriously affected the girl's general health, and finding that the case required the immediate attention of a competent surgeon, Dr. Brigstocke requested that Mr. Rudkin would undertake the charge of the case. She was then removed to Derby.

Without entering into further particulars, it was decided in consultation that the whole of the diseased bone should be removed. The bone at this time at its upper extremity was entirely denuded to the extent of three inches, but strongly adherent to the subjacent parts, and the middle portion was partly concealed with firm but unhealthy integument. As it was anticipated that the removal of a sequestrum so extensive and firmly adherent would be attended with most excruciating pain to the patient, it was determined that the means recently introduced to suspend animal sensibility should be rendered available in her behalf. For this purpose the simple apparatus suggested by Mr. Herapath, consisting of a bladder, stop-cock, and mouth-piece to breathe through was adopted. When all was in readiness, the apparatus was applied by Mr. Murphy, and almost immediately after breathing the vapour entire sensibility of the patient was suspended. The intermediate portion of the bone was then carefully dissected from its superficial covering, and the sequestrum firmly grasped with a large forceps, and with considerable violence eventually removed entire.

During this painful process the patient was perfectly unconscious of what was going on. On the removal of the vapour she very soon recovered her sensibility ; and when she recognized the operator she exclaimed, " Oh, Mr. Rudkin, you have not removed my poor bone ? " He told her that he had. She seemed for a moment very dubious ; but on Mr. Rudkin exhibiting the detached piece, she could scarcely restrain her feelings of joy and gratitude. She said that she had been dreaming ; that she never experienced the slightest pain or inconvenience either from the operation or inhalation of the vapour, and that she was quite astonished on finding " all was over. "

To show how little she was affected by what had taken place, we may mention that when the bandages were placed round the leg, the operator called to a female attendant to bring a needle and thread, whereupon the patient exclaimed, " Oh, give it to me, I'll do it, " and immediately sewed the bandages together, as if nothing had occurred.

The length of the sequestrum removed is seven inches, and the operation did not occupy three minutes. It was performed to the satisfaction of all present ; and thus was this poor girl spared the most excruciating agony by this new discovery. She says that she has less pain now than she had before the bone was removed, and does not feel the slightest inconvenience.—*The Derby and Chesterfield Reporter*.

DERBY.

Two operations, upon persons under the influence of the inhalation of ether, were performed at the Derbyshire General Infirmary, yesterday, in the presence of upwards of thirty gentlemen of the medical profession, and most fully demonstrated the importance of this discovery in the alleviation of human suffering under very trying circumstances.

The first was a female about the middle age, named Loise Musgrove, for a large steatomatous tumor on the back. The operation was skilfully performed by Mr. Whittaker Johnson ; but, owing to the patient not being fully under the influence of the vapour, was not so satisfactory as it would otherwise have, undoubtedly, been. It was evident from the expression of her features, and the exclamations uttered, that she was not sufficiently in a state of unconsciousness. At the same time, when questioned after the operation, it was apparent, that the sensibility had been deadened, and much suffering consequently spared.

The next operation was upon a young man, named Wm. George, whose right hand had been fearfully crushed by a railway carriage passing over it. He has been in the hospital about three weeks, and has had symptoms of locked jaw. Great care was taken in this case that the patient should be thoroughly under the influence of the ether, and the most complete and perfect success attended the operation, which was performed by Mr. Wright. When restored to consciousness, the poor man was not aware that the limb had been removed ; and declared that he had not felt the slightest pain, or had been at all sensible of what had passed.

The whole of the gentlemen present expressed their unqualified delight and satisfaction at having witnessed the experiments. The gas, in both cases, was administered by Mr. Murphy, who has recently been in town for a similar purpose. The apparatus used, is one invented by Mr. Robinson, surgeon-dentist, London.—*Derby Mercury*.

INHALATION OF ETHER.

From the *Derby Mercury*.

Any new mode of medical practice which has a tendency to alleviate human suffering, particularly that which bids fair to remove the agony of most, if not all, surgical operations, must to every philanthropic mind be hailed with peculiar interest.

That sulphuric ether possesses this power is now attested by such abundant evidence that to say more may be considered a work of supererogation. Still, as every medical man, however bold he may be, naturally feels some degree of fear when subjecting his patient for the first time to the influence of so potent an agent as that of ether in a manner hitherto so unusual, I think that every instance of its successful application ought to be recorded. The adaptation of respired ether for the removal of pain is in its infancy, and the object to be achieved so overwhelming to the whole human family, that it is scarcely possible to say too much upon a power, which has till now escaped the utmost vigilance of physiological enquiry.

On Saturday last I performed two operations, one in a case of psoas abscess, the other, under ordinary circumstances, one of great suffering; in each instance the operation was not only borne without pain, but without the slightest knowledge that anything had been done. The ether was administered by my friend Mr. Murphy, dentist, of this place, with an instrument lately brought by him from town; and, as far as I can judge, it appears to be perfect in its construction. When I first heard of this discovery I was told by my medical friends that in those cases requiring an operation associated with disease of the lungs, or heart, inhalation of ethereal gas would be altogether inadmissible, and that this would be a great drawback to its general utility.

I am happy, however, in being able to state in one case of this nature, connected also with dropsy of the abdomen. The gas was tried very cautiously preparatory to the operation for tapping without any ill effects, or the pulse being at all altered by it. Perfect insensibility was produced; but the patient soon awoke from his apparent slumber, laughing, and expressing his astonishment at finding himself in Mr. Murphy's operating-room, and in a few minutes afterwards walked home.

