THE HISTORY OF ANAESTHESIA SOCIETY

Volume 11
Proceedings of the Meeting of 7th November 1992
CAMBRIDGE
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PROCEEDINGS OF THE HISTORY OF ANAESTHESIA SOCIETY

Volume 11

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Victorian England

This was a time of development of many things familiar today. For example, between 1830 and 1850 the main railway system of Great Britain was built. Cambridge did not welcome this new invention, and kept it distant from the colleges, building the station on the outskirts of the town. Following its patent in 1837, the electric telegraph had been initially used by the railways, and then by the private telegraph companies. The Norwich newspapers of early 1847 contained items of national news credited to this new invention. In 1840, Rowland Hill started the penny post, which replaced the previous system of payment by the recipient on a scale of charges related to weight and distance.

The development of good communication across the Atlantic was essential for the spread of news about anaesthesia. On 8th November 1838, an advertisement appeared in the London Times: 'Steam vessels required for conveying Her Majesty's mails and dispatches between England and Halifax, Nova Scotia, and also between England, Halifax and New York. Tenders are to be submitted to the Admiralty before December 15th'. This news did not reach Samuel Cunard until after the deadline. However, he set sail for Falmouth, arriving in February 1839.

The tender he submitted was for a fortnightly service between Liverpool and Halifax using wooden paddle steamers. For this, Cunard sought a government subsidy of £55,000 annually, payable quarterly in advance for a period of ten years. The contract he eventually signed was even better with an annual payment of £60,000 over seven years. The first sailing was by the Britannia on 4th July 1840. The Acadia's maiden voyage was one month later on 4th August 1840.2

In 1842, Peel reintroduced Income Tax, at 7 pence in the pound (it had been abolished in 1816 by Liverpool), as a temporary measure to last only three years. Unfortunately, it was renewed in 1845 and has remained ever since, at rates greater than 7 pence!

America in the 1840s

It is surprising that Morton's great humanitarian advance of anaesthesia came from a country that continued to have slavery until the American Civil War, two decades later, brought these practices to an end. England had abolished slavery in 1807. A World Anti-slavery Convention was held in London, England in June of 1840, where the American abolitionist, Wendell Phillips, made the opening motion. There was further controversy at this meeting, because of the presence of women delegates, the movement having not been emancipated!

In 1839, Samuel Morse transmitted the first telegraph message: 'What hath God wrought' from Washington DC to Baltimore, 40 miles away. By 1846, London was linked to Norwich by the electric telegraph.
The Acadia was to carry other news from America in December 1846. The success of General Zachary Taylor in taking Saltillo on 16th November 1846, against a large Mexican force, without a shot being fired, was to be widely reported in the provincial newspapers of East Anglia by 19th December.

Modern anaesthesia

Though Crawford Long gave ether anaesthetics in Jefferson, Georgia USA in 1842, it was from Morton's demonstration at the Massachusetts General Hospital on 16th October 1846 that the news of anaesthesia spread. Morton administered the ether while Professor John Collins Warren operated.

In London, the first use of ether anaesthesia was in the house of Francis Boot, by James Robinson, a London dentist, on 19th December 1846 for removal of a molar tooth. This was also the first successful ether anaesthetic outside America, though there is some evidence to suggest that ether was used at the Royal Infirmary, Dumfries on the same day. Two days later, at University College Hospital, Frederick Churchill underwent an amputation of his leg under ether anaesthesia. The anaesthetist was William Squire and the surgeon, Robert Liston.

Cambridge, 2nd January 1847

The spread of the news of ether anaesthesia from America to the United Kingdom via the Cunard ships Caledonia, Britannia and Acadia has been well documented by Dr Ellis. The arrival of Acadia on 16th December was reported in the Lynn Advertiser and the Suffolk Chronicle of 19th December 1846, though neither article mentioned anaesthesia. By 2nd January 1847, the Lynn Advertiser contained reports of Liston's operation in London.

I do not yet know how the news first reached East Anglia, though Francis Boot published the letter he had received from Edward Everett in the Lancet on 2nd January 1847. On this same day, the first anaesthetic that I can find in East Anglia was given, the details of which appeared in the Cambridge Chronicle of 9th January 1847. On 2nd January, at Addenbrookes Hospital, a patient had surgery for the amputation of a finger 'under the aetherial influence'. The anaesthetist was Mr William Swann Daniel, house pupil to Addenbrookes Hospital. The paper also credits Daniel with the invention of the apparatus for inhaling ether.

Great Yarmouth

Though the Norwich papers did not contain evidence of the first anaesthetic occurring in Norwich until 14th January 1847, the Norfolk Chronicle of 23rd January contains a short paragraph describing an operation at Great Yarmouth. The surgeons, Messrs Smith and Vares, had received an elegant apparatus for administering ether and had successfully employed it to remove a tooth from a seventeen year old on 12th January. This was one of the six articles that described the use of apparatus for these early anaesthetics.
Four demonstrations of ether anaesthesia were made in Norwich between 14th and 23rd January 1847. The Norfolk News of 16th January gives a brief report of how Mr Crosse, the surgeon, experimented on two of his pupils, Mr Spencer Cobbold and Mr Proctor Wright, to remove teeth. In the first case (that of Mr Cobbold) the 'success was imperfect'. In a letter to the Norfolk Chronicle from R. Hull MD more details are given. Crosse's pupil, Mr Cobbold, required the removal of a carious tooth and desired to be 'influenced by the aetherial fumes'. It appears that ten minutes were taken before the subject's senses left him, and then he felt the tooth-instrument and knew that Crosse was operating, but did not feel the least pain. This case may prove to be the first of awareness in the Region. Interestingly, the article describes how Cobbold underwent a fit of laughter, 'as if he had inhaled the nitrous oxide gas'. I wonder if this comment hints at earlier experimentation or is pure serendipity.

The demonstration on Proctor Wright was a success. Etherisation took only a minute and threequarters, and upon recovery he would not believe that the tooth had been drawn until Crosse showed it to him.

Mr Woolmer, a dentist of St Andrews, Norwich, performed extractions on several patients under ether in the same week as Crosse's operation. Large double teeth were extracted from several patients, 'without the slightest feeling of inconvenience'. The article further remarks: 'This formidable operation, even to persons of strong nerve, and much more so to timid people, is now robbed of its painful and disagreeable accompaniments, and we feel sure that many of our readers will have cause to thank us for reminding them that there is no longer occasion to dread the pain of having a tooth extracted'. By 30th January, the Norwich Chronicle contained reports of other dentists in Norwich who were using the soporific effects of ether in private dental practice in the city.

On 20th January, Mr Charles Guthrie performed his operation of lithotomy at the Ophthalmic Hospital in Norwich, 'with perfect success'. During the administration of ether the patient, aged 25, dreamed he had visited his native village in Norfolk.

Ipswich

In Ipswich, the first use of ether again fell to a dentist, Mr Gaches. On 15th January he removed teeth from two patients in the presence of Dr Durrant and Mr Bullen. The ether was 'imbibed' by means of an apparatus called Letheon, and we are told that nothing could have been more successful than the two operations.

Also on 15th January in Ipswich, Mr Lucas, a veterinary surgeon, removed a tumour from a Newfoundland dog put under the influence of ether. The dog's reaction is not documented.
Kings Lynn

On 16th January 1847, Thomas Bullen Esq., surgeon, removed the breast from a patient. Following inhalation of the ether, the patient was seen to relax after about one minute. Even during the dissection exposing the great pectoral muscle, there was not the slightest expression of pain. During surgery, wine was administered for a weak pulse. Afterwards, on questioning, the patient told how she had felt only a scratch above and below the breast and a slight pricking when the needles were used for suturing.

Three further cases are described in the same edition of the Lynn Advertiser. The surgeon was C Cotton Esq. In the first two cases cataracts were removed. In one case, the influence of the ether was speedily produced, while the second case is described as 'an old unsusceptible man', with fully ten minutes administration required to produce unconsciousness. The third case was removal of a cancerous fungus involving the whole lower lip. The operation was achieved without pain, but the ether had to be repeated to allow staunching of the bleeding by dripping strong nitric acid on to the incised part.

In these cases, the apparatus used was an imperfect modification of the tube and bladder recommended by Mr. Herepath.

Bury St Edmunds

A vivid description of the first anaesthetic at the Suffolk General Hospital, Bury St Edmunds, on 22nd January 1847, appeared in the Bury and Norfolk Post the next day.

'Yesterday, a large assemblage of the professional men of this vicinity took place at the Suffolk General Hospital to witness the operation of removing a tumour from the breast of a female, whilst under the influence of the vapour of aether. Besides the medical staff at the Hospital, we noticed Messrs Cream, Kilner and Coe of Bury; Messrs Peck, Faircloth and Page of Newmarket; Mr Kent of Walkesham; Messrs Bree of Stowmarket; Slater of Woolpit; Barsham of Norton; Robinson and Aldrich of Mildenhall; Harris of Bottesdale; Cream and Jones of Melford; Martin of Clare; Barker and Scott of Barrow; Greene of Ixworth &c., &c., &c.

'Some difficulty was experienced in bringing the patient fully under the influence of the aether; but this was at length effected, and she was laid back on the pillow in a state of complete insensibility. The operation was then commenced, and the tumour, about the size of an orange, was removed by Mr Image, the patient only making 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 of Norwich asked her how she felt, and whether she was ready
to undergo the operation. She replied that she was quite resigned and willing; that she knew it might 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 spectators might have full opportunity of ascertaining that she was perfectly unaware of any operation having been performed. Dr Ranking then informed her that the tumour had 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 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'.

Cory,\(^{11}\) cites the Bury and Norwich Post as stating that Kilner operated, whilst the Cambridge Chronicle of 30th January 1847 mentions both Image and Kilner. The Provincial Medical Journal\(^{12}\) mentions only Image. This illustrates the sometimes conflicting nature of the reports found in different provincial newspapers.

**Discussion**

The news of anaesthesia spread very rapidly, for it was only thirteen weeks from Morton's demonstration in Boston, USA to the first ether anaesthetic being administered in Cambridge. Though I have found many reports, for example, the Lynn Advertiser of 2nd January 1847 documents Liston's operation at University College Hospital, whilst the Suffolk Chronicle of 9th January reports on the first use of ether in Bristol. I do not know what provided the stimulus for the first East Anglian anaesthetics. The availability of an apparatus to administer the ether must have played some part. The Cambridge Chronicle credits Daniel with the invention of this; in Great Yarmouth, Messrs Smith and Vares 'received an elegant apparatus for the use of this wonderful specific', in Laxfield, Suffolk the anaesthetist, William Crowfoot used Robinson's apparatus; in Kings Lynn Mr Cotton employed an 'imperfect modification of the tube and bladder recommended by Mr Herepath'; and Mr Gaches, in Ipswich, used an apparatus called Letheon. Some of these devices were made by adapting equipment for making carbonated water.\(^{13}\)

Many of the reports refer to surgical operations without pain, the implication being that it was lack of pain, rather than insensibility that was important. In fact, several descriptions show the patient to be aware, but the freedom from pain in these subjects made the procedure a success. This is emphasised by the fact that the subject for ether administration was often described by the paper as 'bound, as usual'.

The contemporary provincial newspapers provide a rich source of material for a study of these early anaesthetics.
References


THE CLOVER FAMILY IN NORFOLK

Dr C H M Woollam

It has been said that Joseph Thomas Clover rose from humble beginnings to his place as a leading member of the medical profession of his day. An examination of the preceding generations show this to be untrue.

Genealogy

Joseph's great great grandfather, Thomas, was an artisan practising his craft as a blacksmith in the parish of Coslany within the City of Norwich. He married Elizabeth Warnes from the same parish in 1717 at Norwich Cathedral. Investigating the family is made extremely difficult because the Christian names Thomas, John and Joseph are used repeatedly and one name is often re-used for a new child after the death of an earlier child with one of these names. The children of Thomas and Elizabeth were Thomas, Joseph (1725-1811), Elizabeth, Mary and John. Much of the information about Joseph comes from his obituaries. Thomas Clover died in 1742 and Joseph, who was only 17, had to give up his studies and take over his father's trade to support the family.

Joseph Clover, the Veterinarian

About 1750 he came to the notice of an eminent Norwich physician, Dr Kirwan Wright. Wright encouraged Joseph to take up his studies once more and, particularly, to pursue his investigation and treatment of the diseases of horses. His studies demanded that he became proficient at Latin and French. In 1753 he described the life cycle of the Bot, (Aestrus equi), a maggot of a botfly which is an equine intestinal parasite. It was not until 1765 that his reputation had grown to the extent where he could give up the smithy and take up veterinary practice full-time. He was well known to all the medical practitioners in Norwich at this time and was a particular friend of Benjamin Gooch. Gooch was so impressed with his work that he included, in his second volume of surgical cases, a description of Clover's treatment of ruptured tendons and fractured legs in the horse.

Declining health led Joseph to retire in 1781. He died in Norwich in 1811.

Thomas Clover, the Draper

One of his sons, Thomas, left Norwich and purchased a shop in the market square at Aylsham. From this shop he ran a drapery business. He married a 20 year old Aylsham girl, Anne Barnard, in 1776 and between 1777 and 1792 they had twelve children. The fate of all but three is documented on the family tombstone against the east wall of St Michael's Church. The three survivors were all male. The eldest was Joseph, who found fame as a painter, the second, John Wright Clover, took over the drapery business when Thomas died in 1803 and the youngest, Thomas, became a farmer in the next parish of Colby.
John Wright Clover, the Draper

The first marriage of John Wright Clover - to a 19 year old ward, Elizabeth Taylor - did not meet with universal approval. They had to run away to Creeton Green. However, the marriage was blessed in St Michael's on 14th June 1810. Two of Elizabeth's three guardians were witnesses of this blessing. A daughter, Anne, was born four months later. Elizabeth died in 1818 aged 27 and is buried with her father-in-law and family. Anne married a farmer, George Gower, from Burgh near Aylsham, had four boys and died at the age of 28.

Three years after Elizabeth’s death, John married again, this time to the only heir of a wealthy local family, Elizabeth Mary Anne Peterson. Elizabeth had been born in 1791 and was married on the 6th of November 1821. Pigot and Company's, 'National Commercial Directory' of 1830 lists John Wright Clover as a Linen Draper in the Market Square. John and Elizabeth had Emma Elizabeth (1822-1894), John Peterson (1823-1883), Joseph Thomas (1825-1882), Francis (1829-1853) and Elizabeth Anne (1833-1925). I believe they may all have been born over the shop. "White's Directory" for 1836 lists John as a sub-distributor of stamps and his address as Manor House. To confuse matters, also recorded among the "County Seats" is J W Clover at Aylsham Wood House.

Elizabeth Clover’s uncle, John Bayfield Peterson, died in 1835. She was his sole heir and inherited several farms, cottages and land to a total of 560 acres. His will dated 1800 is in the Norwich City Archives. Though the Peterson and Bayfield families had been around Norfolk since the Norman Conquest this appears to have been the end of the line. John left all his property to his wife Elizabeth, then his brother Benjamin and, finally, Benjamin's daughter, Elizabeth. Only Elizabeth survived him. I think it was at this time that John Clover gave up the drapery business and became a farmer.

John Wright Clover - the Farmer

Much of the property survives today - the Smithy in Aylsham, Abbot’s Hall farm and Cottages and Abbot’s Hall. It was Abbot’s Hall that was to become the Clover family home from 1835 to 1853. It had been said for some time that this was the Clover Family Seat, but it took me a long time to prove it. The earliest Ordnance Survey Map of 1841 calls it Aylsham Wood House or Manor House. Letters from John and Elizabeth Clover to friends and family are headed Aylsham Wood House.

The 1841 census shows that John lived there with his wife Elizabeth and children Emma, Francis and Elizabeth, three maids, a groom and a boy. Ten years later there were only two children, Francis and Elizabeth, the same three maids, a new groom and boy. There is an additional note to say that John Wright Clover was a farmer of 296 acres of arable and 9 of plantation, employing 15 labourers and 5 boys. I will come back to why John and Elizabeth left Aylsham in 1853.

