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Cover illustration

From John Snow, *On Narcotism by the Inhalation of Vapours* (London: 1848).

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EDITORIAL

Due to another engagement I was unable to attend the Lilian Lindsay Lecture in Torquay earlier this year. Dr Marguerite Zimmer presented her paper on the early development of general anaesthesia in this country and America to considerable acclaim, and it is therefore with great pleasure that I am able to include her paper in this issue of *Dental Historian*.

It may not be appreciated by all readers that for important papers such as Dr Zimmer's the preferred format for presentation is that recommended by the MHRA (Modern Humanities Research Association). A quite substantial booklet gives chapter and verse on these matters, but I have asked Christine Hillman to précis the main recommendations and we have included them as a 'Guidance for Authors'.

Speaking of authors, my appeal for contributors is bearing some fruit. Graham Turner has sent us an entertaining account of his time spent serving King and Country during the Second World War. Perhaps not a paper in the style aforementioned, but I really do welcome all notes, letters, essays which refer to dental history and our heritage within the profession.

Some notes on the campaign for fluoridation in Newcastle in the sixties will appear in our next issue so may I appeal for any other articles on the history of this topical issue to be sent to me early in the new year.

Finally, may I welcome Sonia McEwan to our team as Editorial Assistant. Sonia has kindly agreed to put all our papers, amendments, etc. into camera-ready copy for the printer – a task for which I am singularly unsuited. Thank you Sonia, and welcome!

Geoff Garnett
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that 'this volume of gas is inadequate to produce anaesthesia with any certainty', that 'Wells failed to suggest a larger dose', and that 'Wells's anaesthesia had no value to patient, dentist, or surgeon'. Three decades after the discovery, Henry Bigelow, who was an inveterate supporter of Morton, and of course an opponent of Wells, could easily distort Wells's image. He pointed out that Wells experimented with varying success, an affirmation that comes in contradiction to Wells's statements.

However, as the preparation of the gas with ammonium nitrate was very difficult and troublesome, Wells sought advice from one of his acquaintances, E.E. Marcy, who was also a physician of Hartford. They both discussed the comparative merits of nitrous oxide and sulphuric ether. Wells wrote:[3]

> Knowing that both had the same effects upon the system, so far as causing insensibility to pain was concerned, the object of the discussion was to ascertain which would do least harm.

Previously to this discussion Wells had inhaled ether as well as nitrous oxide, and had 'found their effects upon the nervous system to be precisely the same', but he 'found it very difficult to inhale the vapour of ether in consequence of the choking sensation' produced. As proved by an affidavit signed by Marcy on 21 March 1847,[4] (an oath which was certified by the Mayor of Hartford, A.M. Collins), a surgical operation under the influence of sulphuric ether was performed at Marcy's office in November 1844. As a consequence of their trial, Marcy and Wells came to the conclusion that nitrous oxide was not so liable to do injury. Marcy advised Wells to continue the use of nitrous oxide, and this was the reason why Wells resolved to only administer nitrous oxide gas.

In December 1844, Wells proceeded to Boston, to present his discovery to the surgeons of the Massachusetts Hospital, John Collins Warren (1778 to 1856) and George Hayward (1791 to 1863), to Charles T. Jackson, and to his former student of 1842, William Green Morton. He 'remained in Boston for several days in order to have the opportunity of administering the gas to a man who was expecting to have a limb amputated, but the operation was postponed'. He was then invited by John Collins Warren to extract a tooth, but the gas-bag was removed too soon. As the patient screamed with pain, the spectators laughed and hissed, and the whole was denounced as an imposition. Bitterly disappointed, Wells returned to Hartford. Approximately two years

3 Wells, p. 13.

4 *Ibid*, p. 19.

later, on 7 December 1846, he wrote a letter to the editor of the *Connecticut Courant*,[5] in which he explained certain features of the Boston clinic and the remarks he had made to Morton and Jackson.

In an address delivered to the American Surgical Association for the 50th anniversary of the introduction of anaesthesia, the son of Jonathan Mason Warren (1811-67), also the grandson of the well-known Boston surgeon, John Collins Warren (1842 to 1927),[6] said:

> Wells' failure was due to his neglect to depart from the ordinary plan of administering an exhilarating dose, only an amount of gas insufficient to insure anaesthesia.