This I consider to be an exceedingly interesting case, shewing that, whilst the vapour of ether taken into the lungs has the power of suspending, for a time, sensation and voluntary motion generally, it has very little effect upon the respiratory or sympathetic system of nerves—those nerves more especially distributed to the heart and lungs, even when those organs are in a state of disease. Frequently, when the knife makes its first plunge into the body, there is a twitching or tremor of the whole frame; this, however, is no more than might have been expected from what is technically termed the reflex action of the nerves, and ought not to be regarded as any indication of suffering, although it is beheld with horror by non-medical spectators from the habit, no doubt, of connecting pain with every unusual contortion of the body.

In conclusion, I think it right to state, that, in some instances, we have found people with a cold, or very timid patients, cannot take the vapour; but that, in others, where a full dose has been inhaled, its specific effects appear to be general.

I am, Sir, your obedient Servant,

Derby, Feb. 1st. 1847.

JOHN LINDLEY, Surgeon.

STROOD.

Mr. Wiblin, surgeon, of Strood, recently amputated a leg, with complete success, while the patient was under the influence of ether, in the presence of Messrs. Russell, Beavan, Everest, and Brenguine, surgeons. The Ven. Archdeacon King, Colonel Kelly, the Rev. J. P. Allcock, W. Nightingale, Esq., T. Wickenden, Esq. were also present. The operation lasted the usual time, and, after the whole was completed, the patient, a young man about eighteen years of age, still continued under the influence of the ether, which was inhaled from Robinson's apparatus. On his recovery from the effects of the ether, Mr. Wiblin asked him whether he was prepared to undergo the operation? He said he was quite ready, and was very much astonished when informed the leg was already off. Several gentlemen questioned him as to whether he had felt any pain, when he assured them that he had not.—*Canterbury Journal*.

LYNN HOSPITAL.

The inhalation of ether has been tried by C. Cotton, Esq., at the Lynn Hospital, and the results help to establish the fact either of its power to produce complete insensibility to pain, or an obliviousness of it, as the effect of the medicinal agent subsides. In the first case, a female with cataract, its influence was speedily produced, the operation completed, and the eye bandaged, before the patient recovered from her state of apparent unconsciousness. In a second case of cataract, of an old unsusceptible man, at least ten minutes elapsed before insensibility could be effected, when the operation was completed without pain, and the man almost immediately recovered his consciousness. In a third case, that of an old man with cancerous fungus involving the whole lower lip, a few inhalations sufficed to prepare the patient, and the lip was completely pared by the knife, without the slightest indication of pain or the least flinching. In this case the inhalation was again repeated, and during its influence a glass rod, dipped in strong nitric acid, was repeatedly applied to restrain the bleeding, which flowed rather freely from the incised part; a slight involuntary retraction of the muscles was only observed, and the man on coming to himself said, that he had felt no pain, and it was only on the application some time afterwards of a ligature to an obstinately bleeding vessel that he first complained of pain. The apparatus used was an imperfect modification of the tube and bladder recommended by Mr. Herapath, Robinson's not being procurable at the time. The bladder was not inflated, but only washed out with hot water prior to the ether being placed in it. Mr. Cotton has also tried the ether vapour in private practice. In one case, during a painful operation the most perfect composure and serenity were preserved. In a second case, boisterous, hysterical-like spasms followed, as observed by Professor Parker, requiring all the force of the bystanders to hold the patient. Further inhalation, however, served to effect the required degree of unconsciousness, and the operation was completed without the knowledge of the patient or the slightest indication of pain.—*Medical Times*.

BRIGHTON.

We last week recorded two cases in which Mr. Wood, the dentist of German-place, succeeded by the application of sulphuric ether in extracting teeth without pain. Since then many who were afflicted by that most dolorous of ills, the tooth-ache, but who were afraid to undergo the excruciating torture of extraction, have had the offending member removed not only without pain, but absolutely without the patient's knowing anything at all about it. The experiments were watched with great interest by a number of medical gentlemen who were present at the time. Three cases were operated on on Thursday, two on Sunday, and six on Monday; and every case was successful. In one case a young man, an assistant in a chemist's shop, had an upper molar tooth much decayed with wide spreading fangs, so that much force was required to displace it. He inhaled the vapour about three minutes, and Mr. Wood then removed the tooth and the patient returned to consciousness just afterwards. He had had, he said, a pleasing dreamy sensation, and never felt the extracting of the tooth. Dr. Plummer, Dr. Allen, Mr. Maiben, Mr. Stafford, and other medical gentlemen were present while the operation was performed; and it being successful they proceeded to another. The patient was a young lady about 20. She was quickly brought under the influence of the ether, and while in that state the front of an upper front tooth was removed. She screamed, but on coming to her senses said she had been dreaming; her sensations were of the most pleasing kind, and she had felt no pain. In another case a labouring man, aged 30, named Holmwood, had three stumps of teeth removed, two of them without any consciousness on his part; but during the removal of the third the influence of the ether subsided and he felt some slight pain. In another case a tooth was extracted from a girl twelve years of age. After it was done, and she returned to her senses, she was asked if she would have the tooth drawn, and she replied in the affirmative.—*Brighton Guardian*.