Joseph Thomas Clover's early life

John and Elizabeth’s third child, Joseph Thomas, was born in the dwelling attached to the drapery shop and baptised on the 7th of May
1825. We know exactly what the shop looked like from a print made in 1814 by the well-known landscape gardener, Humphrey Repton.

Joseph was educated at the Grey Friars School in Norwich for the teaching of Classic and English. Joseph was a neat, hard working pupil. The survival of one of his 'Copy Books' and this testimonial demonstrate this.

**TESTIMONIAL**

Presented to Master Jos. Clover in approbation of his uniform and highly exemplary conduct during the half year.
Priory School
Norwich 1840

Charles Gibson, the surgeon

At the age of sixteen he was apprenticed to a local surgeon, Charles Mendes Gibson. Gibson was born in Plymouth in 1808, qualified from St Bartholomew's, and was created FRCS in 1852. He was 34 years old when he entered into a contract with John Clover to take Joseph as a pupil. The contract survives and makes interesting reading. John Clover contracted to pay Gibson £80 per year for three years. In return, Gibson would instruct the young Joseph:

"And during this said term shall and will employ and to the best of his skills and ability teach and instruct or cause to be taught and instruct his said pupil and apprentice in the art science profession or business of Surgeon Marriedwife and Apothecary."

He must also supply food, clothing, instruments and free medical care if needed for Joseph.

It was signed by all three parties on the 18th of September 1842. Despite several vigorous campaigns Gibson was never appointed to the staff of the Norfolk and Norwich Hospital, despite being a skilful surgeon and lithotomist. Joseph took part canvassing in Gibson's attempt to get elected to the staff in 1847. Gibson had been appointed the year before to the post of Resident Medical Officer of the Bethal Hospital for Lunatics (now the Children's and Family Psychiatric Unit) in the centre of the City. His pay was £25 per annum. He resigned in 1860 for two months and only agreed to return to the post if it could be shared with the young physician Dr Fredrick Bateman, who had joined him in practice at £80 per annum.

Gibson resigned on health grounds in favour of his nephew in 1872. He died in 1874 in the French Pyrenees after a severe haemoptysis, presumably tuberculous in origin. His daughter gave a portrait of him to the hospital after his death, but it has disappeared.

**Early hospital training**

At the same time as being apprenticed to Gibson, Joseph was entered as a Dresser at the Norfolk and Norwich Hospital. A section of the Hospital weekly Management Committee meeting minutes for that September read:
"J. G. Johnston Esq. informed the board that Mr. Clover had been entered as a Dresser at the Hospital for two years and Mr. Norgate likewise informed the Board that Mr. George Cubitt had been entered as a Dresser at the Hospital for two years and Mr. Johnston and Mr. Norgate each paid the sum of twenty one pounds as a moiety of the fees to the Chairman of the Board who handed it on to the secretary."

The twenty one pounds was only part of the fee. I have been unable to discover what the total fee was. It would appear that there were four or five dressers at any one time. The accounts for 1842 show a sum of £17.15s.0d from student fees. About half of this appears to have come from the original fee paid by the surgeon and I presume the rest came from the individual students. It would appear that both paid £13.2s.6d per year. Clover would not have seen a great deal of the consultants. The duties laid down in 1856 were:

"The Physicians and Surgeons attend in turn to take in patients every Saturday at eleven o'clock in the forenoon and every Tuesday at the same time to prescribe to Out Patients."

There were three physicians, Lewis Evans, Edward Lubbock and Robert Hull, and three surgeons, B H Norgate, John Godwin Johnston and John Green Crosse. These were eminent men, all three were in the original three hundred Fellows of the Royal College of Surgeons created in 1843.

What number and type of cases would the young trainee surgeon have seen? The following tables show the admission numbers for the years 1837 and 1856. Though nineteen years apart, they do not show very great differences. Audit does not appear to have been a problem.

### December 31 1837 to December 31 1838

<table>
<thead>
<tr>
<th>IN</th>
<th>OUT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitted</td>
<td>634</td>
<td>435</td>
</tr>
<tr>
<td>Remained on the books from last year</td>
<td>72</td>
<td>459</td>
</tr>
<tr>
<td>Cured</td>
<td>329</td>
<td>404</td>
</tr>
<tr>
<td>Relieved</td>
<td>92</td>
<td>155</td>
</tr>
<tr>
<td>Not likely to receive benefit</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Incurable</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Non-attendance</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>At their own request</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>Went away without leave</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>Irregularity</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Deaths</td>
<td>45</td>
<td>4</td>
</tr>
<tr>
<td>Remained in Beds</td>
<td>90</td>
<td>382</td>
</tr>
<tr>
<td>In-patients made out-patients</td>
<td>78</td>
<td>8</td>
</tr>
<tr>
<td>4 Stone operations all cured</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

272 admitted as Casualties: 198 discharged
December 31st 1855 to 31st December 1856

IN    OUT    TOTAL

Admitted by recommendation 598 463 1061
Casualties 183 258 441
In hospital at the beginning of year 269 269
Total 781 990 1771
Remaining on books from last year 89 276 365
Cured 268 344 612
Relieved 82 100 182
Incurable 17 6 23
Non-attendance 27 27
At their own or friends' request 40 6 46
Without leave 18 1 19
Irregularity 1 1
On the 89th Rule 2 2
Not requiring hospital treatment 3 1 4
Not submitting to hospital treatment 1 1
Time expires and removed recommendation 14 39 53
Deaths 269 269
Outpatients made Inpatients 3 3

766 530 1290
104 736 840

I have only the 1856 figures of the number of operations performed. It might be thought the introduction of anaesthesia would have made an enormous difference to numbers in the same way as we know it did in places like the Massachusetts General Hospital in Boston. The overall annual patient numbers did not alter very much between 1840 and 1856. The number of operations carried out probably increased but not the type.

Operations for 1856

Amputation above elbow 0 Laryngotomy 2
below 1 Lithotomy 12
below wrist 19 Lithotomy 3
above knee 4 Hydrocele 3
below 5 Phymosis 1
below ankle 1 Hernia 6
Resection of knee joint 1 Paracentesis 3
Excision of breast 2 Fistula in ano 6
Ca lip 2 Necrosis 3
Ca penis 1 Reduction of dislocation 15
Tumours 11 Others 23

During his time in Norwich, Joseph Clover became ill and returned to Aylsham for two years before going to University College Hospital in 1844 to complete his medical studies. He returned to Norwich repeatedly between 1844 and 1853 to seek the medical advice of Mr Gibson.

Norfolk relatives

What led his father and mother to leave Aylsham in 1853 and settle in Mortimer Street just across Cavendish Square from Joseph's House in
Cavendish Place? When John and Elizabeth left Aylsham they had just buried Joseph’s younger sister, Francis (Fannie). She died at the age of 23 of tuberculosis. She had always been unwell. Letters written by John and Elizabeth Clover always refer to Fannie’s state of health. The only child remaining in Aylsham was Emma Elizabeth who had married a local yeoman, George Gunton, on 28th of June 1849. Their younger daughter, Elizabeth, was to marry a much older man, Falconer Larkworthy. They had met when she was a child but met again at Joseph’s house in Cavendish Place. Falconer Larkworthy wrote a dissertation on the family for his grandchildren. He states that John felt that at the age of 73 he could no longer manage the farms and moved to London to be near Joseph. John died in 1865. His will leaves surprisingly little. Several small cottages and the shop in the market square were to be sold and the proceeds divided equally between John, Joseph, Emma and Elizabeth. In addition, Emma and Elizabeth were left small areas of land. It is probable that most of the property was still in Elizabeth’s name. The only close relatives of Joseph Thomas Clover left living permanently in Norfolk after 1853 were his sister Elizabeth Gunton and his uncle Thomas, and family.

Acknowledgements

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A CAMBRIDGE PHYSICIAN AND CURARE FOR TETANUS

Dr Jean M Horton

This is the story of the contribution made by a Cambridge physician, Dr Leslie Cole, to the management of tetanus.

Early treatment for tetanus

Tetanus, 'lockjaw', occurs from contamination of wounds by the spores of the Clostridium tetani, which produces a powerful endotoxin causing intense muscle spasms. The clinical manifestations were described by Hippocrates and, certainly until and during the 19th century, physicians had relied upon opium and a variety of bizarre remedies such as brandy, ardent spirits, aconite, alcohol, belladonna, ether and chloroform to control these spasms. Curare had been known by botanists and explorers since the 16th century, and they and medical pioneers of the 19th century were intrigued by the mystique of curare.

The first suggestion of a sensible therapeutic approach to manage tetanus spasms was made by the famous English physiologist and surgeon Sir Benjamin Brodie (1783-1862), who reported in London in 1810 and 1812 to the Society for Promoting the Knowledge of Animal Chemistry and through them to the Royal Society, that he had found that, by applying curare (woorara) powder to wounds in animals, he could preserve life by artificial respiration and suggested that the paralysing powers of curare might be used in the treatment of tetanus. The curare was given to Brodie by Dr E N Bancroft, a physician, who was the son of Edward Bancroft who had investigated curare in the 18th century. His experiments were confirmed shortly afterwards by Professor Sewell of the Royal Veterinary College and Mr Morgan of Guy's Hospital in London.

It should be noted that in these, and subsequent, reports about the use of curare the spelling of the name of this drug varies, probably because of the attempt to spell phonetically the Indian word. Claude Bernard (1813-1878) the French physiologist, stated that there were at least thirteen different versions, ranging from urari and curari, to woorara and woorari.

In 1856, George Harley, a Lecturer in Physiology from University College, London, demonstrated the antagonistic action of curare and strychnine, the practical implication being that strychnine poisoning gives rise to severe spasms similar to those of tetanus. In 1857 Harley then tried the effects of curare on a horse with tetanus.

The next reports on curare and tetanus started to appear from 1857, from France, the United States and England. Claude Bernard had been reporting on his classical experiments on the site of action of curare from 1850 and in 1859 presented to the Academy of Sciences in Paris, a communication from M.L.Vella who was a surgeon working at the French Military Hospital in Turin, Italy, during the French-Italian War. The report concerned the use of curare in the treatment of tetanus in a wounded soldier. The curare was diluted in water and applied as a compress to the wound.

Also, in 1859, two communications on the same subject came from Paris. Manec used large doses of curare as a compress and also used subcutaneous
Chassaignac used local compresses of curare as well as giving an oral mixture diluted in julep. In all, in 1859, thirteen communications on this subject were published in French language journals, four in English language journals and four in Germany. Sayres and Burall in New York applied curare to a wound in a case of tetanus in 1859, but without success.

In England, in 1859, the English surgeon and obstetrician, Sir Thomas Spencer Wells (1919-1897), read a paper to the Royal Medical and Chirurgical Society on 'Three cases of tetanus in which woorara was used in the treatment'. This was the first report in England where curare had been used to treat humans with tetanus, and concerned patients who contracted tetanus following ovariotomy, an operation of which Spencer Wells was a pioneer. Of special interest was that he used both local applications and hypodermic injections of curare.

From 1860 onwards little or no progress was made with the use of curare because the preparations were crude and toxic and means of long term artificial respiration were not available. However, reports continued to appear in the literature throughout the 19th and early 20th century concerning the use of curare in tetanus.

Tetanus in East Anglia

Since the tetanus bacillus is to be found in the intestines of various, particularly herbivorous, animals, and therefore is present in the soil in highly manured districts, the incidence of tetanus cases in a predominantly agricultural area like East Anglia had always been a problem.

For example, in 1847, the 'Provincial Medical Journal' gives an account of the use in Bury St.Edmunds of the administration of ether for tetanic spasms. In Cambridge the report of surgical operations done at Addenbrooke's Hospital in 1855 include tracheostomy for tetanus in a woman of 50, performed under chloroform.

The prophylactic value of tetanus antitoxin (anti-tetanus serum), which had been introduced in about 1891, was conclusively proved during the 1914-1918 War, where the prophylactic inoculation of all wounded men markedly reduced the incidence of tetanus, and the mortality from 55% in 1914 to 15% in 1918.

In civil practice in the 1920's, from the type of wounds which still would most frequently cause tetanus, the infection had been prevented or modified by the use of prophylactic antitoxin. However, cases tended to occur after minor injuries not thought to be severe enough to warrant the attentions of a doctor or to need antitoxin. Such minor injuries which tended to give rise to tetanus would be infected cuts in agricultural workers, small penetrating wounds of the toes or feet. Other rare sources of infection were: intramuscular injections, infected catgut used at surgical operations, and the brown wood-wool which was used for padding plaster-of-Paris splints and casts.

Dr Leslie Cole

Dr Leslie Barrett Cole (1898-1983), who having served as a Gunner officer in Mesopotamia during the 1914-1918 War, studied medicine at King's
College, Cambridge and St Thomas' Hospital where he was a resident assistant physician, was in 1927 appointed to Addenbrooke's Hospital, Cambridge as an Honorary Physician. He did much to improve standards of medicine at Addenbrooke's and subsequently became the first Dean of the Cambridge Postgraduate Medical School.

He wrote in 1971 about the conditions that he found in Cambridge in 1928, noting that in general at Addenbrooke's, sickness appeared in a more florid form against a background of dirt, deformity, under-nutrition and anaemia, and extreme examples of disease and neglect came from the Fens. He found that cases of tetanus seemed to be frequent in East Anglia, and had many under his care. He was often confronted with patients in distress and danger with severe tetanic spasms and the current available treatments remained uncertain, and so he became interested in the overall management of tetanus, and published his experiences with ten cases in the "British Medical Journal" in 1932. In an attempt to control the severe spasms he tried the use of curare, publishing his experience of two cases in the 'Lancet' in 1934. He was aware that Hartridge and West had used curare to control tetany in parathyroidectomised dogs and that West had used one of their two satisfactory samples in the treatment of 17 cases of extrapyramidal muscular rigidity.

Cole and curare

Cole obtained a sample of the 'gourd' variety of curare from Dr J F Gaskell who was at that time the Honorary Clinical Pathologist to Addenbrooke's. Gaskell, while working in 1914, as a Beit memorial fellow in the laboratory of his father, W H Gaskell, an eminent Cambridge physiologist, had presented to the Royal Society the results of his work on the action of curare when injected subcutaneously into leeches. In 1927 he must still have been interested in curare as he was able to let Cole have a sample which was the most potent of ten samples whose paralysing power had been compared by injections into leeches. Professor Hamilton Hartridge, who was professor of physiology at St Bartholomew's Hospital, then tested the potency of the sample for Cole, noting that 0.005 mg was the lethal dose for a frog weighing 26 g, and that the dose to cause paralysis was 0.0025 mg. Doses up to 35 mg had been given to a patient with muscular rigidity, and these observations formed the basis of the doses of curare that Cole gave to two patients with tetanus.

The first patient, a labourer aged 39, with severe tetanic spasms which had failed to respond to 'Avertin' (bromethol), paraldehyde and morphia, was given four doses of 36 mg of curare at six-hourly intervals, which reduced the severity of the spasms and muscular rigidity. Three days later a further three injections were required. There was no reported respiratory difficulty, and the patient made a good recovery.

The second patient, a boy aged 7, was having very severe spasms. He was given 7.5 mg of curare subcutaneously, and after 10 minutes another 7.5 mg, and then at 20 minute intervals two doses of 15 mg. The spasms and rigidity disappeared, but the child had respiratory difficulty and stopped breathing 4 hours later.

It is interesting that in this report Cole mentions that the idea of using curare to control the spasms of tetanus was not new, and had been mentioned, as he put it, in several older textbooks, and used by a Dr Hunter in a few cases, and that accounts of cases in which curare had
been used were difficult to find. Perhaps the facilities that we now enjoy for searching the literature were not available to him?

