

and demonstrations associated with the Annual Meeting last October made it clear that the Association is in a very healthy state, and a special tribute must be paid to Dr. Marston for the enthusiasm and wisdom which he has displayed as Honorary Secretary and as President.

With the inauguration of its own journal, *Anaesthesia*, now added to the amenities of the Association under the experienced editorship of Dr. Langton Hewer, anæsthetists may have confidence that they possess the means of discussion and representation, a diploma to ensure a sound standard of work, and a home which will enable the specialty to progress alongside the other departments of medicine on the best lines in the new circumstances which the advent of the National Health Services will reveal.

CENTENARY OF ANÆSTHESIA IN GREAT BRITAIN

By A. D. MARSTON, M.R.C.S., D.A.

PRESIDENT, ASSOCIATION OF ANÆSTHETISTS OF GREAT BRITAIN AND IRELAND.

THE observance of anniversaries is an ancient and honoured tradition in our custom-loving land, and it is probable that the centenary of anæsthesia will be associated with much gratitude and genuine thanksgiving. In gratitude we shall honour the memory of pioneers who made freedom from operative pain the common heritage of mankind.

In these days of increasing co-operation and understanding with our American cousins it is pleasing to know that most of the original scientific research, and certainly its successful application to clinical medicine, was carried out by citizens of the English speaking race on both sides of the Atlantic.

We must give honour where honour is due, and here it is well to remember that the whole credit for the introduction of anæsthesia cannot fairly be given to any one man, for historical investigation shows that this epoch-making discovery was due to the uncoordinated efforts of a number of workers.

Much time has been wasted and recrimination caused by attempts to assess the precise credit due to individuals for priority in this great work—a task which even baffled such an august and astute legislative body as the Congress of the United States of America—and in this centenary year we feel that it is sufficient to remember these pioneers in common gratitude for their successful efforts.

There was certainly no element of priority in the first administration of ether in this country in those late December days of 1846, as Crawford Long had been successfully using this drug since March 30th, 1842, in his practice in Jefferson in the State of Georgia, U.S.A.

But Crawford Long had not given any public demonstrations of his discovery, neither did he describe his technique in the current medical literature of his day, and so this valuable work aroused only local interest and some opposition.

The next record of successful anæsthesia was the administration of nitrous oxide gas for the extraction of a tooth. This event occurred on December 11th, 1844, in the town of Hartford, Connecticut, U.S.A.

As is so well known, the tragic figure of Dr. Horace Wells was intimately associated with this event, in fact he was the patient.

Wells was so pleased with this successful experience and so confident in the future of his technique that he subsequently attempted to give a clinical demonstration in Massachusetts ; this was, however, a complete failure and once again little public interest was aroused.

But on October 16th, 1846, at the third time of asking, the boon of anæsthesia was successfully demonstrated by William T. G. Morton in the operating theatre of the Massachusetts General Hospital, U.S.A.

Morton used ether in an inhaler specially constructed for the occasion and the procedure was sufficiently successful to arouse general public interest.

At the completion of the operation Dr. Warren, the surgeon, remarked to the spectators " Gentlemen, this is no humbug ! "

Although Morton's inhaler was original, the ether it contained was a drug of some antiquity, for it was mentioned by Raymond Lully in the thirteenth century and was certainly described in 1540 by Valerius Cordus who named it " Oleum vitrioli dulce." ¹

Morton was a dental surgeon of Boston and deserves great praise for his painstaking experiments with Ether and their practical application to clinical medicine, but it must also be remarked that one of his old teachers, Dr. Charles T. Jackson of Boston, claimed the original suggestion of its use.

In the opinion of several historians it is considered that Jackson probably did give Morton some advice on the properties of ether but did not originate the idea of using it for anæsthesia. ²

News of the Massachusetts demonstration soon spread over the world, and it is satisfactory to relate that the first administration of Anæsthesia in Europe took place in London some nine weeks later.