COLCHESTER.

On Wednesday our townsman, Mr. Mens, perfectly succeeded in extracting the first molar tooth from the upper jaw of a young female while she was under the influence of the ether inhalation. On being questioned after sensibility had returned, she stated that she was quite unconscious while the tooth was being extracted, and thought that she was at the railway station. We need not add that the operation was performed with his usual skill. There were present the Rev. J. B. Storry, Dr. Williams, Mr. Partridge, and Mr. Johnson.—*Essex Standard*.

EAST RETFORD.

EXTIRPATION OF TUMORS, &c. By JOHN CHARLES HALL, M.D., M.R.C.S.

From *The Lancet*.

Jan. 14th, William E., aged twenty-six, applied at my house for the purpose of having a small fatty tumor, about the size of an egg, removed from his neck. Mr. Cocking, one of the medical officers of the Hull Dispensary, was present during the operation. The man was placed in an arm-chair, and the vapour applied by means of an instrument which was supplied to me by Mr. Hooper, the operative chemist, and is the one figured in *The Lancet* of last week, and is certainly very complete, and well adapted for the purpose. He complained, at the first, of a slight tickling sensation in the throat: this soon went off; in two minutes the pulse had risen to 135; in another minute his arm was slightly raised; his feet were then extended, and he fell back in his chair in a complete state of insensibility. The tumor, being somewhat adherent, required a good deal of dissection to separate it from the surrounding parts. The operation occupied about three minutes; and in about another minute the man awoke, declaring he had "felt no pain;" and it took some little time to convince him the operation had been performed. During the operation, he raised the leg once, but said he had felt no pain at all; he had been in a dream.

There is a class of cases in which the vapour has not yet been tried; and from my experience in one case, I am led to recommend it with confidence to the members of my profession. I allude to retention of urine from spasmodic stricture of the urethra; in such cases it will, I think, be found an effectual and elegant substitute for the warm bath, opium, bleeding—the whole paraphernalia of the former plan of treatment. In the case to which I allude, all attempts to pass a catheter were useless. On applying the vapour, the patient passed into a state of insensibility in five minutes; and during his dreamy unconsciousness, a catheter was passed without any pain, the bladder emptied, and on coming round, he got up perfectly free from pain, although previously in the greatest agony from an overloaded bladder. I have every reason for thinking the application of the ether vapour will be attended with the greatest possible benefit to those unhappy patients who may be suffering from the torments unrelieved retention of urine causes, and have therefore embraced the earliest opportunity of making the result of my experience known to the profession. We all know the difficulty of passing a catheter in these cases—a difficulty which I hope will now, in the majority of them, be removed.

The reporter for *The Lancet* of a case in which an operation was last week performed on a patient under the influence of the vapour of ether, remarked, "All we want at present are facts faithfully recorded, whatever the result." I am quite aware it is impossible to draw a correct conclusion from one or two operations, and therefore feel it a duty I, in common with every other medical man, owe to the profession, to record from time to time the result of our experience. I last week mentioned two operations, performed by myself, on patients when under the effects of this all-powerful remedy. I now communicate the result of another operation, far more severe—an operation for the removal of an enormous tumor, which required a long, difficult, and tedious dissection, and which could only be effected slowly, and with very great care, from the nature of the highly important parts in dire contact with the tumor.

CASE.—Mrs. G——, aged fifty-three. I was requested by F. Blagg, Esq., Surgeon, of South Leverton, to give my opinion on the case of a lady who had been under his care for a tumor on the side of the neck. The substance was first observed about fourteen years since, and had slowly increased, until two years ago, when it began very rapidly to enlarge, and appeared, to use the lady's own words, "daily to press more upon her windpipe." It extended from the side of the trachea downwards and backwards, over the steno-cleido-mastoideus muscle, its anterior edge, as far as we could ascertain, being in close contact with the carotid artery. As the tumor was rapidly increasing, and as it already interfered a good deal with the comfort of Mrs. G——, I proposed its immediate removal, and my friend Mr. Blagg agreeing with me, it was fixed that I should remove it, which, with his valuable assistance, I accomplished, without giving the slightest pain to the patient.

January 25th, 1847.—Mrs. G—— willingly consented to inhale the ether, which she did from the apparatus of Mr. Robinson; in five minutes she said she "was going off"—the pulse had then risen from 70 to 100—in eight minutes it was 130—the pupils dilated, the breathing quick, but no stertor. I then pinched the hand sharply, and spoke to her; she appeared insensible to pain; the face was covered with moisture. I now commenced the operation by making an incision from six to seven inches in length through the skin, and then proceeded carefully to dissect out the tumor, a work of considerable time and difficulty, from the firm nature of the adhesions of the tumor to the surrounding tissues, as well as from the very great caution necessary, from the very important parts in immediate contact; the inner borders of the sterno-cleido-mastoid muscle had been partially displaced, and the carotid artery was in close contact with the tumor, and could be felt, both by Mr. Blagg and myself, pulsating at the bottom of the wound. The operation lasted about sixteen minutes, during the whole of which time she only moved twice, when the vapour tube was again placed in her mouth; she answered somewhat incoherently, if questioned during the operation, and appeared perfectly indifferent to, if not unconscious of, what was going on. There was not the least quivering of the muscles on the first application of the knife. Mr. Blagg remarked it appeared as though I was demonstrating the parts on a dead body. She drank a little brandy-and-water twice during the operation, and appeared quite insensible, until three or four arteries, which bled rather freely, had been tied. As there was a good deal of oozing from the whole bed of the tumor, I sponged it with cold water, on which she said, "Was I going to do it?" and appeared highly delighted when told by Mr. Blagg it was all over. A better proof cannot be given of the insensibility to pain, during the time she was under the influence of ether, and the return to it when it had ceased, than the fact of her complaining much, on my tying another artery, which began to bleed freely, and I did not think it necessary to place her under the influence of the vapour again.