In the same year (1934) of Cole's publication in the 'Lancet', Florey, Harding and Fildes from Sheffield reported in the 'Lancet' on the use of curare to control tetanus spasms in rabbits. Of interest in their article is that they make 'Suggestions for the More Adequate Treatment of Tetanus'. One interesting proposal was that cases of tetanus should be sent to suitably equipped centres where there were specially trained staff. An early concept for intensive care units, and the idea came from a department of pathology! They also advocated the use of curare to control spasms, and were aware of the risk of respiratory depression and suggested that its administration required constant watchfulness and a team trained to use it.

Another item of Cambridge interest from that period was an article in the 'Lancet' of 1935 from J S Mitchell, who described a case of tetanus treated with curarine, while he had been a house physician at the General Hospital in Birmingham. Mitchell became an eminent radiotherapist and Regius Professor of Physic in the University of Cambridge.

Cole used curare on one more case, but did not persist with its use because the preparations were impure and the action uncertain. He was also gaining experience with the use of 'Avertin' and felt that the use of this drug had fewer risks, and suggested in 1936 that curare should not be used in the management of tetanus until more was known about its action.

As a result of his experience, Cole continued to publish articles on the treatment of tetanus and became the foremost British authority or, indeed, world authority on the subject. His summary on 'Tetanus' in Robert Hutchison's Index of Treatment of 1948 is considered to be a model of its kind. Certainly, in 1950 all newly appointed house officers to Addenbrooke's Hospital were reminded of the importance of giving tetanus antitoxin after injuries.

Later work with purified curare

It was not until the isolation in 1935 by King of a pure curare alkaloid, the introduction of the first commercial preparation "Intocostrin" by E R Squibb & Sons and its introduction into anaesthetic practice in 1942, and the experience of the Danish poliomyelitis epidemic in 1952 that further serious progress was made in the use of curare in the management of tetanus. However, there had continued to be reports of the use of curare and other neuromuscular blockers from various workers including anaesthetists, but these reports did not involve the use of controlled ventilation. Anaesthetists were now becoming involved in the management of patients requiring artificial ventilation and in 1958 Crampton Smith from Oxford reported to the Royal Society of Medicine on his own experience, together with the neurologists, Ritchie Russell and Spalding, on the 'Treatment of severe tetanus by total paralysis with curare and intermittent positive pressure respiration'.

Meanwhile, in spite of the spread of prophylactic immunisation, cases of tetanus continued to appear in the agricultural areas of East Anglia. Cole was by now aware of the availability of purified curare. It was suggested to Cole by the senior consultant anaesthetist at Addenbrooke's, Harold Youngman (1900-1984), that he should try the use of curare again.
in the light of the availability of trained anaesthetists and ventilators. Cole at that time was reluctant to take advice from an anaesthetist. However, in 1959, a severe case of tetanus was given intramuscular curare, and respiratory difficulty ensued so that the patient had to be resuscitated and rescued by the duty anaesthetists, and was subsequently successfully managed with intravenous curare and controlled ventilation using an East-Radcliffe ventilator.

This experience was the start of a close collaboration between Dr Cole and Dr Youngman in the treatment of tetanus, and they evolved a regime of management according to the severity of the attack of tetanus. In severe cases the patients were given intravenous curare and the ventilation controlled with intermittent positive pressure ventilation. Their experience of the management of 59 consecutive cases of tetanus was presented to the Association of Physicians in Cambridge in 1966, and in 1968 to the World Congress of Anaesthesiologists in London, and the Royal College of Surgeons in Norwich.

An early ITU

Consequent on the start of these activities, at the end of 1959, Dr Harold Youngman, Senior Anaesthetist at Addenbrooke's and the Matron, Miss M M Puddicombe, wrote to the Chairman of the Medical Committee about the problems of nursing patients needing such intensive care, and particularly those with tracheostomies. They pointed out that during 1959, 21 patients had required intensive treatment and that there were never less than three and sometimes as many as six, needing care simultaneously. Each patient needed six nurses per week to carry out specialised techniques, but this number could be halved if all the patients could be nursed in the same area. They pointed, too, to the disadvantages of the present system whereby clinical control was exercised by different medical 'firms'.

The Medical Committee recommended the conversion of a room formerly used as a Matron's office to a mixed sex unit, plus the adjacent side rooms of Hatton and Griffith Wards to form the first intensive care unit of six beds at Addenbrooke's Hospital (this was later appropriately to become known as 'The Blue Room' from the original colour of the wallpaper).

Cole maintained his interest in the management of tetanus throughout his career. He worked hard and played hard. In his fifties he discovered, like so many Cambridge doctors, that he had a considerable talent for painting. He played tennis till his later seventies, and still took a daily cold bath in his eighties.
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During the 1914-1918 World War nurses had given anaesthetics in different parts of the country, and in some hospitals the practice had continued after the war. At Addenbrooke’s there had been a death of a patient under an anaesthetic given by the Out-patient Sister in 1930, and the procedures were revised. It was decided that Nursing Staff could only give rectal anaesthetics, and that two Medical Officers should be present when any operation under general anaesthesia was to take place.

During the 1930s, with the outbreak of World War II, there were two problems at Addenbrooke’s Hospital regarding the provision of anaesthetic services. One was that a number of medical staff were called to active service and the other was, more domestically, that the pay of house staff was regarded as inadequate. The first was readily admitted, as only three Honorary or Consultant Anaesthetists remained available - Dr Joan Cooper, Dr Harry Richards and Dr Harold Youngman. On the other hand, salary scales for Resident Medical Officers seem to have been regarded as adequate by the governing body in view of the prestige associated with Cambridge, but this view was not shared by the resident medical staff. This latter problem of salaries persisted, at least as far as the University posts were concerned. Some will remember that in the 1960’s the 'British Medical Journal' used to print a warning at the head of the advertisements for vacant posts, against accepting such posts without consulting the British Medical Association, because they did not comply with the Whitley Council scales.

At the outbreak of war in 1939, a medical qualification enabled, and often required, one to carry out all manner of medical tasks, including taking x-rays, cross-matching blood and giving anaesthetics unsupervised. The task of giving anaesthetics often fell to the Resident Medical staff, who may have had little, if any, experience, and only a few days exposure to anaesthesia during their undergraduate training. If there were a Resident Anaesthetist, as there was at Addenbrooke’s, he or she had other duties including outpatients, casualty and deputising for the House Surgeons.

Military casualties in the first World War were horrific, and no-one knew what this war would bring, and how many casualties, both military and civilian, would need to be treated. In the event, the Leys School in Cambridge was taken over as an Emergency Medical Service hospital with medical and orthopaedic beds and operating theatre. The Leys Sanatorium at 5 Brookside was adapted for ENT wards and had its own operating theatre. At Addenbrooke’s a stifling underground emergency theatre was made under the Children’s wards, and there were also patients to be seen in the examination halls in Downing Street, so that the Resident Anaesthetist had many sites to cover.

The idea of Sisters Anaesthetist

This was the background to the proposal in May 1940 by one of the Honorary Surgeons, Mr Vernon Pennell, that Addenbrooke’s should train Sisters Anaesthetist - a proposal that prompted a vigorous correspondence in the medical journals.
It was not a casual approach that Mr Pennell made to the Staff Committee. He had investigated the practice in Norwich and Ipswich, and their experience and methods of training. He had considered the costing, some medicolegal aspects, and regarded it as an urgent requirement in view of the uncertain future needs. He had spoken to Drs Blacksland and Thomas of Norwich and Dr Charles of Ipswich.

Norwich, he wrote, had had 19 years' experience of Sister Anaesthetists. Ipswich had given them up, but on grounds of expense only. It appears that Dr Charles was entirely in favour of Sisters Anaesthetist, having worked with one in his Casualty Clearing Station throughout the First World War, and later in Ipswich, but they had found at Ipswich that they could make savings of £600 per annum on gas, oxygen and ether, by using spinal or local anaesthetics and by 1940 were using general anaesthesia for only 20% of their surgery. No further information has come to light, and it appears that the Staff Committee and other Minute books of Ipswich Hospital may have been destroyed.

Norfolk & Norwich Hospital

The Norfolk & Norwich Hospital Board of Management and Honorary Medical Staff Minute books are preserved. Mr Pennell referred to Norwich having 19 years' experience, which would go back to 1921, but Sister Anaesthetists seem to have been trained and working there by 1919. The Honorary Medical Staff made the suggestion in 1915 that the Nursing Committee should make two nominations of nurses for training, but it was not until 1928 that the Board of Management made a positive suggestion, and the Honorary Medical Staff made a set of Regulations in 1929, when it appears that Sisters Lewis and Daniel were appointed. Their salaries were £70 per annum, including board, lodging and laundry (rising to £85 in 1920), both working each morning and they alternated afternoon and night shifts, and with every other weekend off! They were appointed by the Medical Staff, were under the charge of the Honorary Anaesthetists, but disciplined by Matron!

Between then and 1946 at Norwich there were sometimes two, and sometimes three, Sisters Anaesthetist, although questions were raised from time to time. In 1924, a review showed 'entirely satisfactory experience over the last 5 years with an overall operative mortality of 1:946. Sisters Anaesthetist had given 7,290 general anaesthetics with a mortality of 1:1,215'. This was compared favourably with a collective operative mortality during 1923 in Cardiff, Nottingham, Sheffield and Derby of 18 in 15,846 anaesthetics, or 1:870. However, in 1927 there was a death under anaesthesia at Norwich of a Mary Cates, which was attributed to a 'fatty heart', and it was resolved that 'In connection with this case in future no patient should be anaesthetised by either of the Sisters Anaesthetist without her having first had a consultation with the House Surgeon as to the nature of the case and the anaesthetic to be used'.

In 1931 a situation arose at Norwich where no locum Resident Sister Anaesthetist could be found for holiday cover, and one of the London Hospital medical students was engaged! By 1946, there was a change of heart, and it was recommended that a vacancy should be filled by a 'qualified Resident Anaesthetist, preferably with the D.A.', and the Committee considered 'that possibly all the present Sister Anaesthetist posts will have to be filled later with qualified Medical Officers'. It
may have been the advent of the National Health Service (NHS) that forced this decision, because only Medical Anaesthetists are listed at the time of commencement of the NHS in 1947 and thereafter, after 28 years of Sisters.

Mrs Nita Harris

Meanwhile, at Addenbrooke's Hospital, a sub-committee consisting of the Matron (Miss Alexander), Drs Youngman and Richards and Mr Vernon Pennell, decided to ask Sister Kemp (later, and now, Mrs Nita Harris) to commence training in her spare time whilst a formal training programme was set up. Sister Kemp had commenced her nursing training at Wisbech Hospital in 1930, and then spent three years at Addenbrooke's. She became the youngest Ward Sister on Albert Ward, which was Mr Pennell's ward, and was highly regarded and, perhaps, a natural choice. By June 1940 Sister Kemp and Sister Welfare had commenced their training. The training was settled on as six months, in fact spent at Addenbrooke's, although the original plan was to spend some time at other hospitals for a wider experience. During that time they would spend all their time with the Honorary and Resident Anaesthetists. There was no formal examination suggested, but that they 'should be definitely on probation and if they did not prove suitable anaesthetists, others should be tried'.

There were other offers of help from qualified doctors. A Dr J M Wallace, writing from 'The Jungle', St Ives, asked to refresh his knowledge of anaesthetics in order to be available for emergencies in Huntingdon or St Ives. His last experience of anaesthetics was 25 years before, since when he had been a bacteriologist in the United Kingdom and Uganda. One wonders exactly what he had in mind when he wrote that the anaesthetists 'would not have time for detailed instructions in all modern methods, but I do not feel that this would be necessary for the type of emergency work that I have in mind'.

On the 6th July 1940, an advertisement was put in the 'Nursing Times' for 'Sister required to undergo a six month's course to qualify as an Anaesthetist' at Addenbrooke's Hospital. The salary during training was to be £80 per annum. The intention was clearly to train Sisters and not doctors, as an emergency letter was sent out via the Honorary Staff Committee at Addenbrooke's on 24th July over the names of Mr Bowen and Mr Pennell rescinding an authority given on the 11th July to 'certain [medical] applicants to obtain instruction in the administration of anaesthetics', so that all efforts could be devoted to training the Sisters.

Intervention by the Association of Anaesthetists

The Association of Anaesthetists was soon aware of the advertisement and, after calling a specially convened meeting of the Council of the Association, sent a letter on 20th August to the Chairman of the Board of Governors of Addenbrooke's Hospital, with copies to the 'Lancet' and the 'British Medical Journal'. The letter was signed on behalf of the Council of seventeen members including the well-known names of Frankis Evans, Macintosh, Magill and Minnitt. The letter expressed grave misgivings, especially as 'they have been unable to trace any effort on your part to secure applications of qualified persons either male or female for this appointment'. The emphasised that 'The responsibility for a patient under anaesthetic cannot be safely entrusted to anyone who is not medically qualified', and raised the medico-legal problems. They had
discovered that the Cambridge Coroner had been approached before the advertisement was issued, and regarded this as evidence that the Committee at Addenbrooke's were aware of the risk and had attempted to protect themselves in this way. They pointed out that the Royal Colleges had recognised the specialty of Anaesthetics by granting a Diploma and that this and further progress was by the efforts of medical men, and regarded the use of unqualified anaesthetists to be a lamentable backward step. They also pointed out that Nurse Anaesthetists were now illegal in Canada and falling out of favour in the United States.

The 'British Journal of Anaesthesia' had deprecated the use of nurse anaesthetists in an Editorial in 1932, and commented on the American College of Surgeons' Hospital Standardisation Report which recognised the need for better education in anaesthesia, organised anaesthetic departments, pre- and postoperative visits, good record keeping, and that the anaesthetist 'should be utilised also for the care of non-surgical cases such as mental disorders, asphyxiation, certain toxaeemias etc.' This was far-sighted thinking sixty years ago!

The Canadian experience was reported in the same journal in 1939, recounting the decision of the Supreme Court in Montreal that the Victoria Hospital and a Dr Turner were liable for the death of a patient under anaesthesia because they allowed an unqualified person (a Nurse Anaesthetist) to give the anaesthetic. As can be imagined, this was the end of Nurse Anaesthetists in Canada.

The publication of the letter from the Association of Anaesthetists provoked a flurry of correspondence in the journals and in the minutes of the Honorary Staff Committee. Dr Hedgecock wrote that, although he was an Auxiliary Anaesthetist, he had not been called upon and offered his services. Dr A C Clarke, the Resident Anaesthetist wrote to the President of the Association of Anaesthetists, with a copy to the Committee, aggrieved that her post was being advertised as suitable for any newly-qualified practitioner, as she gave two-thirds of the anaesthetics in the hospital and was training the Sisters Anaesthetist. Dr James F Rickard, Resident Anaesthetist at the Royal Berkshire Hospital, wrote to the 'Lancet' with a copy to the House Governor at Addenbrooke's, with the other side of the picture. He maintained that a Resident Anaesthetist required some previous experience, and that the salary offered by Addenbrooke's was inadequate. He wrote that 'Addenbrooke's Hospital can offer the princely salary of only £130 per annum, a figure suggesting either that the hospital is in financial difficulties and is appealing to the charity of the professional man, or is merely a further example of the exploitation to which recently qualified men are subjected'. He added that since his hospital had offered the salary of £250 per year 'the Board has had no difficulty in securing the services of the medical man with the experience and skill in the administration of anaesthetics which both surgeons and patients have a right to expect'.

The Honorary Anaesthetists at Addenbrooke's - Drs Cooper, Richards and Youngman - added their concern, especially as they knew of several local doctors who were willing to be temporary Anaesthetists. Later in the year Dr Cecil Webb and Dr Hedgecock were added to the emergency list of anaesthetists. Sister Kemp completed her six months training shortly before Christmas and took up her post on 18th January 1941. Sister Welfare completed hers in March 1941, and the Staff Committee decided not to reappoint when Dr Wilson finished his appointment as Resident Anaesthetist at the end of February 1941. By then the list of Auxiliary
Anaesthetists had settled to Drs Walker, Hedgecock, Webb, Campbell and Hart.