Once again this was written 50 years after the discovery, not by a friend of the first surgeon of the Massachusetts Hospital, but by his grandson! A criticism which could be easily made at the end of the nineteenth century when everybody knew that a larger dose of ether vapours had to be administered to throw the patient into a deep sleep.

A highly respected dentist of Boston: William Green Morton

Chance had rather been on the side of Morton. After his apprenticeship to Wells, Morton had lodged with his young wife in Charles T. Jackson's house. While he resided with the family, he had the opportunity to study in the office of Jackson, and he even had free access to the books in Jackson's library.[7] His attention was particularly turned to scientific articles on the effects of the inhalation of ether upon the animal system. We have to remember that ether had been distinctly mentioned with this name for nearly a century, when the attention of the chemists was directed to this fluid. At the turn of the nineteenth century Ambrose Godefroy Hanckewitz (1660 to 1740), Grosse and Henri-Louis Duhamel du Monceau (1700-81) had studied the

5 Henry Wood Erving, 'The discoverer of anaesthesia: DrHorace Wells of Hartford, Tricentenary Commisssion of the State of Connecticut', *Yale Journal of Biology and Medicine*, no. 5 (May 1933).

6 John Collins Warren, 'The influence of anaesthesia on the surgery of the nineteenth century', in *Transactions of the American Surgical Association* (Philadelphia: The American Surgical Association, 1897; repr. n.d.), p. 12.

7 William T.Green Morton, *A Memoir to the Academy of Sciences at Paris on a New Use of Sulphuric Ether* (New York: Henry Schuman, 1846). Presented by M.Arago in the Autumn of 1847, with a Foreword by John F.Fulton. At that time Arago was the President of the Academy of Sciences in Paris.

chemical composition of ether.[8] At that time ether inhalations were used for the relief of spasmodic asthma, phthisis, or to relieve the distress in the last stage of pulmonary consumption.

Morton employed his time to discuss with the mineralogist Charles Jackson on the local application of chloric ether on dental nerves for diminishing the sensitivity of pulpitis. Morton had had some bad experiences with the application of arsenic, which caused an irritation and which, in his opinion, left a soreness, often permanent. A few days after their conversation, Jackson sent a bottle of chloric ether to Morton and to two other dentists in Boston.[9] He made an experiment with this kind of ether on July 1844, by direct application on a tooth of a young lady.[10,11] He of course was obliged to apply it several times, but in the end the sensitivity seemed to be removed.

During the same summer, in 1844, Morton went to the residence of his father-in-law in Connecticut. As ether was sometimes used as a toy for students and chemists, who knew that it was a powerful antispasmodic, anodyne and narcotic, Morton decided to make some trials by inhaling ether himself from a handkerchief. But he was quite ill. He then made different experiments on birds and other animals, without satisfaction. In the autumn, he returned to Boston and continued to practise dentistry. His attention was again attracted to the use of gas inhalations as Wells came to Boston in December 1844. But, as we have seen, Wells's experiment at the Massachusetts General Hospital failed.

In July 1845, Morton went again to Connecticut, discussed with Wells and John M. Riggs (1810-85)[12] the value of nitrous oxide inhalation, and in

8 Marguerite Zimmer, 'Des Premiers Brevets d'Invention ... pour une Histoire du Développement de l'Anesthésie' (Mémoire Diplôme d'Etudes Approfondies, Ecole Pratique des Hautes Estudes, Sorbonne, Paris, 1995). Copies can be consulted at the Bibliothèque Interuniversitaire de Médecine, 12 rue de l'Ecole de Médicine, 75270 Paris, Cedex 06, or at The Wood Library, Museum of Anaesthesiology, 520 N.Northwest Highway, Park Ridge, IL 60068-2573 (Medical Speciality Library and Museum).

9 Morton, 1846, p. 5.

10 William T.Green Morton, *Mémoire sur la Découverte du Nouvel Emploi de l'Éther Sulfurique*, trans. by Eugène Henrion (Paris: Imprimerie Edouard Bautruche, 1847).