Mrs. G—— (and I may remark that we have here the testimony of a lady of fortune and high character) declared, "She felt no pain during the operation." She added, "I felt nothing, for I knew nothing. The first thing I remember after I went off, was hearing something fall into a basin." This was the tumor, which I threw down into a vessel near me, as soon as it had been removed. She was very cheerful an hour after the operation, remarking that the wound felt very sore; and I left her in the care of a friend, in a far better state than she could possibly have been had she suffered the usual pain of a severe and protracted operation. That we have at our command a powerful agent for removing human suffering, and disarming surgical operations of half their terrors, I am certain—I do not say in all cases, because in a patient having a tendency to apoplexy, or labouring under disease of the heart, its application might be hazardous, and no prudent practitioner will use it without first making a very careful examination of the condition of his patient. Since the above was written, I have seen Mrs. G——, (twenty-four hours after the operation,) who appears going on as well as possible.

Grove Street, East Retford, Jan., 1847.

OPERATIONS UPON THE EYE.

From *The Lancet*.

On Saturday, Jan. 16, three successive and successful operations were performed at the Kent Ophthalmic Institution, Maidstone, whilst the patients were under the influence of ether, administered by myself, by means of an apparatus obtained from Mr. Hooper, Pall Mall East.

The first case was a labourer, named D—, aged nearly sixty, living at Bransted, a cataract patient, and the operation was the removal of a tumor, about the size of an orange, on the back of the skull, between the vertebra of the neck and the left ear. It required about seven minutes' inhalation before the patient became insensible, when the operator, Mr. Woolcott, made the first incision into the tumor, which was extracted in less than another minute. The patient seemed quite insensible to pain from the use of the knife, and only evinced some symptoms of uneasiness when the sponge was applied. The vessels having been taken up, the patient exhibited symptoms, for about a minute, similar to those of noisy intoxication, which quickly subsided, and he exclaimed, "I'm coming-to now." "You must not come-to yet," was the reply; "we are just preparing. Do you still wish to have the operation performed?" "Yes," was the rejoinder, "you may go on; I won't flinch." He was then shewn the tumor, and seemed much delighted to find that the operation had been performed whilst he was unconscious, declaring that he had not suffered the slightest pain. The wound was then strapped, and the patient arose, apparently in an excellent humor, and without exhibiting any symptom of exhaustion or fatigue.

The second case was one of fistula lacrymalis in a middle-aged man, who, in a few minutes, was brought under the influence of the ether. The operation was performed without the least consciousness on the part of the patient.

The third was a case of strabismus in a boy, aged fourteen years. In this case some time was spent before the boy could be rendered sufficiently insensible for the operation. The first effect of the ether was a state of semi-intoxication, attended with a desire to go up-stairs, and it required considerable strength to prevent the patient from making the attempt to do so; but in about ten minutes from the commencement of the inhalation, he was in a profound state of intoxication. The operation having been completed, and as soon as the patient had somewhat recovered, he exclaimed, in a high tone of voice, and with great energy, "I have been going to heaven; I have been seeing the angels, and I don't know what all! I have been going to heaven, that's all I know about it! Angels and trumpets are blowing?" He continued to talk in this strain for ten minutes, after which he became sick and sleepy, as if recovering from a state of intoxication produced by spirituous liquors. The medical gentlemen present at these operations were, besides myself, and Mr. Woolcott the operator, Mr. Canton, of the Charing-cross Hospital; Dr. Huxley, of the County Lunatic Asylum; Mr. Sedgwick, Mr. Dickson, Mr. W. G. Sedgwick, Mr. Gould, and one or two other persons. Mr. Canton, who had witnessed several cases of the application of ether in the London hospitals, stated that these were the most successful cases he had seen.

Nothing could be more satisfactory than the above cases; and from the number of operations already performed in most of the public hospitals of this country and the United States of America, there can be no doubt of its applicability to all surgical operations, however severe and prolonged, not only on the human body, but on the bodies of animals also. Messrs. Staughton and Plomley, veterinary surgeons of this town, have, within these few days, with the assistance of myself and Mr. Woolcott, performed the most severe and difficult operations on dogs, without the least pain; and with a very simple apparatus, suggested by myself, animals can be made to respire the ether more readily than human beings.

I have breathed the ether on several occasions, and think its effects may be divided into three stages or degrees. The first is merely a pleasurable feeling of half intoxication; the second is one of extreme pleasure, being similar to the sensations produced by breathing nitrous oxide, or laughing gas; there

exists in this stage a perfect consciousness of everything said or done, but generally an incapability of motion ; in this stage, also, there is not exactly an insensibility to pain, but rather an indifference, "a care-for-nothing sort of feeling ;" and if surgical operations are done in this state, the patients almost always recover before the operations are completed, and the results are unsatisfactory. There can be no doubt that most of the failures may be attributed to this cause, as occurred to-day in a boy operated upon by Mr. Fergusson, at King's College Hospital.