In the 'British Medical Journal' the correspondence continued and Addenbrooke's medical and surgical staff replied on 28th September 1940, justifying their position on the grounds of continuity of care in wartime conditions, satisfactory experience elsewhere, six months training for the Sisters (compared with three months for doctors) and no intention of supplanting honorary anaesthetists. On 14th September Dr John Elam wrote a sarcastic letter about anaesthetists getting above their station and congratulating the Medical Committee for putting these gentry in their place and finishing '. . . . it is to be hoped that the appointment of nurse anaesthetists will show how little importance is attached to the art and science of anaesthesia in the university town of Cambridge. Oxford has gone to the ridiculous extreme of appointing a Professor of Anaesthesia; Cambridge is not to be led away by indiscreet enthusiasms'. He drew some criticism himself, and paid the price of sarcasm by being taken seriously by Mr Atkinson from Cornwall who endorsed his comments on '. . . . the efforts of practitioners who administer anaesthetics to insinuate themselves into the ranks of specialists', and added 'It should be more widely realised that the surgeon is an excellent judge of anaesthesia and can give a specialist's assessment of the optimum amount of anaesthetic for the operation to be conducted with ease and safety'. Or is this more sarcasm? I think not, as he continues 'I have been to London recently and seen the species at work, surrounded by his McKesson with its many modifications needing a porter to push it about, sometimes supported by an assistant anaesthetist, always by an anaesthetic nurse, and often by yet another to take constant blood pressure readings'. Warming to his subject, he continued 'I know that many surgeons, standing patiently in the background, faced with a long list of operations, heartily wish themselves back in the days of 'rag and bottle' as the master anaesthetist . . . . struggles with the distal lighting of his endolaryngoscope preparatory to intubating the next abdominal case. Indeed, I have heard one surgeon say to the anaesthetist under such circumstances: 'All right, Dr X, if you don't mind, I'll start now and you can pass your little tube afterwards.'

It clearly took some time for the 'British Medical Journal' to reach the Middle East, but when it fell into the hands of Major W Stanley Sykes in February 1941, he sent a letter to the 'British Medical Journal' with copies to the Cambridge Vice-Chancellor and many others. In a scathing attack he condemned the retrograde step, quoted two cases personally known 'where patients were killed by an inexperienced inan simply because of this crazy surgical insistence on cheap anaesthesia...'. He finished by stating that he would 'cease to use certain Cambridge degrees, previously thought to be of some value' in order to dissociate himself entirely 'from a reactionary policy which is in striking contrast to the enlightened and progressive spirit of Oxford'.

Work load

Nevertheless, the two Sisters Anaesthetist gave sterling service for day sessions and night cover three nights a week. The surgeons seemed very satisfied, although one surgeon, Dr Riddiough, would not use them for his emergencies. When it came to holiday cover the suggestion was to employ a Resident Anaesthetist, but then came a request to train two more Sisters. The five Honorary Staff Anaesthetists wrote on 5th June opposing any new Sister Anaesthetists as no attempt had been made to obtain a Medical Resident Anaesthetist, and offering their resignations if medically
qualified Residents were not sought. On 21st June 1941 the question was considered again by the Honorary Staff Committee, and it was decided to make every effort to obtain a qualified Resident Anaesthetist, and that the Association of Anaesthetists should be notified of this development. It was also agreed to have a permanent Anaesthetic Sub-Committee to manage future problems. The General Committee, with some reluctance, agreed that no further Sisters Anaesthetist should be trained. Sister Welfare was shortly to leave to get married, but Sister Kemp's position would be protected. At the same time, attempts were made to have Dr Windsor Lewis and Dr Budd recalled to the hospital.

The Sister had given spinal anaesthetics as well as general anaesthetics and had been using thiopentone, N₂O, ether and chloroform and had performed nasal intubations. In July 1941 it was decided that chloroform and continuous thiopentone were not to be used because they 'look too easy in the average case, but serious emergencies can arise'. Ironically, it was nitrous oxide that caused the only serious morbidity two years later on 24th July 1943. Mr Robert Smith of Ely was given nitrous oxide in the outpatient department, and that unfortunately was all that he had, as the porter had put four nitrous oxide cylinders instead of two nitrous oxide and two oxygen. There was no safety pin-index at that time, or the mistake could not have occurred. He was very ill for two or three days and then transferred to Fulbourn Mental Hospital. He was there for three months, but apparently made a full recovery.

Sister Kemp continued as Sister Anaesthetist until six months after the end of the war, receiving much appreciation and praise for her work from both surgeons and anaesthetists, but no further suggestion of training for Sister was made as Resident Anaesthetists were appointed. Sister Kemp continued as Ward Sister retaining the independence of mind that one expects of an anaesthetist. Perhaps she will not mind my concluding by telling you that she was so incensed by the abolition of the voluntary hospital in favour of the National Health Service that, on the appointed day on 5th July 1948, she and Dr Tom Anderson flew a skull and crossbones flag from the mast of old Addenbrooke's Hospital!

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Mrs Nita Harris (alias Sister Kemp) for a fund of information.
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Neither the Royal College, nor the Faculty of Anaesthetists before it, has recorded the ages of its Fellows and Diplomates, although there are of course ways of finding this out.

However, we think we are on firm ground in saying that we know who is our oldest diplomate, and that she is alive and well and living in Cambridge, having recently celebrated her 100th birthday.

Dr Joan Cooper was born on 31st October 1892, the daughter of a Wesleyan minister who himself lived until his 90th year. Joan was brought up in various parts of England because her father's ministry dictated a move every three years.

She had always wanted to be a doctor, but her practical father felt that the future for lady doctors was very uncertain. I do not know how many women were on the Medical Register at this time, but about 15 years earlier there had been only 144. Joan therefore first qualified in pharmacy, and when her father was moved to Gravesend, she found herself working in Burroughs Wellcome's analytical laboratory. After a couple of years she was more than ever convinced that 'bottled medicine', as she described it, was not for her, so she persuaded her father to allow her to go to medical school. She was accepted by Charing Cross Hospital into the first year they admitted women, being one of about six female students. Needing help with the fees, she was enterprising enough to put an advertisement in the British Medical Journal, seeking a doctor who would give her lodging in return for her help with the dispensing in his practice. She was taken on by a doctor in Goldhawk Road, whose family looked after her marvellously for several years whilst she was a student. She qualified MRCS LRCP in 1920, and was awarded the Governors' Gold Medal. This resulted in newspaper headlines of 'The first in a hundred years!' She deprecatingly said that as they had not had women there before, it was not too difficult to be the first!

She was working as a house-officer in Charing Cross Hospital when one afternoon she received a message saying there was someone in the entrance hall wanting to see her. This proved to be a lady general practitioner from Colchester who promptly asked Joan to join her as her assistant. This was Dr Bensusan-Butt, a very determined lady and an extremely fine doctor. Joan eventually agreed to join her, and after a year or so she had not only learned a great deal from her, but she was all the more convinced that general practice was what she really wanted to do. She watched the advertisement columns of the BMJ, and when a partnership for a woman doctor was offered for sale in a University town, Dr Cooper applied for it, and slightly to her surprise she was offered the partnership, which turned out to be in Cambridge. By the time she had bought her share in the practice, and a house, and employed two servants to look after her, she was heavily in debt, and it took her 12 years to clear this. But she never looked back; the practice she joined in Lensfield Road still exists. It has always had a high reputation for excellence, though in these non-discriminatory times it is no longer an all-women one.

Dr Cooper took up anaesthetics accidentally, it went with the job, and she became an honorary at Addenbrooke's Hospital, fitting in giving anaesthetics between her surgeries. Incidentally, her practice included Girton College, where she made the acquaintanceship of the then secretary to the College, Mary Clover, the daughter of Joseph Thomas Clover.
When the Diploma in Anaesthetics was created in 1935 Dr Cooper, as an honorary on the staff of a teaching hospital, became one of the founder diplomates. Dr Joan, as she was affectionately known all over Cambridge, continued in both anaesthetic and general practice until after the Second World War. By this time the National Health Service had come into being, and she decided to become a full-time anaesthetist, as combining it with general practice was becoming increasingly difficult, and she became consultant anaesthetist at Addenbrooke's. With her background and experience it is not surprising that she was in due course elected one of the founder Fellows of the Faculty of Anaesthetists in 1953 when the two-part Fellowship was started.

Dr Joan continued at Addenbrooke's and in private practice until her retirement. She was a sound reliable anaesthetist, treating her patients with the greatest care and kindness. She started her anaesthetic career using open-mask ether and chloroform, and continued to use chloroform with great skill well into the 1950's, but she also learned all the new techniques with inhalation and intravenous agents, and mastered the use of neuromuscular blockers as they came in. She does admit, though, that her real love was general practice, and that this never changed.

Dr Joan watched with delight the way the Anaesthetics Department at Addenbrooke's developed from its general practitioner beginnings to its present position as a major clinical and University department, and she often described herself as the mother and eventually the grandmother of the Department!

Today, Dr Joan lives in retirement, remaining remarkably active as a centenarian, leading a normal social life, and continuing to astonish us with her knowledge of current affairs, both medical and lay, and with the intense interest she continues to show in everything that goes on around her.
EARLY ETHER ANAESTHESIA: THE CAMBRIDGE ARTIFACTS

Dr R H Ellis

There are two fascinating and almost un-noticed artifacts in Cambridge which bear on the very beginnings of ether anaesthesia in this country. The first is a 4-page, handwritten letter. I have sub-titled it: 'The Ambassador and the Master'. The second ('The Doctor and the Poet') is a memorial in a College Chapel.

The letter was written on Monday 30 November 1846. It was written in America by Edward Everett to the Reverend William Whewell in England. The letter is to be found loose amongst the Whewell Papers in the Wren Library at Trinity College. It has not been studied before, but it is a unique document in the History of British Anaesthesia. Its importance lies in the fact that this letter to Dr Whewell is the oldest surviving original document in Britain relating to the spread of the news about ether anaesthesia from Boston to the United Kingdom. Clearly it is worth considering its contents, and how this unique document came to be written in late 1846 and to be in Cambridge now.

Everett and Whewell

By the time that Edward Everett wrote the letter to William Whewell there had already been a regular correspondence between the two men for they had much in common. They had been close friends for almost 5 years. Both were leading academic administrators. They were the same age, and were ministers of religion. They were both, as amateur scientists, interested in the scientific progress which had characterised the first half of the nineteenth century. Indeed, William Whewell is credited with having introduced, in 1840, the word 'scientist' to the English language. Both men were also members of the British Association for the Advancement of Science.

Edward Everett came to Britain in late 1841 to serve, in London, as the United States' Minister (that is, the Ambassador) to the Court of St James. He was a popular and successful Ambassador, and was much sought after by Britain's intellectual and social elite. In addition to his diplomatic duties he used his years in Britain to further his amateur scientific and cultural interests. William Whewell had, by that time, already had a distinguished academic career in Cambridge. In 1841 (the year in which Everett arrived in London as American Ambassador) Whewell was appointed as Master of Trinity College - at the ceremonial installation of the Duke of Northumberland as the University's Chancellor. Thereafter, Everett and Whewell corresponded regularly, and met from time to time.

In June 1845, the British Association for the Advancement of Science held its Annual Meeting in Cambridge. During the meeting Everett was Whewell's guest for five days at Trinity College. Shortly after this, Everett's term as Ambassador came to an end and he returned to his home in Boston, Massachusetts. Soon afterwards, in a letter to Whewell, Everett indicated the intellectual link which existed between the two men. He wrote: 'If there is anything I envy my successor, it is not the political honour of his official situation, but the intercourse of the best minds in England, which I enjoyed too long not to feel deeply the
want of; and nowhere did I enjoy it more highly than at Trinity Lodge and Hall.'

Everett’s Pamphlet

In February 1846, within a few months of his return to the United States, Everett became the President (that is, the Vice-Chancellor) of Harvard University, which is at Cambridge, Massachusetts just a few miles from Boston itself. Socially, academically and professionally, Everett was then in close contact with Harvard’s Medical Faculty at the Massachusetts General Hospital in Boston. As a result, he quickly became aware of Morton’s first use of ether at the hospital on the 16th October 1846, and he joined in discussions on the subject soon afterwards. Just over 2 weeks later, on the 4th November 1846, Everett took a prominent part in a ceremony to mark the opening of the new medical college building in Boston. As President of Harvard he was called on to make the principal speech. In his speech Everett spoke glowingly of the medical achievements by Boston’s doctors. Surprisingly, he did not mention ether anaesthesia at all. This was because, at the time, Morton (its inventor) was refusing to reveal the secrets of his discovery (his so-called ‘Letheon’) and the doctors of Boston were not prepared to have its use endorsed before the public until he had done so.

Everett’s speech was a great success, and, by popular demand, was published as a pamphlet soon afterwards. By the time it was published, Morton had revealed his secret to some of the Boston doctors, and Everett felt free to refer officially to ether. He did so, enthusiastically, in a brief postscript which he added to his earlier address whilst it was still at the printers. The pamphlet was published at the end of November. Everett sent copies of it to at least twelve academic and influential friends in Britain—including William Whewell at Trinity College. With each copy he included a letter.

The twelve letters were written in Cambridge, Massachusetts by Everett at the President’s House at Harvard University. Everett was a meticulous diarist and, for Monday 30 November, he recorded that he had been ‘till a late hour preparing letters for London by tomorrow’s steamer.’ One of these was his letter to William Whewell.

It was Everett’s custom (and that of many Bostonians) to write a bevy of letters just in time to catch the next of the regular mail steamers which travelled, at more or less fortnightly intervals, between Boston and Liverpool. Everett’s letters travelled across the Atlantic aboard the Cunard paddle-steamer ‘Acadia’—almost certainly in the official Diplomatic Bag consigned to his successor as Ambassador in London. The ship sailed from Boston on the 1st December and arrived in Liverpool on the 16th. The mails for London arrived in the capital on the 17th December, and Whewell’s letter was then posted on to him in Cambridge probably without delay. If this was so, Kelly’s Postal Directories indicate that the letter would have arrived at The Master’s Lodge at Trinity College on Friday 18 December 1846.

Everett’s letter to Whewell covered several topics. Whewell had recently sent Everett a copy of a book—his ‘Lectures on Systematic Morality’—and Everett began by thanking him for this. He also referred to the recent discovery of the planet Neptune, noted that a mutual acquaintance
had recently married, and finished by giving his own family's best wishes to Whewell's wife. That part of the letter which referred to ether anaesthesia followed Everett's acknowledgment of Whewell's book, and read as follows:

'I have nothing very valuable to send you in return, but I take the liberty to ask your acceptance of a pamphlet containing an address lately delivered by me. The only thing (in) it which you will deem of some importance is the note A on page 15, which gives a short account of a very curious method of producing entire insensibility, under the most severe surgical operations.' The Note in the pamphlet to which Everett referred mentioned the discovery of insensibility produced by inhalation, and the enthusiastic accounts of it which had been published in the 'Boston Medical and Surgical Journal'. He went on to say that he had seen ether insensibility for himself, and then recorded the general confidence of Boston's doctors in the new invention. His footnote in the pamphlet ended: 'I understand great confidence is placed in this effectual method of inducing complete insensibility under the most cruel operations. It seems not easy to overrate the importance of this discovery.'

The eleven other letters which Everett wrote to accompany the copies of his Medical College Address dealt similarly with anaesthesia's invention. It is now known that at least two other letters about the discovery of ether anaesthesia were written from Boston to London prior to the twelve which Everett wrote to accompany the copies of his Medical College Address. None of these letters has survived to the present day - except, that is, for the letter to William Whewell which has been preserved (but hitherto unnoticed) among the welter of Whewell Papers in the Wren Library at Trinity College, Cambridge.