This happy sequence of events occurred because of the friendship between Dr. Bigelow of Boston and Dr. Boot of London which occasioned the sending of a letter containing details of Morton's administration of ether. Thereupon, on Saturday, December 19th, 1846, Mr. Robinson, a dental surgeon, administered Ether and extracted teeth from a patient at the house of Dr. Boot in Gower Street, close to University College Hospital, in which institution on the following Monday, December 21st, Mr. Liston amputated a leg, the ether being administered by Mr. Squire who used an inhaler specially devised for the occasion ³.

This event was hailed with great satisfaction in London, for the anæsthesia was completely successful, and the use of ether speedily spread to hospitals throughout this country and the continent of Europe.

The Association of Anæsthetists of Great Britain and Ireland are erecting a memorial tablet within the precincts of the Royal College of Surgeons of England to commemorate the passage of a century since the events here briefly recorded were enacted.

The plaque, which is to be unveiled by H.R.H. The Princess Royal, also "keeps the memory of four British pioneers whose names will be held in honour from generation to generation."

One of these, Henry Hill Hickman, lived before the actual introduction of anæsthesia, and the other three, James Young Simpson, John Snow, and Joseph Thomas Clover, commenced their work about a hundred years ago and did much to place the art and science of our specialty upon a firm foundation.

Dissimilar in many ways, these four men had one thing in common, they were all British medical practitioners and had the benefit of a systematic scientific training in medicine, an advantage shared by few of the earliest workers in anæsthesia.

Henry Hill Hickman enjoyed but a brief sojourn on this terrestrial sphere ; he was born in 1800 and died in 1830.

It is stated⁴ that even as a schoolboy Hickman was appalled by the tragedy of unrelieved pain, and for this reason decided to become a medical man.

As a student at Edinburgh, he witnessed the distress of patients in the operating theatre and resolved to do his utmost to devise some means of abolishing operative pain. In 1820 he became a member of the Royal College of Surgeons of England, and started work as a general medical practitioner in the Shropshire town of Ludlow.

In the next few years he devoted as much time as he could spare to original research, and this mainly consisted of experiments on animals who were rendered free from operative pain by the inhalation of certain gases.

It is known that carbonic acid gas was chiefly used, but the possible administration of nitrous oxide has also been suggested by some historians.⁵

In 1824 he read a paper before the London Medical Society in which he described experiments on animals and suggested a possible extension of this work to human subjects. His views however were received with apathy and some disfavour.

Hickman was sorely distressed by this apparent lack of interest, and in April, 1828, he wrote a petition to King Charles X of France seeking permission to put his views before the Royal Academy of Medicine of France.

A meeting of the Academy was held in Paris on December 28th, 1828, and the matter thoroughly discussed, but again Hickman met with disappointment, for the opinion of the French physicians was the same as their English contemporaries, and they resolved to take no action in this matter.

Hickman died on April 5th, 1830, at the age of 29 years, and to

the end of his life was convinced that means would eventually be found to relieve human suffering.⁶

The famous English poet, Robert Browning, has written in "By the Fireside," "Oh, the little more and how much it is! and the little less and what worlds away!" and these sentiments seem applicable to the noble work of Hickman who so clearly indicated a path for posterity to follow.

The second name on the centenary tablet is that of James Young Simpson, the celebrated Scottish physician who had attained the age of 35 years, and considerable academic distinction at the time of the first ether administration in this country.

As a Professor of Medicine at Edinburgh University and a leading exponent of obstetric practice, Simpson had constantly sought means of alleviating the pangs of childbirth. Hearing the news of ether administrations, he at once proceeded to London in order to observe the work of Liston at University College Hospital. Favourably impressed, he returned to Edinburgh and on January 19th, 1847, exactly a month after Robinson's administration in Gower Street, he administered Ether to a woman in labour and, according to John Snow, "ascertained that it was capable of removing the sufferings of the patient without interfering with the process of parturition."⁷

But in Simpson's opinion ether was by no means ideal for this purpose, as its use was sometimes associated with excitement and nausea, and so he proceeded to seek an alternative inhalation anæsthetic agent.

At the suggestion of Waldie, a pharmaceutical chemist of Liverpool, he proceeded to experiment with chloroform and was aided in his endeavour by his assistants, James Matthews Duncan and George Keith.⁸

Simpson was a man of strong character and great enterprise. Moreover, he was full of enthusiasm in his quest, and yet his actual decision to employ chloroform came of a strange happening.