The third stage, the only one, I think, for performing operations in, is one of profound intoxication and insensibility. The individual is completely lost to pain, and to external impressions ; the muscles become prostrate, the circulation lessens, and the temperature falls ; but the mind is often revelling in the most pleasurable regions, as in a dream ; this, no doubt, depending much upon the temperament of the individual, and probably, also, on the physical effects of the operation on the nerves, as very often there is a considerable moaning, and an attempt to move, when under the influence of the knife.

There appears to be some difference of opinion as to the action of ether upon the system ; but there can be but little doubt, that when taken into the lungs, its elements rapidly unite with the oxygen of the arterial blood, rendering it venous, and that it stops the metamorphosis of the tissues, producing a diminution of the temperature of the body, and also a diminution of the vital energy, in the same way as the vapour of alcohol, only with greater rapidity.

I remain, Sir, your obedient and humble servant,
FRANCIS PLOMLEY, M.D., F.L.S., &c.

In a note from Mr. Plomley, dated January 16th, he says.—

"I think it can be applied to relieve the intense sufferings of *Neuralgia*, because I have found that by completely deadening the pain of this disease, if only for a few minutes, by the most powerful narcotics, a return of the pains may be prevented for an indefinite time."

Mr. Woolcor operated in the following cases,—

"The first was for fistula lachrymalis in a young man named Wood, a carpenter—after inhaling the ether for a few minutes he became perfectly insensible and the operation was performed without his consciousness ; upon recovering he said, 'I have been dreaming of a great many things but principally about the book of Deuteronomy.' He was asked why he moaned if he was not in pain? and he replied, 'Did I, it was without my knowing it then.' When he got up from the chair, he staggered about the room for a short time like a drunken man, but soon recovered himself and was in high spirits.

"The other two cases were for the cure of squinting, one a young woman the other a boy,—both were perfectly successful, and though the boy screamed violently, and struggled apparently as though in pain, he was perfectly unconscious of it, for being asked where he had been, he replied, 'With my uncle at Gravesend,' and was not aware that any operation had been performed. Such results as these prove beyond dispute that this discovery is the greatest blessing ever vouchsafed to suffering humanity."—*Maidstone Journal*.

SPALDING, LINCOLNSHIRE.

From the *Medical Times*.

I am desirous, through the medium of your columns, of laying before the profession my experience during the last fortnight with the vapour of ether. I have administered it to upwards of a dozen persons, and, with the exception of three cases, with perfect success. These three cases presented some peculiarities, and in one, symptoms of an alarming character, which must be my apology for giving them in detail. Mrs. B—, aged fifty-eight years, made

application to me to insert an issue in her leg for the cure of an old standing ulcer, situated over the spine of the tibia, a few inches above the ankle, and expressed a desire to inhale the vapour of ether, prior to its insertion. She did not appear at all timid, and began to inhale the vapour with the greatest confidence; after five or six inspirations, she suddenly became deadly pale, and stated that she was suffocating, and refused to continue breathing the ether; she had scarcely done speaking before she coughed violently for three or four times; the flow of blood to the head was instantaneous; she became quite purple in the face, the temporal veins were much distended, and the arteries throbbed violently; she was perfectly sensible, and complained of a sense of suffocation, and that she should die; she remained in this state for five minutes at least, when the face began to assume somewhat of its natural colour. I must confess I felt considerably alarmed for her safety, and was glad to observe her recover a little; she was a long time before she was able to leave my house, and, after she had been home about two hours, she had a fit, but, as I did not see her until some time after it was over, I am unable to say of what character it was; her daughter told me that she was "stiff and insensible for ten minutes." Although upwards of a fortnight has elapsed since she inhaled the vapour, she is far from recovered from the effects of the inhalation, complaining of a great deal of pain and confusion about the head, and oppression at the chest.

The next case was a boy, aged fourteen years, who wished to be operated upon for the relief of squinting. After having inhaled for a short time, instead of depressing him, he became furious, called out loudly, and we had difficulty in pacifying him. Finding that I could not succeed with him, I tried another boy, about the same age; it brought on a most distressing cough, which continued so long as he breathed the vapour; after a time it produced precisely the same effects as the nitrous oxide: he laughed most heartily, and looked quite idiotic. Of course it was impossible to operate upon either of them. After waiting half an hour I again tried them, but with the same results. I afterwards operated upon a man for cataract; also upon a girl, aged ten years, for strabismus; and extracted a tooth from a young man, with perfect success, after having subjected them to the effects of the vapour. They had no knowledge whatever of the operations, and suffered no inconvenience from the ether. One young man whose tooth I extracted stated that he was dreaming all the time "that it could not be true, that teeth could be extracted without pain." I have seen sufficient of the effects of the vapour of ether to convince me that it is a most powerful agent, and cannot be used with impunity indiscriminately in all cases. The utmost caution is necessary in its use; unless due caution be observed in the kind of instrument used, and the mode of administering it, I am afraid before long we shall hear of some casualty occurring which will effectually stop all further use of a most valuable means of deadening the sensibility of the nerves. The instrument I use is "Robinson's Inhaler," manufactured by Mr. Hooper, operative chemist, Pall Mall. The instrument is a most perfect and complete one for the purpose, and reflects great credit upon the inventive genius of Mr. Robinson, and also upon the skill displayed by Mr. Hooper in its manufacture.