Whewell seems not to have responded in any positive way to the early news of ether anaesthesia which Everett gave him in the letter. This, although surprising and (in a way) disappointing, does not diminish the historical importance which the letter must now enjoy as a unique and precious artifact in the History of British Anaesthesia. Just as Whewell did not respond to the news he received from Everett, nor did ten of the eleven other recipients of Everett's similar letters.

Dr Francis Boott

Only one person appreciated the importance of the information Everett had sought to impart.

This was Dr Francis Boott. In 1846 Francis Boott was directly responsible for bringing about the first use of ether anaesthesia in England, and for instigating and promoting its wider use in this country and elsewhere. He was also directly responsible for the second Cambridge artifact: 'The Doctor and the Poet'.

The news of anaesthesia's invention, in mid-October 1846 at the Massachusetts General Hospital, spread firstly to the United Kingdom, and it was the enthusiasm which greeted the process in Britain that principally determined anaesthesia's subsequent progress and success in Europe and the United States. Anaesthesia was first used in England as a
direct result of the two important letters which were sent from Boston to
Dr Francis Boott in central London. One of these was the letter he
received from Everett together with a copy of the Medical College Address
—that is one of the eleven similar letters to the one received by
William Whewell. The other, and by far the more detailed and persuasive
letter was the one which Boott received from his long-standing friend
-the eminent Bostonian physician and scientist, Professor Jacob Bigelow.

Dr Francis Boott was an American citizen who had settled in Britain in 1820, some twenty-six years earlier. In 1824 he qualified in Medicine
and, for a while, practised as a physician in London. He later received
a large inheritance whereupon he gave up most of his medical practice and
devoted himself to the study of botany. Indeed, he is far better
remembered as a botanist than as a doctor—which is a distortion of
medical history. Suffice it to say, at present, that he was a most
important catalyst in the beginnings of anaesthesia in Britain. Without
him, things would certainly not have developed as they did.

For it was at Boott’s instigation that the London dentist, James Robinson
-following Morton’s precedent in Boston—gave ether to a young lady
from whom he then removed a diseased molar tooth. This was the first use
of ether anaesthesia in England. It took place at Boott’s own home in
London’s Gower Street; it was entirely successful, and it was the spark
that set the whole thing off in Britain. Boott then publicised the
anaesthetic use of ether widely in Britain. The practice was soon taken
up in virtually every part of the United Kingdom. Its successful use in
this country helped to establish anaesthesia on the continent of Europe
and (paradoxically) popularised its use in the United States where, initially, it was not given much credence outside Boston itself.

Although the second Cambridge artifact has a direct connection with
Francis Boott it was generated some 27 years prior to the beginnings of
ether anaesthesia and was not directly related to that event. However,
it does shed light on Boott’s character and, by so doing, helps us to
understand why he, alone, reacted so positively to the news of
anaesthesia’s invention in Boston. As such, it is an important thread in
the tapestry of early anaesthesia. To understand how it came about we
need to know something about Boott’s early life.

Boott’s early life

Francis Boott was born in 1792 into a wealthy mercantile family in
Boston, Massachusetts. Between 1810 and 1820 he made a number of short
business visits to Britain, but it soon became clear that he was not
fitted for a commercial life. He was financially naive, and his business
dealings in Britain were disastrous. They resulted in the loss, by the
Boott family as a whole, of some £200,000. As a result, Boott—in 1820
—decided to give up his business career, to settle in Britain, and to
concentrate on more congenial and academic pursuits.

However, in order to assess and to appreciate the second Cambridge
artifact, we must remember that, in 1819, Boott was still an errant
businessman, beset by the family and financial troubles which had
resulted from his commercial ineptitude. His correspondence (of which a
great deal still exists) indicates that, while he had enough money to
live on at this time, his funds could only support a modest, although
adequate lifestyle. There was, it would seem, little available for luxuries.

Nonetheless, in 1819, which was some 27 years before his involvement with anaesthesia, Francis Boott found both the time and the money to raise an impressive memorial (Figure 1) in Cambridge, to a young English poet whose work he admired very much. To the analytical historian I believe that there is now more to this than meets the eye.

**Henry Kirke White**

The poet was Henry Kirke White. He was a minor poet although, had he lived longer and produced more, he might have become very well known. He was born in Nottingham in 1785 and died in 1806, at the age of 21, in Cambridge. His parents were poor, and he was initially apprenticed to a lawyer in Nottingham. In his 'teens he became a prolific writer of poetry, but most of his material was not revealed or appreciated until after his premature death. Whilst in Nottingham Kirke White became intensely religious, and he decided to take Holy Orders. To accomplish this he came to Cambridge to study at the University.

In 1802 (he was then aged 17) he wrote a small volume of poems which he arranged to be published in the hopes of raising sufficient money to pay for his undergraduate years at Cambridge. With a few notable exceptions, this collection of poems was greeted with little enthusiasm, and the publication was not the financial success that Kirke White hoped for and needed. He continued to be impoverished. However, his poetical works were thought highly of by at least three men. Two of these were the eminent English poets Robert Southey and Lord Byron. The third was the young American, visiting businessman Francis Boott.

Robert Southey was, at the time, a very well-known poet. He befriended Kirke White and used his considerable influence to help him succeed. Although he was a prolific writer, and later became the Poet-Laureate, few, if any, of Southey's poems are remembered. He is best known now for his biography of Nelson, and for having written the first version of the nursery classic 'The Three Bears'. In the early 1800s, however, Southey was greatly respected and, as a result of his academic contacts, Kirke White obtained a sizarship (essentially a bursary) at St John's College in Cambridge.

Kirke White arrived in Cambridge in October 1805. He lived in poverty in a garret of St John's College, where he worked extremely hard at his studies. He was a brilliant student and, at the end of his first year's examinations, was easily placed at the top of his class. He was persuaded not to leave Cambridge during the summer vacation of 1806, but to stay in his garret overlooking the College's Third Court and work, unremittingly, for the very best degree. Sadly, his health, which had always been precarious, let him down and, in October 1806, tuberculosis of the lung - then 'Captain of the Men of Death' - claimed his young and artistic life. He died at St John's College in mid-October 1806. He had spent just one year and ten days at Cambridge. Henry Kirke White was buried at the then All Saints' Church in Cambridge, which stood almost opposite St John's College in Trinity Street.
Shortly afterwards, Robert Southey produced a biographical appreciation of Kirke White, and this was published together with the young poet’s collected works. Lord Byron, a contemporary of Kirke White’s at Cambridge, thought highly of his poetry and eulogised Kirke White after his death by writing that ‘His poems abound in such beauties as must impress the reader with the liveliest regret that so short a period was allotted to talents, which would have dignified even the sacred functions he was destined to assume’.

Boott and Kirke White

In his youth Francis Boott developed what was to become an abiding interest in art and literature. His tastes were refined. He was fond of poetry, and his favourite poet was Byron whose reputation was at its height around 1820. Arguably, it was through a combination of Byron’s eulogy and Robert Southey’s book that Boott came upon Kirke White’s work. Certainly, by 1818 at the time of one of his later business visits to Britain before coming to live here permanently, Boott was familiar with (and admired) Kirke White’s poetry. In 1819, the year before he finally settled in London, Boott decided, as he later wrote: ‘...to visit the graves of those who had ministered to my soul and intellectual improvement’. He visited Cambridge and was surprised at the simplicity of Kirke White’s grave in All Saints’ Church. The grave was marked, as it had been for the previous 13 years, with a flat stone which bore only the bare legend ‘H Kirke White’. Boott decided that this simply would not do. In his opinion, the young poet was worthy of a far better memorial. In one of his letters Boott wrote ‘...surely poor White deserves the notice that is usually paid to departed worth’.

Even though this was precisely at the time when Boott’s financial and business worries would have been bearing most heavily on him, his finer feelings rose above these difficulties and he arranged for a more suitable memorial to be constructed. He made the arrangements with great care and thought. He discussed the general design, and the details, with each of those most closely involved, and was careful to seek the views of Kirk White’s mother and other members of the poet’s family. The result was a fine, marble memorial which was first put up, in 1819, in All Saints’ Church, Cambridge, where Kirke White had been buried. It is visually appealing and has noteworthy features, especially its poetic inscription and the portrait medallion.

The poetic inscription was written, at the invitation of Francis Boott, by William Smyth - sometime Cambridge Professor of Modern History who knew Kirke White in that brief year at St John’s College during which the young poet demonstrated such promise. Part of this poetic inscription (its last six lines), without mentioning his name, makes a clear reference to Francis Boott’s having endowed this new memorial.

"Foremost to mourn was generous Southey seen
He told the tale and shewed what White had been:
Nor told in vain - for o’er th’ Atlantic wave
A wanderer came and sought the poet’s grave;
On yon low stone he saw his lonely name,
And raised this fond memorial to his fame."
The portrait medallion of Henry Kirke White was sculpted for the memorial again at Boott's invitation, by Francis (later Sir Francis) Chantrey, who was then one of England's leading portrait sculptors. By the time Chantrey received Boott's commission he had already created the statues of King George III for London's Guildhall, of Nelson, Howe and St Vincent at Greenwich, and busts of Sir Walter Scott and many other leading figures of the time. In 1819 Chantrey was approaching his zenith, and he was able to command high fees for his work. Arguably, the medallion which Francis Boott commissioned from him would have cost no small amount of money which, at the time it would seem, Boott could ill-afford.

The original plaster model made by Chantrey in 1819 from which he then fashioned the medallion in marble was given to Boott. Later, in 1860, this plaster model was presented by him to the National Portrait Gallery in London, and it is still in the collection there. The National Portrait Gallery had been instituted just four years earlier, in 1856, and Boott's gift of Chantrey's plaster model was the very first piece of portrait sculpture ever to be accepted by the Gallery. Thus, this original plaster medallion remained in Francis Boott's possession for some forty years, and it is not difficult to imagine its occupying a prominent place in this cultured and enlightened man's modest home in central London.

Certainly his undistinguished, terraced house in Gower Street (in which England's first anaesthetic was given) seems, by the time of Boott's death, to have become something of a treasure trove. One of his obituaries recorded that he had had "a boundless sympathy for whatever is good and beautiful. His house was filled with pictures ... selected
without regard to names, but with a keenly discriminative eye to harmony of colour and truth: his library was as select as his pictures'. Chantrey’s plaster medallion must, almost certainly, have been displayed in Boott’s house - possibly in the very room where Boott and Robinson first used ether anaesthesia on the 19 December 1846.

When describing the memorial I have been careful to emphasize that it was first put up in All Saints’ Church almost opposite St John’s College in Cambridge. However, All Saints’ Church was demolished in 1870, but part of the Churchyard of All Saints’ still occupies its original site in Trinity Lane. It is now known as All Saints’ Green and there a general memorial also records Henry Kirke White. This general memorial was, I think, erected to replace the gravestones which were destroyed when the church was pulled down. However, Francis Boott’s memorial to Henry Kirke White was preserved, and was carefully removed from All Saints’ Church before its demolition in 1870. Soon afterwards it was placed in the then recently-completed ante-Chapel of Kirke White’s old college (St John’s) where it can still be seen in the original form ordained by Francis Boott.

The memorial’s significance for historians of anaesthesia lies entirely in the circumstances of its commissioning and its original placement, and in what these tell us about Francis Boott as a man. It is apparent that the same attitudes struck by him in his approach to Kirke White’s memorial in 1819 were precisely those which characterized his actions when anaesthesia was born some 27 years later in 1846. By late December 1846 at least 13 people in Britain had been told of ether anaesthesia’s invention in Boston. Of these 13, only Francis Boott appreciated the enormous and humanitarian significance of the news he had been given (by his friends Edward Everett and Jacob Bigelow) of the seemingly miraculous events in Boston. Boott reacted enthusiastically; the 12 other correspondents did nothing.

A close study of both events reveals that, even though they were separated by some 27 years, Boott’s actions - when commemorating Kirke White and promoting the introduction of anaesthesia - were consistent, and entirely selfless and self-effacing. On both occasions he was content to be an unsung intermediary, and sought no publicity or recognition for himself. He was motivated solely by his own appreciation of what was the right thing to do, and by his own conviction that that right should be done.

Francis Boott died in 1863. He pursued his scientific and cultural interests almost to the end. His obituary in the ‘Lancet’ summed up his life by saying that ‘...he has shed far more happiness on his fellow creatures than most, but so unobtrusively that his merits are less generally known than they deserve to be’.

The impressive and fond memorial which Boott raised in 1819 to honour Henry Kirke White should now serve as a reminder to us not only of a gifted and promising young English poet who died at a tragically early age, but also of that modest and much-overlooked, young American gentleman named Francis Boott, whose altruistic actions in 1819 led to the design and placement of the memorial. As we look on the memorial, we should remember that the same altruism of the same man, in late 1846 and early 1847, was to have enormous and beneficial consequences for the infant Specialty of Anaesthesia and, therefore, for mankind as a whole.
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THE FIRST REPORTED DEATH DUE TO ETHER

Dr F F Casale

The first public ether anaesthetic was administered by Thomas Morton on the 16th October 1846 in Boston, Massachusetts, and the news reached Britain in December. Robert Liston used it for two operations at University College Hospital on 21st December 1846 and achieved instant notoriety in both the medical and lay press. Soon operations were being performed under ether anaesthesia throughout the country.

During January and February 1847 the 'Lancet' and other medical journals were receiving and publishing reports of the successful use of ether vapour for a variety of surgical interventions on patients of differing ages and fitness. These articles were, in return, reported in the lay press. However, among these enthusiastic reports on the use of ether the first note of alarm was sounded barely two months from its introduction, in the 'London Medical Gazette' on the 26th February in a report entitled: 'Fatal Effects of Ether vapour in a case of Lithotomy. by Roger Nunn, Esq: Surgeon to the Colchester and Essex Hospital on the patient operated upon on Friday 12 February 1847'. This article was reprinted on the 19th March by the 'Lancet' and also by the 'Essex Standard', the local newspaper, published in Colchester.

The Essex and Colchester Hospital

The Essex and Colchester Hospital opened in September 1820 as a General or Voluntary Hospital for the poor in Essex and Suffolk, funded by donations from worthy citizens of Colchester. Admission to the Hospital had to be on the recommendation of a subscriber who could recommend patients in proportion to his subscription, e.g. half a guinea would permit two outpatients per annum, two guineas would allow an admission as well. The Outpatients Clinic was held once a week when a selection for admission was made. Only patients expected to respond to treatment were admitted. Patients likely to die were excluded as people were expected to die at home and not in hospitals. Similarly, most operations were performed in patients' own homes and, up to 1847, only 15-20 operations would be performed per year in the hospital. The governors of the hospital elected two physicians and three surgeons from applicants who had to be local general practitioners. A Board of Governors ran the hospital and met weekly to consider the patients selected for admission to ensure that they were really poor. No private patients were admitted.

Observers at the operation

On Friday, 12th February 1847, Mr Roger Sturley Nunn operated on 'Thomas Herbert, a 52 year old labourer from the nearby village of Witham, subject of a stone in the bladder, in the presence of most of the Medical Gentlemen of the town and neighbourhood'. It would therefore appear that the operation had been planned for some time, possibly scheduled on a Friday to enable Mr Bransby Cooper, Surgeon and Lithotomist at Guy's Hospital with whom Roger Nunn had trained, to attend. Also present was Mr Alderman Partridge, Senior Surgeon at the Hospital, who had also worked at Guy's and at St Thomas's and who was reported to be a 'bold and successful operator - especially in lithotomy and who probably enjoyed the largest Practice as a Consultant in Essex'. He had been the key witness in the most famous of all surgical trials, when Bransby Cooper had sued Thomas Wakely, Editor of the 'Lancet' in 1828, for having published an account of an operation by Cooper stating, in no uncertain terms, that it was a highly incompetent performance. Partridge gave evidence for Wakely, saying that
he had seen the operation and had no doubt that it was inefficiently and ineptly performed. The £2,000 damages claimed by Bransby Cooper were assessed at only £100, largely on Partridge’s evidence, which was a moral victory for Wakely and left Cooper’s reputation in tatters and the medical profession rather displeased with Partridge.