It seems that on the evening of November 4th, 1847, he invited his assistants to his house for dinner, and at the conclusion of the meal produced a bottle of chloroform and proceeded to pour a little into several tumblers.

The company then proceeded to inhale the vapour. Simpson lost consciousness and fell to the floor, and on recovery he found Matthews Duncan still unconscious and breathing stertorously beneath a chair.⁹ This event convinced Simpson of the efficiency of chloroform, and he proceeded to use it with success in obstetric practice.

He administered chloroform frequently in the next few days, and within a week gave an account of his experience to the Medico-Chirurgical Society of Edinburgh, and according to Snow, published a pamphlet on November 15th, 1847, which "had a wide circulation and created great interest."¹⁰

Great though this pioneer work was, perhaps Simpson's greatest contribution to anæsthesia was his resolute conversion of public opinion from one of opposition to cordial recognition of this boon and blessing to mankind.

In this endeavour he was assisted by the august patronage of Queen Victoria, who made him a physician to her household establishment in Scotland.

Simpson died on May 6th, 1870, and a memorial statue was erected to his memory in the St. Andrew's Chapel of Westminster Abbey.

John Snow was a Yorkshire man, the eldest son of a farmer, and was born at York on June 15th, 1813.

Leaving school at the early age of fourteen years, he journeyed to Newcastle-on-Tyne and became apprenticed to Mr. William Hardcastle, a surgeon who practised in that town. After working diligently for three years, we read in Richardson's memoir that he became assistant to Mr. Watson at Burnop Field, and later moved to the Yorkshire village of Pately Bridge to assist Mr. Warburton.¹¹

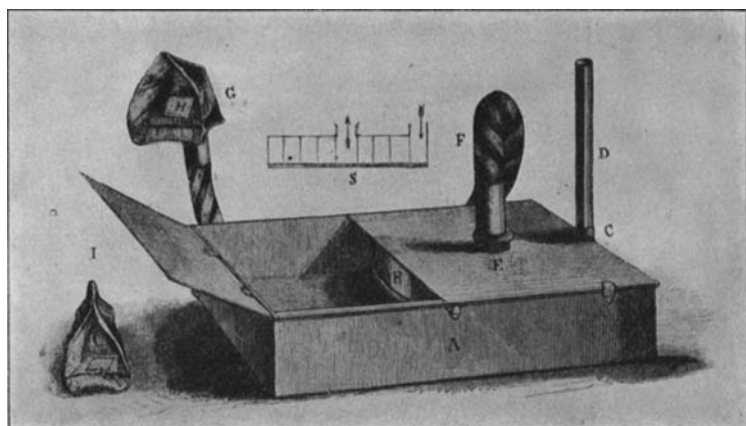


FIG. 1.—Snow's Ether Inhaler, 1847.

A. Box of japanned tin "the size and form of a thick octavo volume." It served as a water bath. B. Ether chamber. C. Opening for filling and emptying. D. Tube for the ingress of air. The weight of air in the tube was intended to prevent evaporation into the room. E. To the opening E was screwed. F. A flexible tube about 3 ft. long. G. Facepiece. H. Inspiratory valve. I. Facepiece compressed to fit a smaller face. S. Section of ether chamber.

(From the Nuffield Department of Anæsthetics, Radcliffe Infirmary, Oxford.)

At the age of 23 years he proceeded to London and became a student in the now extinct Hunterian School of Medicine near Piccadilly Circus, and subsequently carried out his hospital course at the Westminster Hospital. John Snow was admitted a Member of the Royal College of Surgeons of England on May 2nd, 1838, at the age of 25 years and after eleven years study. This was a considerable

period of preparation which undoubtedly had a beneficial effect, for few men have developed a keener sense of clinical perception and discrimination than that possessed by John Snow.

In October, 1838, he passed the examination for admission to the Apothecaries' Company and subsequently graduated as an M.B. of London University on November 23rd, 1843, and as M.D. in the following year.