I am, Sir, your obedient servant,

Spalding, Jan. 21.

EDWIN MORRIS, M.D. and M.R.C.S.

BANFF.

We have very great pleasure in recording the following interesting case, as we believe Banff is the first provincial town in Scotland where the success of the vapour of ether has been fully tested. Yesterday afternoon a very painful operation (amputation of the toe) was performed by our talented townsman, Dr. Henry Milne, in presence of Dr. Emslie, Major Reid, Mr. Rae, &c. Being disappointed in not receiving an apparatus, our intelligent townsman, Mr. Rae, invented and constructed a very ingenious one by which he administered the vapour. The patient inhaled it for about three minutes, when insensibility began to shew itself, at which stage "all right" was communicated to Dr. Milne, and

in less than a minute the toe was severed from the foot and lay upon the floor. The patient on recovering, which was within two minutes after the operation, declared she did not know the operation had been performed, and was not conscious of the least pain. We understand that a more tedious and painful operation is to be performed to-day by Dr. Milne, accompanied by Mr. Rae and his apparatus, and we sincerely hope with the like success.—*Scotch Paper*.

HOSPITAL SAINT LOUIS.

By DR. MALGAIGNE.

1. The first case was that of a man, aged thirty-five, affected with a phlegmonous abscess of the right leg. The apparatus employed for the inspiration of ether consisted of a glass bottle, presenting on its side a long tube; small pieces of sponge, impregnated with sulphuric ether, were placed in the bottle, and the patient was desired to inspire through the tube, and to expire through his nose. After two or three minutes, the patient said that his sight was growing dim, and the incision of the abscess was performed: the countenance was red, the eyes closed, and the muscles of the face and superior extremities in a state of violent contraction. This state lasted only two or three minutes, when a glass of wine was handed to the patient, who swallowed it with precipitation. Consciousness instantly returned; no pain had been experienced beyond that which might be produced by a slight scratch.

2. In a man of forty-five, amputation of the index of the right hand had become necessary in consequence of necrosis. Inhalation of ether was continued during four minutes, when the patient declared he felt a sort of intoxication: the finger was then removed, the pain being compared to a puncture. The pulse rose to 88 during the inhalation of ether, and to 92 after the operation; immediately after which, sensation returned, and the wound became the seat of pain.

3. A girl, aged eighteen, presented on the right hand an abscess which required incision. After four minutes' inspiration, consciousness ceased, and the operation was performed without producing pain. The insensibility of the part persisted for several minutes after the patient had recovered in other respects the effects of the ether.

In all three cases the breath preserved for some time the characteristic odour of the substance employed to paralyse sensation.

Jan. 22. A patient affected with a cancerous tumour of the thigh was submitted by Professor Velpeau to the inhalation of ether previously to operation. In four minutes sleep was induced, and the growth removed *without pain*. The patient had already been twice operated upon.

M. Marshall and Dr. Brewster, dentists, in Paris, have both used, with full success, the inhalation of ether, for the purpose of extracting teeth without pain. M. Marshall observed, in many instances, a remarkable increase of action of the kidneys, which continued for some time after the operations.—*Medical Times*.

CHELTHENHAM GENERAL HOSPITAL.

By W. PHILPOT BROOKES, M.D., M.R.C.S., Surgeon to the Cheltenham General Hospital, &c.

Having occasion to perform the operation of extirpation of the left breast for a scirrhous tumour, but in which the glands of the axilla had not become diseased, I gladly availed myself of this the first opportunity I have had of trying the effect of the inhalation of ether; and its being the first time it has been used in this town for any capital surgical operation, (although Mr. Tibbs, the dentist, had succeeded with it for the extraction of stumps of teeth,) I invited the following members of the profession to be present:—Dr. Smith, Mr. Eves, one of the surgeons to the hospital here, Mr. Dalton, Mr. Orrell, Mr. Fagan, Mr. Tibbs, surgeon-dentist, and Mr. Sugors, and Mr. Peart.

The great importance of this invention as regards operative surgery, renders it necessary that surgeons should make known all the cases that come under their observation, and on that account I have given the full notes of this one.

The inhalation of the sulphuric ether was kindly managed for me by Dr. T. Smith, one of the physicians to the Hospital and Dispensary here, who administered it with a simple gum-elastic tube, with an ivory mouth-pipe attached to a damp bladder, placing in it about two ounces of ether, and putting the bladder in warm water; the ether used was Howard's sulphuric, which had been washed and redistilled by Mr. Smith, chemist, of this town. At first, we had some trouble to persuade the patient to inhale properly; but after a short time, and becoming herself anxious to have the operation performed, she did so vigorously, and the ethereal effect was produced in about four minutes from that time; she fell back in bed, the arms dropped to her side, the pupils very much dilated, eyes turned up to the orbit, and sensibility apparently gone. I commenced my operation, which was performed by two elliptical incisions of about four inches in length, extending fully round the nipple to the border of the axilla, dissecting out the disease, one small artery having to be tied; the operation occupied about two minutes. After the lapse of nearly six minutes, the poor creature recovered her consciousness, and when asked if she had felt any pain, said, "None whatever; you have not done the operation; you are only deceiving me:" and we had some difficulty to persuade her to the contrary; in fact, she would not credit it until I gave her the breast to look at. Since the operation, she has been questioned by several parties how she felt, and her answer is, "It was a pleasant sensation—no pain of any kind; and she could not now even believe it possible the disease was cut out with a knife."