The Surgeon

The surgeon performing the operation was Roger Sturley Nunn, son of Roger Nunn, the original senior surgeon appointed in 1820 when Alderman Partridge was also appointed. Born in 1813, he received his medical education at Guy’s and was appointed to the Colchester and Essex Hospital at the age of 23 when his father retired. He is recorded as having been elegant with foppish ways, a cane, buttonho1e and top hat. He drank considerably and insisted on a drink at each of his patients’ houses. However, there is no suggestion that he was other than a good doctor to both the rich and the poor. He died in 1888 whilst still on the hospital staff and his funeral was one of the most imposing that Colchester ever had witnessed. In 1847 he would have been 34 and obviously keen to try out this novel approach to operating.

The Anaesthetist

The anaesthetist was Dr Edward Williams, appointed Physician to the Hospital in 1837. He was considered by some of his colleagues as something of a mystery man, but this was because he tried to hide from his associates the fact that he was the illegitimate son of a poor spinster and a well-to-do man from Lincoln, who put him through Cambridge, where he obtained the MB in 1832 and an MD in 1844. He never married but lived with two well-to-do ladies who eventually became very poor! He got into trouble with the Colchester Medical Society, being accused of unprofessional conduct for contracting with a patient to treat him for an annual fee and, in another instance, for contracting with a pharmacist to do all his prescriptions. Obviously, it did him no harm in politics as he was Mayor of Colchester four times! He died at the age of 69 in 1877.

The Theatre

The operating room at the Essex and Colchester Hospital was on the first floor and the special operating table had been bought in 1836 for the price of £4.19.7d. from the celebrated French lithotomist, Baron Harteloup who had been invited to the hospital in 1835 at the instigation of Mr Alderman Partridge, to demonstrate his lithotrite. He performed the operation for the benefit of the medical practitioners and also for several of the Board of Governors who were duly impressed and acquired this special lithotomy table designed by the Baron.

The ether was administered through a ‘Weiss apparatus’, most likely a Squire’s ether vaporiser, made by the instrument makers, Weiss. The patient was bound in the position for lithotomy.

The Operation

‘The Ether was exhibited by Dr Williams, who considered the patient to be sufficiently under its influence, having inhaled it for 7 or 8 minutes’, at the end of which time Mr Nunn commenced the operation. There was no difficulty nor loss of time in cutting into the bladder, but having done so, some little delay occurred in grasping the stone which was small, very flat and laying in the posterior part of the bladder. Delay was also increased by the extremely
relaxed state of the bladder itself, which seemed to fall in folds and cover the forceps and the stone. The time occupied from the commencement of the operation to the period when the man was unbound was 10 minutes, during which time the ether was administered at intervals. The breathing was at first heavy and later became stertorous as the anaesthetic progressed and this was considered to be due to the relaxation of the uvula and compression of the nostrils to prevent respiration through them. The stertorous breathing was readily reversible and cyanosis was slight and the pupils were not dilated.

Postoperative Course

The patient recovered from the effects of the ether after a short time and continued in a quiet passive state without decided reaction for 24 hours, after which he had a chill which lasted for nearly 20 minutes. Mr Taylor, the house surgeon immediately gave him 2 ounces of brandy, after which the patient remained in a dozing state until 8 pm when the house surgeon considered it necessary to send for Mr Nunn, as a state of complete prostration or collapse had ensued. Further small quantities of brandy and arrowroot were administered, he was wrapped in hot blankets and hot bottles were placed in the bed, but the patient remained incoherent throughout the night. At 9 am on Sunday morning there was a consultation of all the medical staff and it was decided to administer a stimulating injection (turpentine) which only slightly increased the pulse rate, but without exciting his nervous energies. The patient gradually sank to his death at 5 pm on Sunday, being sensible to the last. A post mortem was carried out 67 hours after death, but contributed nothing useful. The anaesthetist, Dr Williams, did not express any view on the cause of death except that he did not think it due to syncope or compression of the brain, as one critic had suggested.

The Surgeon's Opinion

Roger Nunn then goes on to say that 'it is not my intention or inclination to attribute the loss of my patient wholly to the influence of ether, which was administered in this case, nor hastily to decry its use under all circumstances connected to surgical operations, but I feel called upon to bring before the notice of my Medical brethren, the effects which resulted from its exhibition in this unsuccessful case, how far it may be considered safe to employ ether generally as a means of preventing the pain otherwise inseparable from physical lesion. The suffused eye, livid lips and stertorous breathing accompanied, first, by convulsive struggles and next by the cessation of all motion, are often indicative of the effects of the vapour and these were not altogether absent in the present instance. Still, I felt myself justified in employing it, from the published accounts of many successful cases and the sanction of my colleagues and numerous friends around me. In prosecuting the operation, there was nothing peculiar to attract my attention or to lead me to consider the patient's physical condition different from that of those on whom I had operated before, until I reached the bladder, when I can but attribute the difficulty in seeking the stone to the apparent collapsed state of the viscera due to the effects of the ether. I must not, however, omit to mention the fact that the patient expressed no sign of suffering during the operation. Thus far therefore, it may be said that ether fulfilled its intended offices. However, I think another question is involved, whether the artificial means thus employed, may not produce very depressing effects on the nervous system, depriving the patient of the reactive power so necessary to the reparative process. Has not the patient the double shock to overcome, produced by the vapours superadded to that of the operation itself? I am inclined to believe that pain should be considered as a healthy indication and an essential concomitant with surgical
operations and that it is amply compensated by the effects it produces on the nervous system as the natural incentive to reparative action. I trust that the publication of this unsuccessful case may lead to the publicity of many others which may occur so that the profession may not be led away by the erroneous supposition that the prevention of pain is so vital a desideratum in operative surgery.'

Conclusions

From this account of the anaesthetic given at Colchester on the 12th February 1847, it would appear that the operation was successfully completed under the anaesthetic effects of ether with the patient recovering consciousness, but then bacteraemia ensued and the patient died from septicaemia. While it is true that this is the first reported death attributed to ether anaesthesia, it cannot be strictly recorded as the first death due to anaesthesia. It can, however, be the first recorded death blamed on anaesthesia by the surgeon and the forerunner of many similar instances which have given rise to the great surgical dictum that 'the operation was successful but the patient died (from the anaesthetic)' and which has proved to be such a useful smokescreen for our surgical colleagues ever since.

References

When anyone claims a 'first' it usually provokes a challenge. Over 50 years ago Henry Featherstone claimed that William McCardie 'was the first anaesthetist outside London to confine himself exclusively to anaesthetics'. He was not challenged. Some 36 years later Bryn Thomas stated that 'McCardie was the first provincial full time anaesthetist'. This statement was not challenged. Little has been written about McCardie.

Family origins

The McCardie family came from Ulster. His father, Joseph William McCardie, settled in Birmingham and became a button manufacturer. Birmingham was the centre of the button industry and received royal patronage. Although King George IV, 'A Real Brummagen Boy', supported the gilt button trade, after the 1830's the wearing of gilt buttons declined. Joseph McCardie was a specialist who manufactured pearly buttons. These held a popular place in fashion throughout the Victorian period. McCardie prospered, he became a governor of several hospitals and was a member of the committee which founded the Women's Hospital. He died in 1877 leaving a widow and seven young children. The eldest son, the future Dr William Joseph McCardie, was then almost 12 years old.

Medical training

William McCardie was educated at King Edward's School, Birmingham, Caius College, Cambridge and Birmingham Medical School. He registered as a medical student in October 1885. He enjoyed life in Cambridge and he had a life long interest in sport. He played tennis for Warwickshire and later he won many trophies for golf, including the BMA's Ulster Cup. Incidentally, he was an exceptionally fine counter tenor and in May of his first year wrote home to report that his performance at a public concert had been well received. He also sang in King's College Choir. Academically, he obtained his BA in 1889, the MRCS LRCP in 1894 and his Cambridge degree in 1895, some 10 years after registration as a medical student. It seems that he took time off for a voyage to the Far East and to work in a leper colony.

Sir Gilbert Barling

He began training in surgery at Birmingham General Hospital, but he was persuaded by Sir Gilbert Barling to specialise in anaesthetics. Barling was a man of considerable stature. He became Dean of the Medical School and Vice-Chancellor of the University, and was known as the 'Fighting Dean'. He once quelled a student riot with his bare fists, although this was not the way her persuaded McCardie to specialise in anaesthetics! There were, of course, already anaesthetists appointed to the hospital but they all had supplementary occupations and incomes. McCardie was asked to specialise exclusively in anaesthetics. The way this happened was, in Barling's own words: 'McCardie came under my notice as one who gave anaesthetics better than most juniors. At this time surgery was making great advances, operations of increasing severity were being undertaken, and parts of
the body invaded that had to a great extent been prohibited to the surgeon. The importance of capable anaesthetists became more and more recognised, and I urged McCardie to take up as his life's work the administration of anaesthetics. This specialising led to the exclusion of the general practitioner ... from a task he had hitherto undertaken, and it was at first resented'. Barling's thoughts may have been influenced by a particular anaesthetic incident in which his house surgeon nearly killed a famous patient.

McCardie's career

McCardie was appointed to the General Hospital as a Visiting Anaesthetist in 1897. He became an Honorary Anaesthetist in 1919 and was the first anaesthetist to be listed as a member of the senior staff. When he retired from the staff in 1926 he was appointed an Honorary Consulting Anaesthetist.

When McCardie began as a specialist anaesthetist he had no guide as to appropriate fees. At the end of his first case the general practitioner asked him what his fee would be. He did not know what to charge. So he asked the G.P. what the surgeon was charging. He was told the surgeon's fee, and after a few moments thought McCardie answered: 'Yes, that will be sufficient'. He charged the same as the surgeon and continued to do so. Barling's views on fees are unknown but about the development of specialisation in anaesthesia Barling wrote: 'surgeons in and around Birmingham appreciated what was a new departure, and, my friend soon developed an extensive practice in his special line'.

Other anaesthetists gave anaesthetics for surgeons. McCardie cared for his patients who needed surgery. General practitioners were won over and some insisted that McCardie look after their patients when they needed surgery. This meant that McCardie was sometimes booked for cases before the surgeon was selected.

Within a short time he was giving between 2,000 and 3,000 anaesthetics a year. He said: 'I doubt if I could stand the strain of work if I did not make that work as safe as possible for the patient and at the same time as easy as I can for myself'.

Political career

Despite this workload he was an active member of the Society of Anaesthetists, being elected in 1897. He served on the Council and held office as Auditor and as Honorary Secretary. In 1907 he became President of the newly formed Section of Anaesthesia of the Royal Society of Medicine. He served on the B.M.A. Chloroform Committee with Professor Waller, Professor Sherrington and Sir Victor Horsley. Dudley Buxton was secretary and Vernon Harcourt a co-opted member. McCardie played a leading role in the Anaesthetics Section of the British Medical Association, being Secretary in 1910, Vice President in 1912 and President in 1922. He was also a member of the Editorial Board of the British Journal of Anaesthesia.
Academic Contributions

A rapid search for McCardie's contributions to the literature found over 50 publications between the years 1898 and 1926. McCardie's knowledge of anaesthetic literature was exceptionally wide and included the continental publications. He translated the original German reports on ethyl chloride anaesthesia and on status lymphaticus into English. McCardie's copy of the original German paper on ethyl chloride with his comments written in the margins is in the library of the Nuffield Department in Oxford. A McCardie Ether Mask is in the Association Museum, having been presented by the Australian Society. McCardie invented several pieces of apparatus including a sterilisable rebreathing bag and a sterilisable ether inhaler. It is easy to forget how filthy much of the apparatus was in the early days. Skinner described the situation 'every patient is made to breathe through the same mouthpiece, tube and chamber ... Sweet seventeen is made to follow a bearded devotee of Bacchus, saturated with the smell of cigars and exhalations of cognac'. McCardie endeavoured to present his patients with clean sterile apparatus.

War Experience

During the 1914-18 war, McCardie served as anaesthetist to the 1st Southern General Military Hospital at Edgbaston - it was in the University buildings. During this period he evaluated the effect of various mixtures of ether and chloroform on soldiers. His idea was to take ether as the standard and to modify its action so as to obtain some of the advantages of chloroform anaesthesia. This was the reverse of the usual mixtures in which the action of chloroform was predominant. He tested mixtures from \( E_{\frac{4}{1}} C \) to \( E_{\frac{2}{3}} C \). He found \( E_{\frac{2}{3}} C \) most suited for young soldiers. He coined the term 'mitigated ether' to describe this mixture.

McCardie was an enthusiastic teacher. One of the medical students at McCardie's lectures was Seymour Barling, the nephew of Gilbert and he wrote most careful notes of the lectures. His notebook has fortunately been preserved and provides a record of McCardie's teaching. McCardie was respected by the students and was elected President of the Medical Students Society.

Another of McCardie's students was Henry Featherstone, founder of the Association of Anaesthetists. Featherstone repeatedly told me that McCardie was the finest clinical anaesthetist he had ever known. When McCardie retired, Featherstone wrote to him: 'the inspiration which you gave me and the kindness which you showed me has been the main influence in my own life as an anaesthetist'.

A particular incident demonstrates Featherstone's feelings. In 1936 Featherstone's youngest child, a little girl aged 3, was very ill, she had peritonitis, appendicitis and a chest infection. She was in the Children's Hospital which had its own staff of four senior anaesthetists, but Featherstone sent for McCardie to look after his daughter. McCardie was then 72 years old. A few weeks later she needed a myringotomy. Featherstone again sent for McCardie.
McCardie's workload

I have McCardie's case book for the years 1936 - 1938. He was over seventy and he had been retired from the active staff of the General Hospital since 1926. The number of cases he did now was less than in earlier years. He recorded 462 cases in 1936, 456 cases in 1937 and 260 cases in 1938. They are not just small cases, they include craniotomies and other operations lasting over 3 hours. The final number in his case book is 35,270. In 42 years of practice he averaged over 839 cases a year (he did not include any dental cases in his case book).

In these latter years most of his work was done in the Birmingham area. Previously he had travelled all over the Midlands to hospitals, nursing homes and private houses, but he did not learn to drive a motor car. He was driven by Johns, his chauffeur, who had come to the family as a groom's boy and stayed until McCardie retired. His cars included a White Steam Car, an American vehicle which cost more than a Rolls Royce. It was the car favoured by Theodore Roosevelt when he was President of the USA.

McCardie's family life

In 1911 McCardie married Esther Maye Porter Collins. She had trained as a nurse at the Norfolk and Norwich Hospital. They met when she was nursing one of McCardie's patients in the Cotswolds at Broadway. They had four children, two boys and two girls. McCardie was devoted to his family and provided lavishly for them. They lived in some of the most elegant houses in the city, alongside the captains of industry, and were cared for by a staff of eight. Mrs McCardie entertained on a scale which has become a legend.

When the family went on holiday they travelled in regal style. They had a private coach on the railway train. But in 1933 McCardie was hit by two tragedies. His elder daughter died suddenly from meningitis and his brother Henry was found shot dead. His brother, Sir Henry Alfred McCardie, had been a brilliant barrister. He became a judge, and as Mr Justice McCardie he had made some famous judgements.

McCardie sought solace in his work. He worked until December 1938, when he was 74 years old. He then went to live in Warwick where he was cared for by Dr James Knott who had been one of his students and who had become a general practitioner and anaesthetist. Dr McCardie died on 14th February 1939. Dr Knott certified his death was caused by aplastic anaemia.

Dr McCardie is interred in the family vault in Birmingham.