In 1846, John Snow lived and practised medicine at 54 Frith Street, Soho, and reading in *The Lancet* Bigelow's account of the Massachusetts demonstration he commenced to study the possibilities of anæsthesia at the age of 33 years.

Five years previously Snow had read a valuable paper before the Westminster Medical Society entitled "Asphyxia and on Resuscitation of New-Born Children," and so the enthusiasm and diligence with which he pursued this new interest can readily be understood.

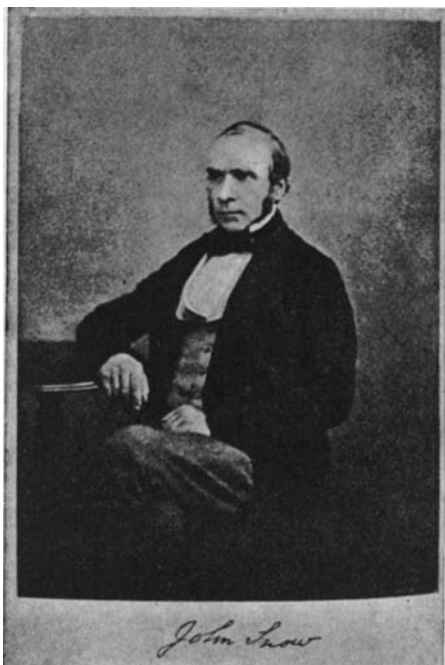


FIG. 2.—Autotype from a presentation portrait, 1856, and autograph facsimile.
(From the Nuffield Department of Anæsthetics, Radcliffe Infirmary, Oxford.)

After witnessing several administrations of ether, Snow decided that an improved form of inhaler was very necessary, and he proceeded to perfect an apparatus which he hoped would secure better results. He obtained permission to use this in the Dental Out-Patient Department of St. George's Hospital and it proved so successful that he was soon asked to attend on the in-patient operating

days. Later he was appointed to administer anæsthetics at University College Hospital for Mr. Liston, one of the busiest and most brilliant surgeons of his day.

Before very long, Dr. Snow became the first anæsthetic specialist in London and spent all his time performing hospital duty, engaging in research, writing papers and a book, and carrying out an extensive private practice.

John Snow only practised as an anæsthetist for twelve years, and yet few men have ever accomplished so much in so short a time.

This is particularly remarkable as his health, never robust, steadily declined during this period and a tiring body was only spurred on to fresh effort by remorseless zeal.

And so it was in the writing of his historic book, entitled "On Chloroform and other Anæsthetics, their Action and Administration," for John Snow was attacked by a fatal seizure as he was writing the last sentence on the morning of June 10th and died on June 16th, 1858, in his 45th year.

A perusal of this clearly written book will show the extent and completeness of this man's original work in placing the physiology and pharmacology of inhalation anæsthesia on a scientific basis.

During the last ten years of busy private practice, Snow administered about 450 anæsthetics a year, and he had the great honour of giving chloroform "à la reine" to Queen Victoria in the last two of her several confinements.

John Snow was interred in Brompton Cemetery, and in 1936, largely due to the kindly interest of Professor Macintosh, the Fellows and Members of the Anæsthetic Section of the Royal Society of Medicine of London had the privilege of restoring the tomb of this great pioneer of British anæsthesia.

The Association of Anæsthetists of Great Britain and Ireland in this centenary year have instituted an award for those rendering signal service to our specialty and it is to be known as the "John Snow Medal."

The last, but by no means the least of the names on our memorial tablet, is that of Joseph Thomas Clover, and this gentle and studious man was born at Aylsham in Norfolk in 1825.

As a senior student Clover witnessed the first administrations of ether at University College Hospital and was much interested in this innovation; later he became Resident Medical Officer of this hospital for five years and administered many anæsthetics.

Clover showed considerable academic distinction as a student and became a Fellow of the Royal College of Surgeons of England in 1853, but his health was somewhat frail and the busy life of a surgeon in those days was an occupation needing a strong and vigorous body, and so, to the lasting benefit of humanity, he decided to devote his life to the study and practice of anæsthetics.