The patient had not any bad symptoms from the ether, either during its inhalation or afterwards; the pulse rose from 80 to 125. She complained shortly after of a little pain in the region of the heart, but this left her in a short time. One wineglassful of brandy and water was given her after the effect of the ether had left; and at night the pulse was soft, 100; patient very tranquil; skin moist; complains of some difficulty in voiding the urine. A sedative draught was given her.

All the gentlemen present, whose names I have deemed it advisable to give, felt perfectly satisfied that the operation was performed without the slightest sensation of pain or uneasiness of any kind, and expressed themselves highly satisfied with the result.

On reviewing the cases of operations already performed under the influence of ether, we cannot regard the invention in any other light than as one of the greatest boons ever offered to operative surgery, in alleviating the great distress of body and mind which patients always suffer when informed they must undergo a surgical operation; and it must now become the duty of every surgeon to watch well the progress of this painless remedy, and judge for himself whether or not it is not capable of being brought into very general use. I am only sorry the talented inventor should have clogged it with a patent, which I trust will never be allowed to stand: he deserves a far higher reward than that of turning it into a mere mercantile productive.

I cannot close this article without publicly thanking Dr. Smith for the trouble he has taken in trying the effect of ether on healthy subjects, preparatory to giving it this patient, and the judicious manner in which he administered it for me.—*Lancet*.

CHARTER-HOUSE SQUARE INFIRMARY.

The operation for fistula, in a case of singular severity, was yesterday morning performed at the infirmary, by Mr. Frederick Salmon. The apparatus of Mr. Hooper was employed on the occasion, and that gentleman superintended its application. The patient, a remarkable athletic and powerful man, was brought under the influence of the vapour in a minute or two; and the operation occupied about one minute. On recovering his senses, the man, from his answers to several questions put to him, appeared quite unconscious of what had taken place, and expressed his willingness to allow the operation to be proceeded with; and there was some difficulty in convincing him that it had been already performed. He said that he

was not aware it had been attempted, though he thought he saw and heard all that was passing in the room. He had no idea of his having been in a state of insensibility, and the immediate effect of the ether having gone off, he appeared to be much elated.—*Standard*.

ROYAL FREE HOSPITAL.

Thomas Wakley, Esq., son of the M.P., surgeon to the Royal Free Hospital, Grays-inn-road, operated upon a young man, 25 years of age, named John Thompson, while under the influence of ether. The vapour having been about two minutes inhaled by the patient, the limb was removed with extraordinary rapidity by Mr. Wakley, and when the patient was asked whether he experienced any pain during the operation, he replied, "Not in the least. I have been I dont know where. All I know is, I felt nothing."—*Standard*.

KING'S COLLEGE HOSPITAL.

REMOVAL OF THE ENTIRE SCAPULA.

This bold operation was performed by Mr. Fergusson, for the first time in England, on the 6th instant. Although, as Mr. Fergusson remarked, a posterior, or even the entire scapula, has been occasionally removed after severe gun-shot wounds, by which that bone was fractured, both on the continent and elsewhere, this was the first operation undertaken for the extirpation of the entire bone in consequence of disease.

The subject of this operation was a man of about twenty-five years of age, who some three years since had submitted to amputation at the shoulder-joint for disease of the head of the humerus. The glenoid cavity was found to be diseased, and some adjacent portions of the scapula were removed, in the belief that the whole of the diseased bone had been extirpated.

Whether this was the case could not now be ascertained. The amputation was skillfully performed; the flaps were well made, and an excellent stump was formed. Caries of the scapula, either from extension of disease from some necrosed portion of bone allowed to remain after the former operation, or subsequent diseased action occurred; abscesses resulted, and several sinuses discharging pus were now seen leading down to the diseased bone. The profuse discharge from these sinuses caused so much debility and annoyance to the patient, that he expressed his desire to undergo any operation, however severe or dangerous it might be, to rid himself of the disease. Mr. Fergusson, on first seeing the case, thought that the extirpation of some portion of the scapula would suffice; but a more careful examination of the state of the parts, and further consideration, induced him to prefer a total, to the partial extirpation he had at first contemplated.

The new method of rendering the patient insensible to the pain of so severe an operation was adopted in the present instance. The inhalation of ether was first attempted with the apparatus invented by Mr. Robinson; but as no effect was produced after a trial of five or six minutes, another instrument was employed. The failure of this apparatus appeared to depend not on the inefficiency of the apparatus, but rather on the mode in which it was employed. Numerous inspirations of air uncharged with the ethereal vapour occurred, which it is well known would suffice for the destruction of its ordinary stupefactive effect.

Mr. Startin's ingenious apparatus was now called into requisition; but even then some minutes elapsed before the patient was thoroughly under the influence of ether. Mr. Startin himself superintended the inhalation, and gave the signal for commencing the operation.