Memorials

You will not find a picture of McCardie in the archives of the Birmingham General Hospital, the Birmingham Medical School, the RSM or the BMA. But at the Mayo Clinic, in 1958, I found that John Lundy had a framed photograph of him on his office wall.
Acknowledgments

I am grateful to Mrs Jane Howse - daughter of Dr W J McCardie, Mr H A McCardie - son of Dr W J McCardie, Dr Thomas Boulton and Professor Sir Keith Sykes, for their help in the preparation of this paper.

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8 McCardie W J. A simple two-sized sterilisable inhaler for the administration of ether and chloroform (E₂C₁) or for ether alone. Lancet 1904; 2: 154.
The first official recognition local anaesthesia received in Leiden was in 1867 when C L G Becht, a trainee surgeon at the Academic Hospital, defended his thesis 'About local anaesthesia and its use'. He noted that the then known methods of inhalation anaesthesia could cause postoperative hyperanaesthesia, epilepsy, brain diseases, tuberculosis and unexpected death. Another drawback of inhalation anaesthesia was, he felt, that patients with heart, lung or brain diseases could not tolerate it. Because of this, surgeons sometimes preferred to perform minor surgery without any anaesthetic at all. This was reason enough for Becht to investigate the possibilities of alternatives to inhalational anaesthesia.

Methods of local anaesthesia in 1867

The methods of local anaesthesia known at the time were: compression of the nerve, the application of electricity, and the application of cold. That the first two were ineffective was clear to Becht, leaving the latter as the best method available. Becht described his experiences using Richardson's ether spraying device on 12 patients. (Figure 1) Although 10 of the 12 patients reported satisfactory anaesthesia, the method was not adopted for general use in the surgical department, because the surgeons did not consider it worth the bother with the 'rough and uncouth' patients in their Outpatient Department.
Introduction of cocaine

In 1884 J A Romer wrote a thesis on the use of topical anaesthesia with 2% cocaine in ophthalmology, trying out Koller's recent discovery on a few patients. He reported good operating conditions as long as the surgeon did not go deeper than the conjunctiva.

The importance of local anaesthesia as an alternative to inhalational anaesthesia is demonstrated by the dramatic improvement of surgical outcome following the introduction of dilute cocaine infiltration anaesthesia for inguinal hernia surgery. Before 1892 only a few hernia operations were done each year, with a considerable mortality (around 20%). Schleich presented the method of local infiltration at the German Surgical Society Congress in 1892, antagonised his colleagues and was disgraced; the method was nevertheless introduced in Leiden that very year. In the years that followed, hundreds of patients were operated upon each year using this method, with very low postoperative mortality (less than 4%), which was also perceived as no longer directly due to the anaesthetic technique used.

Schleich's method consisted of oedematising the tissue with a dilute cocaine and morphine solution with a special syringe which developed three atmospheres pressure on injection. (Figure 2) The resulting oedema made recognition of the tissues difficult, but was preferable to the hardness caused by chilling, which also increased bleeding postoperatively.

Spinal anaesthesia

Subarachnoid anaesthesia was first reported in Leiden in 1907 when 10-30 mg of cocaine was given for operations below the level of the umbilicus. Although it produced excellent analgesia, the patients also complained of headaches, nausea, vertigo, vomiting, shivering, sweating, insomnia, fever and, sometimes showed signs of collapse with a weak rapid pulse, cold sweats, and paleness. These latter signs were considered to be foreboding grave dangers and even death.

In 1908 stovaine was introduced as a spinal anaesthetic, being supposedly less toxic than cocaine, and was initially used in a dose of 80 mg, but soon a dose of only 40 mg was shown to be sufficient. The unpleasant patients complaints described above, which were due to untreated hypotension, were not due to the characteristics of the drug itself as was first thought, but were caused by the unrecognised major sympathetic blockade. The general opinion of the Dutch Surgical Society was that because of the problems that accompanied spinal anaesthesia, it was only to be used if general anaesthesia was contra-indicated. By 1941 there were no more reports of the use of spinal anaesthesia in the Leiden Surgical Department, contrary to infiltration anaesthesia which was frequently used. After 1905 Novocaine replaced the more toxic cocaine for this purpose.

In 1923 Zaaijer introduced nitrous oxide as the standard inhalational anaesthetic in Leiden, using his own 'overpressure' style apparatus. His predecessors had seen no place for this gas in surgical anaesthesia, but Zaaijer needed it to be able to do intrathoracic surgery, and subsequently introduced it for general use in his department. Nitrous oxide thus replaced the local infiltration techniques, and was found to be equally safe. In addition, it caused less waiting time for the surgeon, and patients liked it.
In conclusion, it has been demonstrated that the introduction of local infiltration anaesthesia provided a great improvement in patient safety at a time when general anaesthesia was unsafe; and that the first introduction of regional anaesthesia failed as its physiological sequelae were not understood.

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The recent tragic events in Yugoslavia have called to mind my first experience of that country over thirty years ago.

A call to travel

One day in January 1961, about noon, I was attending the clinicals of the FFARCS examination at Queen Square with a view to applying for an examinership, when I received a telephone call from Mr Rodney (now Lord) Smith, asking me if I would be prepared to go to Yugoslavia that afternoon to anaesthetise an important person. Rodney, who had been in Yugoslavia during World War II, had been asked by one of the surgeons there to recommend a vascular surgeon; I believe Charles Rob was mentioned, but he had recently moved to the United States. Rodney had therefore contacted Mr Ian Kenyon, a colleague of Rob's at St Mary's Hospital, who agreed to go, but was unable to find anaesthetist. I swallowed hard and said "Yes, all right", and telephoned Mr Kenyon (whom I had not met) for further details. He told me that he knew little about the patient, except that he appeared to have had a cerebral accident, possibly as a result of carotid stenosis. He said that he would like me to accompany him but that, if surgery proved necessary, he would try to get one of St Mary's anaesthetists to go out later. He had the air tickets and would meet me at West London Air Terminal (now Sainsbury's supermarket) in Cromwell Road at 3 pm, our flight from Heathrow being at 4 pm.

The next 3 hours were very busy ones. I had to arrange for two private cases to be undertaken by a colleague, I was due to give a lecture to student nurses at St George's at 1.30 pm, I had to obtain a visa from the Yugoslav Consulate. I had to change my clothes and pack a bag and get a quick bite to eat. Moreover, in spite of Mr Kenyon's suggestion, I decided I must go fully prepared to give an anaesthetic under induced hypothermia.

I gave a short talk to the nurses, collected my portable anaesthetic apparatus, obtained several cylinders of nitrous oxide and oxygen from the British Oxygen Company's showrooms (formerly Charles King's) in Devonshire Street, borrowed a temperature-recording apparatus from St George's Hospital and made sure that I had an adequate supply of drugs to cover all eventualities. Meanwhile, my wife succeeded in collecting my visa in record time, packed my bag, gave me some sandwiches and found a taxi, in which she, my elder son and I tied labels on thirteen packages, as we sped to the Air Terminal half a mile away. We got there at exactly 3pm.

An eventful trip

As Ian Kenyon was displaying two air tickets and I had thirteen different packages, we had no difficulty in recognising one another. The tickets were for Munich by Lufthansa. We did not know how or where we were going from there. Ian thought Dubrovnik was a possibility. Although he had recently had a summer holiday in Opatija on the Adriatic coast, we neither of us knew much about Yugoslavia, still firmly ruled by Marshal Tito, although recently broken away from Russian influence.

As we took off from Heathrow, I recalled that my packages were in the luggage compartment, but I had no idea whether or not it was pressurised.
BOC had told me that they never delivered compressed gases by air, they were always sent by sea, the cylinders destined for tropical climates being only partially filled. As mine were completely full, I insisted on the air hostess finding out from the captain if the compartment was pressurised and, to my great relief, it was.

While in the air, we were told that we could not land at Munich because of heavy snow on the runway and that we would stop off in Frankfurt. This was not long after the Manchester football team disaster at Munich airport in bad weather, so that we were only a little reassured when we skidded to a halt on landing. We were happier after it was announced that we would fly on after the runway had been swept clear of snow.

Fortunately, our landing at Munich was uneventful. We were met at the airport by the Yugoslav Consul, Mr Spiro, a cheerful little man, who greeted us with his hands clasped above his head, as if we had won a prize fight. He told us that the patient was holding his own and that we would stay the night in Munich and fly on to Zagreb next day; from there we would be driven to Ljubljana. I had learnt by this time that the patient was the Professor of Surgery, Professor Lavric, who had been Tito's surgeon during World War II. The German customs wanted to refuse admission to my baggage, but I managed to persuade them to keep it in bond until the following day for, as I explained: 'Ich gehe nach Jugoslavien' (this later caused great amusement to my younger son, who told me that I had said I was walking to Yugoslavia and he imagined me with a placard on my back 'Yugoslavia or bust'). After a good night's rest, we flew off in a JAT Convair, a two-engined, propeller-driven aircraft, with my packages on the front seat covered with a blanket. We flew just over the tops of the mountains in clear sunshine, with a beautiful view of the snow-covered Alps.

As we landed at Zagreb airport, there was a sentry pacing up and down near the runway, a reminder that we were no longer in the West. We were met by two of the doctors from the hospital in Ljubljana, Dr Cas, the neurosurgeon who had diagnosed Professor Lavric's condition as carotid stenosis, and the second-in-command to the Professor, Dr Derganc, a plastic surgeon. Ian told me later that there were tears in their eyes as they greeted us.

We drove off in convoy; Ian Kenyon and Dr Cas in front in a Mercedes, Dr Derganc and I next in a Volvo and, last, our luggage in a station wagon. We drove through snow-covered country, on a long straight road, with an occasional lorry passing in the opposite direction, for about 150 km to Ljubljana. As Dr Derganc had trained partly in Edinburgh and knew many British surgeons, we had plenty to talk about. I remember he asked: 'How is Sir Thomas Price?' I knew who he meant, but it took me a moment to translate it into 'Sir Clement Price-Thomas'.

A complex case

Arriving at Ljubljana, we were taken to our hotel to 'wash and brush up' for half an hour before being taken to see the patient. Professor Lavric was in the Polyclinic, which had been his own private clinic in the old days. When we arrived there, we found a pleasant man of 62, who was unfortunately aphasic, but he appeared to understand me when I gave him greetings from Rodney Smith. He was being looked after by his theatre sister, who was obviously very devoted to him. After examining him and having heard Dr Cas's account of the case, Ian Kenyon agreed that an
operation was required and asked me if I was prepared to give the anaesthetic. We had got to know each other during our journey, but it was hardly surprising that he had been doubtful about my competence before that. Professor Lavric had had two previous small myocardial infarcts, so that the whole procedure was going to need the greatest care. We had a solemn consultation with the two surgeons and Madame Lavric, in which we explained exactly what we proposed to do. I then asked if there was an anaesthetist and was told she was waiting downstairs. I said that I would like to meet her and was introduced to Dr Darinka Soban, the senior anaesthetist in Ljubljana. Dr Soban told me that she had the highest regard for Professor Lavric; he was very appreciative of the value to surgery of modern anaesthesia and anaesthetists, and was much loved by all.

We then went to look at the operating theatre, which was empty, but I was told that everything could be brought down from the main hospital. I felt that we should first see the hospital and decide after that. As this proved to have most of the facilities we required, Ian and I agreed that the operation should be done there. There was even an old, but serviceable, ECG machine, with a pen recorder. Indeed, most of the equipment I had brought with me was not needed after all.

In those days it was usual to perform carotid endarterectomy under surface hypothermia to protect the brain against hypoxia. To do this, it was simplest to have a bath on wheels, into which the patient could be transferred when anaesthetised and curarised (to avoid shivering) and cooled in iced water; the operation would then be performed when the core temperature had fallen to 28-30°C. A lower temperature would result in the heart being at risk of an intractable ventricular fibrillation. Such a bath was promised, but the operation would have to be delayed until the following morning, and it was agreed that we should start at 9 am. Dr Soban asked me if she might attend and I assured her that I was relying on her assistance. Since she spoke little English, we conversed in French.

The next morning an old bath appeared (claw feet and all) in a wooden framework on wheels, which had been constructed overnight. However, we were asked if we would postpone the operation until 3 pm, which we agreed to do with some irritation, as we wanted to get home as soon as possible, because of our other commitments.

Anaesthesia and surgery

At 3 pm I induced anaesthesia, set up an intravenous drip and curarised and intubated the patient. Cooling was started cautiously; the patient was put into cold water to which lumps of ice were gradually added, the water being continually stirred to avoid damage to the skin from the ice. In about two hours, the oesophageal temperature had fallen to 32°C and the patient was re-transferred to the operating table and dried. The oesophageal temperature continued to fall to 30°C due to 'after-cooling' from cold blood still flowing from the periphery to the heart.

Ian then performed a bilateral endarterectomy, clamping the artery on one side for 17 minutes, then, after releasing the clamp for 15 minutes to allow recirculation of the blood to the brain, for 30 minutes on the other side, while he cleared the obstructions caused by the stenoses.

When the operation was completed, the patient was transferred to the bath, now filled with water at 40°C, until the oesophageal temperature rose to
35°C; he was then re-transferred to the operating table and allowed to
rewarm spontaneously. At 1 am the anaesthetic was withdrawn and he was
returned to his bed under the watchful eye of the theatre sister.

During the ten hours we spent in the operating theatre, Dr Soban and I
were alternately plied with sandwiches and fresh lemonade (no canned
drinks were available, thank goodness), one of us ventilating the patient
by hand. I was ready to go to bed, but we were told 'now we will go to
the library and have slivovitz'. There we found glasses and two bottles,
one marked 'slivovitz' and the other 'konjak'. I chose a very little
slivovitz, pleading the excuse of a cold. 'Ah!', I was told, 'it is good
for cold'. After feeling it burning its way down my gullet, I suddenly
felt better and had a second glass.

We were driven back to our hotel and got to bed at last. I was aroused
about 7 am by the telephone. This was Ian speaking from the hospital. The
patient had developed a left hemiplegia; Ian intended to reopen the
carotid artery under local analgesia, but wanted me to stand by. A car
was waiting for me and I joined Ian in the theatre, where I gave the
patient oxygen while he removed the thrombus.

We had left London on Wednesday; it was now Saturday morning and we both
had commitments on Monday. Our passports had been taken away on arrival
and we did not know if or when we would get them back again. It was all
reminiscent of an old film with Douglas Fairbanks Jr as a neurosurgeon
called to operate on the dictator of an Eastern European state! We
were told that we should be having dinner that evening with the Minister of
Health of Slovenia.

In the afternoon we were taken to Bled in the mountains, where the Duke
and Duchess of Kent had spent their honeymoon before the war. The lake
was frozen over and people were skating on it. We both would have liked to
have a quiet meal together that evening but, in the event, our dinner with
Dr Cas and Dr Derganc was quite informal. In the middle of it a pleasant
man appeared with our passports and told us we should be catching the
Taunus express to Munich that night: he was the Minister of Health.

A sudden medical emergency

And so, at 10 pm, we climbed into our compartment. With snow thick on the
ground and steam issuing from the locomotive while a railman tapped the
wheels of the train, the scene was redolent of 'Anna Karenina'. Opposite
us were sitting a Greek woman and a small child, for the train had started
in Athens. Ian offered her a cigarette and she jerked her head backwards;
he was puzzled but I explained that this was the Greek way of saying 'no'.'

My ancient Greek was greatly taxed with some problem with the Jugoslav
conductor about her ticket, for she did not understand his German.