At this time the almost complete eclipse of ether by chloroform in this country showed signs of waning, and Clover did much valuable

work in restoring ether to its role as the principal routine anæsthetic agent.

This he accomplished in two ways. In 1864 he was appointed an advisory member of the Committee of the Royal Medical and Chirurgical Society of London, and it was largely due to his diligent research and influence that a report was issued declaring ether to be safer than Chloroform.¹²

Secondly, he spent years in perfecting his world famous ether inhaler and devising a method of using it after securing a pleasant and speedy induction of anæsthesia with nitrous oxide. Clover described his completed apparatus in 1877, and it was used extensively in this country up to the time of the first world war in 1914.

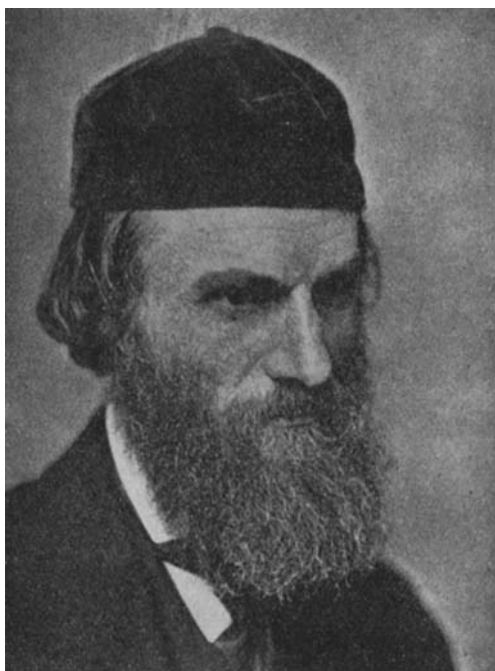


Fig. 3.—Joseph Thomas Clover (1825-1882). (From a photographic portrait in the Nuffield Department of Anæsthetics, Radcliffe Infirmary, Oxford.)

It is of interest to relate that in July of this year a paper on the use of "Trilene" in general practice was published in the *British Medical Journal* and this apparatus was described as useful and efficient for this purpose.¹³

Joseph Thomas Clover died in 1882, and he will always be remembered for his great work in providing better and safer anæsthesia.

Arma virumque cano.

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**CURARISATION COMPARED WITH OTHER METHODS
OF SECURING RELAXATION IN ANÆSTHESIA.**

BY F. BARNETT MALLINSON, M.R.C.S., D.A.

THE aphorism recently quoted again¹ that relaxation in abdominal surgery is "the cause of more profanity by the surgeons and sweat and tears by the anæsthetist than any other occurrence in the operating room" certainly holds true of any anæsthetist who concerns himself conscientiously with the patient's safety and comfort *post-operatively*. A sufficient overdose of any fully potent anæsthetic will of course always solve the problem of relaxation—and often transfers the sweat and tears to the unfortunate patient, and his relatives. Guedel² has stated that 15 minutes of 3rd plane anæsthesia will cause as much damage as 2 hours in the 1st plane. This has always been my experience. Even with nupercaine and the greatly improved spinal techniques of today, and the establishment of sound techniques with cyclopropane; the position is far from satisfactory. The profound depth of anæsthesia needed with cyclopropane carries its own dangers, such as the severe vaso-motor depression which occasionally occurs *post-operatively*^{3,4,5,6} as well as the familiar disadvantages of any prolonged deep general anæsthesia such as greatly enhanced surgical shock. The relaxation obtainable with a spinal analgesia is admittedly difficult to surpass, but it has its own special danger—intrathecal infection. This danger has, with the great increase of spinal analgesia in recent years, been steadily coming to the fore. Frankis Evans in a recent paper⁷ described an exceedingly conscientious aseptic technique for spinal administration which eloquently emphasizes the possibilities. Several series of cases of meningitis following spinal blocks have been recently reported—and a number more have not (*vide* reference 7 and the discussion which followed). Barrie⁸ reported 11 cases in 1941; Kremer⁹ 7 cases in 1945. Personally I have been fortunate in this matter, but I am always haunted by the thought that, despite a gloved technique and scrupulous sterilisation, one day it will be my turn.