Mr. Fergusson commenced the operation by an incision extending from the middle third of the clavicle, along that bone, and around the spine of the scapula. A second incision was then made, nearly at right angles to the first, to the extremity of the stump. The flaps were next turned back; the clavicle cut across near its middle; and the entire scapula together with the external half of the clavicle dissected out. Considerable thickening and condensation of the soft parts around the bone, rendered it much less moveable than in the healthy condition of the parts, which rendered its removal more difficult. The entire operation however did not occupy more than five or six minutes. The axillary artery was necessarily divided in the course of the operation; but little hæmorrhage occurred from it. The coagulum did not extend so far up the artery as might have been expected, and the vessel was much smaller than usual. Eight or nine smaller arterial branches required to be secured, but these were in the same contracted state as the axillary artery, so that very little blood—scarcely six ounces—was lost. The flaps were brought together and retained in apposition by five or six ligatures; after which the whole was covered with wet lint and a roller.

Was the ether effectual in rendering the patient unconscious? On the whole it may be said to have effected its purpose. But the insensibility was not so profound as in many cases we have seen. During the course of the operation the patient writhed and groaned several times, and the countenance was expressive of suffering; but it may be safely asserted that if the etherification did not absolutely destroy the consciousness, it produced a vast diminution of pain. It must be remembered that very extensive incisions were required, that large nerves were necessarily divided; both which circumstances are productive of intense agony under ordinary circumstances. The man certainly did not give signs of greater suffering than is often shewn under very trivial operations. On visiting the patient in the ward some time after the operation, he did not exhibit such signs of collapse as might have been expected after so severe an operation, and his pulse remained good. On questioning him as to the amount of pain he had endured, he stated that he was conscious of a sensation of "dragging," about his shoulder, during the whole course of the operation; but that he could not call it pain. As he had complained of the introduction of the ligatures at the conclusion of the operation, he was asked whether he remembered that circumstance, and whether the pain felt during the earlier stages of the operation equalled that produced by the insertion of the ligatures. He answered that it was a totally different sensation, repeating his statement of the "dragging" during the operation.

It may therefore be safely asserted that if the etherification was not so absolutely and perfectly successful in this case as in some, it at least exercised a most beneficial effect, so far as the sensations of the patient were concerned. It has been repeatedly remarked that persons who have at all indulged in spirituous potations are brought under the full influence of ether with great difficulty. Judging from the usual habits of soldiers it may be rationally inferred that the difficulty which occurred in bringing this man under its influence, arose from the above-mentioned cause.—*Medical Times.*

VETERINARY OPERATIONS.

"Maidstone, 14th Jan., 1847.

"Dear Sir,—From the extraordinary reports of the effects of sulphuric ether on the human subject, I was induced to try it on animals. I selected a fine bitch, on Wednesday last, 13th, for the operation of spaying, which from the defective apparatus used was only partially successful: to-day, Friday, 15th, having prepared a more complete apparatus, I performed two operations for spaying with complete success, the animals being perfectly letheonised and insensible to the knife, requiring no assistance in holding their legs. The apparatus used was similar to a common glue pot containing hot water; in the inner receptacle was placed a sponge saturated with ether, and to the edge of which was tied the leg of a stocking, the other end being drawn over the head of the animal. The time required in producing insensibility was from six to eight minutes. In the usual mode of operating, the struggles and cries have always been so distressing as often to make me dread it; with the ether it comparatively becomes a pleasure, there is crying even now, but of a different character. My brother, Dr. Plomley, Mr. Woolcot, surgeon-oculist, Mr. Slaughter and others were present, and expressed themselves astonished at the result.

"Do what you please with this communication. Have you yet made any trials? if so, please give me your opinion.

"Yours very truly.

"N. PLOMLEY.

"To Professor Spooner,
"Royal Veterinary College, London."

OPERATION EXTRAORDINARY.

Mr. Lucas, a veterinary surgeon of Liverpool, has removed a large tumor from a Newfoundland dog, while the animal was under the influence of ether vapour. The head of the dog was introduced into a jar containing sulphuric ether, and the operation was performed without any sign of pain.—*Times*.

ETHER APPLIED TO VETERINARY SCIENCE.

The vapour of sulphuric ether has, we hear, been employed at the Royal Veterinary College, Camden-town, on a sheep and a horse, with the most decided success. The first-named animal was affected, and had been for many months, with an incurable disease of the hock-joint. The pain was so severe that the poor sheep was quite unable to put her foot to the ground without experiencing much suffering. On being brought into the theatre she was caused to inhale the vapour of ether through a tube, and in about five minutes after it was evident that she was under its influence. The leg was then amputated by Mr. Simonds at the thigh without the slightest indication of any pain whatever. The operation occupied about six minutes, and within twenty minutes from the commencement the animal was removed from the theatre restored to sensation and consciousness. The horse was labouring under a chronic affection of the near fore foot, commonly known by the name of the "naricular disease," for which the operation of "unnerving" is generally resorted to as a remedy. This is necessarily a very painful operation, and oftentimes the operator has to contend against the violent struggles of the animal, particularly at the instant when the division of the nerve is effected. In this case the ether vapour was inhaled for about thirteen minutes, when the horse fell forwards, and the nerve on each side of the leg was divided by Mr. Spooner without the least manifestation of

pain ; a slight convulsive action of the limb, similar to that which takes place when a nerve of a recently killed animal is cut through, alone giving indication of any sensation. Within twenty-three minutes this animal also had perfectly recovered from the effect of the ether. No restraint whatever was resorted to to keep the animals in the required position for these operations, and the inhaler employed was not one invented for the purpose, but an apparatus temporarily adjusted by Mr. Morton until a more perfect one was obtained.—*Times*.

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