At the Austrian border, the customs officials told us we could not enter
the country because we had no visas. However, I convinced them that we
were in transit to Germany, which appeared to satisfy them. Some time
later, the conductor came in and said 'Doktor, Doktor, komm'. I followed
him into the corridor, assuming there was still some trouble with our
passports. He took me into the next coach, where a man was lying on a
couchette, attended by a woman. She handed me a piece of paper; on it
was written 'acute appendicitis with peritonite' and he certainly did not
look well. It appeared that he was a German who had been taken ill in
Belgrade and was obviously keen to get back to Germany for, although this
was fifteen years after the end of the war, the Yugoslavs have long memories. I told him that I happened to have a surgeon in the next coach and hurried back to tell Ian, who was incredulous at first but, after examining the man, said that he needed emergency surgery and that he should be admitted to hospital as soon as possible. Meanwhile, I should give him some pethidine, which I had in my bag. I gave him an injection of 100 mg pethidine, writing the dose and the time of administration clearly on the paper! I discovered from the conductor that the train would be stopping in Klagenfurt and asked him to phone ahead from the next station for an ambulance to be waiting there. I saw the man off the train, whence he was taken to an ambulance on the station platform, the attendants crunching through the coke in the corridor, for the coach had its own stove. I believe he was taken to Villach some 30 km away, but I do not know how he fared afterwards; at least he had returned to what was once the Greater Reich.

Ian told me later that the expression on the Greek woman's face on my return to our compartment with the syringe and needle still in my hand suggested that she feared a fate worse than death.

The cheerful Mr Spiro (I had mentally christened him 'Dum spiro spero') met us on our arrival in Munich next morning and told us that, after breakfast, we would be taking a flight to Heathrow. It was without incident. We had been away exactly four days, but it seemed much longer.

Conclusion

Professor Lavric survived some nine months after the operation, but never regained his speech. His carotid endarterectomy was the first to be performed in Yugoslavia, and it was the first time that induced hypothermia was used in Slovenia. The gratitude of the Slovene government was marked by an invitation to Ian and me to spend a three week holiday in Slovenia with our families. I believe Ian could not take full advantage of this offer, but my wife and I and three children had a memorable ten days in Bled and ten days in Portoroz on the Adriatic. At the end, the children went off by train to friends in France and Germany, while my wife and I spent a week in Ljubljana, where I gave some lectures on induced hypothermia.

This was the first of many visits to Yugoslavia. It is particularly sad to hear of the loss of life and the damage which is occurring in places with which we became familiar. Fortunately, Slovenia has so far escaped the worst.
BOOK REVIEWS

Charles Waterton, Traveller and Conservationist.
also in paperback £5.99

Some of you may have read my review of this delightful book in Today's Anaesthetist in February 1991 or a much shorter notice in the Journal of the Royal Society of Medicine in April 1991 but your Editor and I felt that all members of the Society should be made aware of it now it is available in paperback. None of the several previous biographies of Charles Waterton has been very sympathetic and all have concentrated on his undoubted eccentricities. Miss Blackburn has rightly emphasized in her subtitle Waterton's status as a traveller and conservationist.

Charles Waterton was born in 1782 at Walton Hall near Wakefield, into a Roman Catholic family who had been Lords of Waterton since 1159. The bicentenary of his birth was celebrated there by the Yorkshire Society of Anaesthetists with a varied programme to which experts contributed from many different fields including taxidermy, rainforests and the Wakefield City Museum. A number of the papers were subsequently published in the British Journal of Anaesthesia Vol.55 No.3 March 1983.

Waterton endured many vicissitudes in his long life, not least surviving yellow fever in Malaga aged 21. His constitution was very strong for shortly after he spent many months on the disease-ridden coast of what is now Guyana and also within the jungles there. Before going he met and became friends with Sir Joseph Banks who warned him of the perils of staying too long, but was interested in obtaining samples of the blowpipe arrow poison used by the natives of this and other parts of South America. Waterton brought back specimens of 'wourali' (having unfortunately lost the separate constituents when his canoe overturned on the Essequibo River), which Banks, Brodie and Sewell used in the famous she-ass experiment in 1814. Wakefield City Museum still has some of the original resin and it was reported to have retained its potency by the Department of Anaesthesia at Leeds in 1982. Chapter VII and Notes are marred by minor errors: curare blocks the neuromuscular junction - not all bodily functions, and was first used in anaesthesia in 1942, although it was used for ECT before this. The purified active compound is d-tubocurarine not 'tuborcaine'. The Wakefield City Museum resin does not contain d-tubocurarine but toxiferine type alkaloids, also neuromuscular blockers. (Br J Anaesth 1983: 55; 226)

In 1813, Waterton, having just returned from Guiana, met Lord Bathurst in London. This was one of the turning points of his life. He was offered and refused a government commission to explore Madagascar. He regretted this bitterly later when, despite Darwin's and Dickens' admiration, his descriptions of the jungle flora and fauna were doubted and denigrated by the explorer brothers Schomburgk. Waterton spent the next three years at his home, Walton Hall. He realised how much the local wildlife had declined, forbade shooting and trapping of animals on the estate and created one of the first wildlife parks.

Waterton stayed several times in Guiana with Charles Edmonstone who for 35 years lived at Mibiri Creek many days journey inland from the coast. In
1829, twelve years after the family had returned to Scotland, Waterton married Edmonstone's daughter, Anne. This was a second sad turning point in Waterton's life. Within twelve months Anne died, after giving birth to a son, Edmund. Edmund was as responsible as anyone for Waterton being remembered for his eccentricities rather than for his scientific and ecological pioneering. By living a life of ease and luxury (in absolute contrast to his father) and dissipating his inheritance, Edmund erased much of his father's heritage, destroying the haven for wildlife that Walton Hall had become together with many of his letters and papers.

This biography is sympathetic but not sycophantic; Waterton had an odd sense of humour and could be difficult. Each chapter concentrates on episodes in his life that may overlap temporally with others. This allows, say, a clear view of his life in the jungle without digressing into the story of curare. The chapter about his lawsuit with Simpson the soapboiler is a fascinating account of a common pollution problem in early Victorian times from which Waterton emerges surprisingly the winner (but perhaps by subterfuge?). Miss Blackburn has rightly emphasized Waterton's status as a conservationist and this biography portrays a complex and wide-ranging intellect. I have enjoyed reading and rereading it and I recommend it to all members of the Society and readers of the Proceedings.

Adrian Padfield.

On Narcotism by inhalation of vapours.
John Snow MD. Introductory essay by Dr Richard Ellis.
Royal Society of Medicine Services Ltd. £20

Dr Richard Ellis, who has made many notable contributions to the early history of anaesthetics, has collected and published in a facsimile edition the series of eighteen papers by John Snow that appeared in the London Medical Gazette between May 1848 and December 1851. In an introductory essay he analyses their subsequent publishing history as three separate, and now rare, booklets, and continues with an account of Snow's involvement in the development of general anaesthesia. Within one month of the administration of the first general anaesthetic in England, Snow had successfully applied John Dalton's concept of saturated vapour pressure to the construction of an ether vaporizer and to the control of the strength of the vapour. He had quickly realized that the concentration was entirely temperature-dependent, and during the first three weeks of 1847 he confirmed the accuracy of Dalton's 1808 table of the SVP of ether, published his own version, and demonstrated his purpose-built vaporizer. In October 1847 he published his largely clinical textbook On the inhalation of the vapour of ether.

These papers contain a wealth of clinical observation, presented with such immediacy as to directly involve the reader in the events described. They record also Snow's subsequent researches into the fundamentals of anaesthetics, which virtually set an agenda to which we are still working, and included such "modern" topics as the uptake and mode of action of anaesthetics, and the relation of potency to blood solubility. All this work was performed not in some well-equipped university laboratory, but at his lodgings in Frith Street.
Snow's writings reached their peak in the last two papers, which demonstrate his erudition and provide evidence of his very wide reading. In December 1850, having shown that anaesthetized animals exhale less carbon dioxide, Snow deduced that anaesthetics act by interfering with oxygen usage in the body, and wrote perceptively about the difference between anaesthesia and asphyxia. Only a few examples of the riches in these papers can be mentioned; but while this will be understood by any anaesthetist today, for a fuller appreciation of Snow's achievement some understanding is necessary of the physics, chemistry, and physiology of his times.

The book is beautifully produced, and easily readable, the original page size having been enlarged, and Dr Ellis has provided a valuable index. Once again the specialty is greatly indebted to him for making an early classic readily accessible, one that is an essential supplement to Snow's posthumously published masterpiece, On Chloroform and Other Anaesthetics.

David Zuck

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All those that attended the sesquicentennial anniversary of the Crawford Long anaesthetic in Jefferson, Georgia, which was part of the Third International Symposium on the History of Anaesthesia have been eagerly awaiting the production of this book. The wait is over, the book is published, and the wait has been worthwhile.

There have been two previous History Symposia Proceedings. Both are now invaluable to the anaesthetic historian who can browse contentedly through their many papers. This latest edition to the series has been skilfully edited by three great historians who are no strangers to the written word. Lucien Morris, Ron Stephens, and the Chief Editor, Raymond Fink, have produced an excellent book which reflects the depth of the papers presented at Atlanta in March of 1992, with commendable speed.

The papers are published in alphabetical order of first author, but can also be rapidly accessed through the several indexes provided which group papers under the broad categories of apparatus, agents and techniques; biography; military and general. There is a further alphabetical index of topics, as well as a complete author index. This system works well, enabling the reader to find the relevant papers with ease.

Over 90 papers are published, some only abstracts of up to a page in length (but often interesting nevertheless), while others are small booklets in their own right. A large number of papers are enhanced by splendid illustrations of which some have even appeared in colour. The extensive lists of references for the majority of papers would make the volume worth
buying for this reason alone. It is invidious to pick out single authors but this reviewer believes that Michael Goerig from Hamburg is due a prize for having his name associated with 8 papers. The International Historical world of anaesthesia is obviously in agreement, as the prize has already been awarded, Dr Goerig will be hosting the Fourth International Symposium on the History of Anaesthesia in 1997 in Hamburg!

Some who buy this book will read it from cover to cover, some will dip into its pages from time to time, some will discover it in their libraries and be held entranced by a single paper. None of these people will be disappointed by this book.

It is a joy to own. Everyone with an interest in history will want it on their bookshelf, its price makes it easily affordable. It is to be hoped that copies will be made available in the UK so that it can be purchased more easily than by International Money Orders to Chicago. Go out and buy a copy before it is sold out.

D J Wilkinson.
OBITUARIES

JOHN WHARFY DUNDEE OBE, MD, PhD, FRCP. 1921-1991

Dr A K Adams

John Dundee came into anaesthesia at the time when the specialty was ready for its most rapid expansion, both in knowledge and in practice, since the introduction of anaesthetics a century earlier. He proved to be one of those who made a major contribution to that expansion. After qualifying in medicine at the Queens University of Belfast, he trained in anaesthesia in Liverpool under Professor T C Gray. At once he showed his extraordinary energy and initiative, for the work on thiopentone which gained him his MD was done during the tenure of a very busy Registrar post in an understaffed hospital, and involved doing all his own analytical work in the laboratory. After nine years, including a year at the University of Pennsylvania USA, he returned to his home as Head of Department in Belfast and was appointed the first Professor of Anaesthetics there in 1964.

From that time, John Dundee became one of the leaders of the specialty. He quickly realised that clinical anaesthesia would only flourish if it were strongly grounded in the basic sciences, and his choice was pharmacology. Equally he realised that anaesthetists would only gain credibility within the profession by matching other specialists. Following his MD in 1951, he gained his PhD (Liverpool) in 1957, MRCP (London) in 1975, followed by his election as FRCP in 1984. But he was no mere boffin, also he pushed forward developments in clinical anaesthesia, establishing the first Intensive Therapy Unit in Northern Ireland, and becoming involved with early human work in hypothermia and cardiopulmonary bypass.

He realised too the importance of encouraging research amongst all his trainees, to ensure an enquiring and critical mind throughout their lifetimes. Like many professors, he was away often, but "The Prof's" return was soon felt, as he swept noisily through the department finding out how things had - or had not - progressed during his absence. He never expected anyone to work harder than he did, if indeed this were possible, nor would he accept any but the highest standards.

John Dundee was invited as lecturer and Professor to numerous centres in all five continents, and visited the USA annually for many years, whilst publishing extensively, mainly in the field of human pharmacology. In his retirement he turned to studying alternative medicine and carried out research into acupuncture, to the dismay of some of his colleagues.

He served on the Boards of both the English and the Irish Faculties, and was Dean of the latter from 1969 to 1973. He was Associate Editor of the British Journal of Anaesthesia, examiner for both Faculties, and served his stint on numerous committees. He was elected to many Presidencies and Vice-Presidencies, and perhaps the one of which he was most proud was that of President of the Royal Academy of Medicine in Ireland (the equivalent in Dublin of the Royal Society of Medicine in London). This was symbolic of his own passionate belief in the all-importance of professional links between countries, despite their diversities. In the same year he was honoured by Her Majesty the Queen with the award of the OBE.
As a man, John had a large and very positive personality, lively, enthusiastic and full of energy, often surrounded by laughter. He was fine musician, starting whilst a student playing in a dance band entertaining the troops in wartime, and subsequently becoming skilled as a church organist whilst retaining his affection for the piano-accordion. Privately, he was devoted to his family, and was an active Christian, having been an elder and clerk of session in his Church, as well as President of the Christian Medical Fellowship. He remained active in his retirement despite bouts of ill-health, and the prolonged illness of his wife Sally was borne with enormous courage by them both. They were ideally matched, and it was perhaps fitting that his death came only two weeks after Sally's, at the end of a church service while chatting - and he was a great chatterer - to the choir for whom he had so often played the organ.

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Dr S D DALAL

Dr A K Mathur

Sashichandra Dhirajlal Dalal, who passed away peacefully on 19th April 1991 was born on 16th April 1923 into the Jain family.

He came to England in 1971 to continue his career in anaesthetics. After finishing his secondary education he gained a scholarship to join Seth G.S. Medical College, Bombay and qualified MB BS in 1947 attaining a gold medal in Medicine. Before taking up house jobs he offered his services to the care of refugees as a result of the partition of India, at a refugee camp in Lahore.

Continuing his career in medicine, he passed his MD in Medicine in 1950 from Bombay. In 1952 he moved to Tanganyika and was an assistant surgeon with the Ministry of Health, Government of Tanganyika until 1957. From 1957 to 1962 he was a medical officer. The duties of an assistant surgeon and medical officer included performing surgery and giving anaesthetics. He found administering anaesthetics interesting and more challenging than the surgery, which he took seriously. He was awarded a WHO Fellowship in Anaesthesia and he spent a year in Copenhagen where he obtained the Diploma in Anaesthetics in 1962. On his return he took up anaesthesia full-time and was appointed Medical Officer, Special Grade from 1962 to 1964. In 1964 the Government of Tanzania appointed him Specialist Anaesthetist. In 1967 he was appointed Consultant Anaesthetist to HM Aga Khan Hospital, Dar-es-Salam. He was Secretary of the British Medical Association in Tanganyika, and at independence became Secretary/Treasurer of the Tanzania Medical Association.

In 1971, the changing political climate prompted his family to move to the UK, where his children were in boarding school. He took a registrar post in St Albans Hospital whilst he passed the FFA in 1973. He was appointed Senior Registrar at the North Middlesex Hospital and in 1974 became a Consultant Anaesthetist. He was Chairman of the Division of Anaesthetics and Faculty Tutor.
Sashi was a mild-mannered man; throughout his professional life in East Africa and in England he was much sought after, not only because he was a good clinician, but because of his reassuring and compassionate manner. He was always generous of himself, his time and his ideas. He gave counsel not only on professional matters, but also provided succour in personal matters. As a thinker he was struck with awe and wonder on contemplating the mysteries and complexities of our universe. He always reminded us that as anaesthetists we have somewhat enlarged our modest island of understanding, which is surrounded by a huge ocean of ignorance. He found it reprehensible to believe that God in some way is different for different religions. Arrogance of certainty in science and religion, he disliked most. He did not call himself an atheist, but an anti-revelationist, a humanist.

He was a member of several charitable organisations and supported many others. He was also a founder member of the Lions Club of Enfield.

He married Vatsla in 1951, architect of his domestic felicity and mastermind behind his achievements and enchanted bridge and tennis evenings. She survives him, with their daughters Sandhya and Shree, son Gautam a partner in Peat Marwick and Mackintosh, and three grandchildren, Adam, James and Kamal.