11 Warren, p. 14.

12 *Dental Cosmos*, 27(1885), 766, Obituary. John M.Riggs was born in Seymour, Connecticut on 25 October 1810. He graduated from Trinity College, Connecticut, in 1837, and practiced in Hartford from 1840. He was a member of the Connecticut Valley Dental Association. He died in Hartford on 11 November 1885. His method of treatment of pyorrhea alveolaris is well-known under the name of Riggs's Disease. He was the man

autumn 1845 he returned to his affairs in Boston, continuing to seal pellets impregnated with ether in teeth to diminish their sensitivity. His practice, 19 Tremont Row, Boston, had prospered. Morton was considered as an ingenious dentist. Several remarks published in the *Boston Medical & Surgical Journal* in November 1845 perfectly attest these facts:[13]

> Morton ... has recently executed some extraordinary specimens of dental ingenuity, which make it a difficult question to decide which looks the best - nature's work or his! Within the year this same gentleman has constructed an artificial palate for an unfortunate female, that produced a sensation among those who are solicitous for the progress of those arts ... it is because we are proud of every achievement in dental surgery, and operative dentistry ... that a special notice is taken of these beautiful specimens of the handy work of Dr Morton.

Morton's interest in ether inhalation was again awakened when Thomas R. Spear came to work in his office in spring 1846. Spear told him that he had inhaled sulphuric ether during his studies at the Lexington Academy, a common entertainment for students. During the summer of 1846, Morton again made experiments on his dog, and also inhaled sulphuric ether himself. Details are well presented in Morton's memoirs on the discovery of sulphuric ether, published in the autumn of 1847.[14] In the autumn of 1846 he called on Jonathan Mason Warren several times to show some of his inventions.[15] On 30 September 1846, in the presence of the young dentist, Grenville G. Hayden, Morton extracted painlessly a firmly fixed bicuspid tooth of the patient, Eben H. Frost.[16,17] Soon after, Mason Warren introduced him to the surgeon of the Massachusetts hospital, John Collins Warren (1778 to 1856), who promised that he would give him an opportunity to prove publicly that operations could be performed without pain. That occasion occurred on 16 October 1846. A young man, about twenty years old, was brought into the operating theatre and prepared in a sitting posture. A tumour of the left side

Continued ...

who extracted the tooth of Horace Wells on the 11 December 1844 while the latter was under the influence of nitrous oxide gas.

13 'Improved dentistry', *Boston Medical & Surgical Journal* (1845), 345-46.

14 Morton, 1846, p. 9; Morton, 1847, p. 12.

15 Warren, p. 15.

16 *Little's Living Age*, 16(1848), 541.

17 Barbara M.Duncum, *The Development of Inhalation Anaesthesia* (Oxford: Oxford University Press, 1947), p. 105.

of the neck, which probably existed from his birth, was to be removed. The plan of the surgeon John Collins Warren was to expose the tortuous, indurated veins of the tumour by dissection and to pass a ligature around them. Nearly half an hour passed before Morton appeared in the operating room with an apparatus that he had hastily manufactured. Immediately the patient was made to inhale ether vapours during four or five minutes from a tube connected with the glass globe of Morton's apparatus. It is noteworthy that after these few minutes of inhalation the patient appeared wholly insensible, but when Warren made the incision in the direction of the tumour, he 'moved his limbs, cried out, and uttered extraordinary expressions'. After the operation, when Warren asked the question whether he had suffered pain, the patient replied that he knew of the operation, and as Henry Jacob Bigelow reported on 9 November 1846,[18] before The Boston Society of Medical Improvement, he stated 'that the pain was considerable, though mitigated; in his own words, as though the skin had been scratched with a hoe'. This means that only analgesia had been produced. The next day, George Hayward, one of the visiting surgeons of the Massachusetts Hospital, performed at Warren's request, the removal of an adipose tumour from the arm of a woman, near the deltoid muscle. Again, Morton administered the sulphuric ether vapours, but now during the whole operation, which lasted four or five minutes. Bigelow reported that the patient,[19]

> betrayed occasional marks of uneasiness; but, upon subsequently regaining her consciousness ... [she] professed not only to have felt no pain, but to have been insensible to surrounding objects, to have known nothing of the operation, being only uneasy about a child left at home.

This second demonstration was a real success. At that moment, Morton got the idea to take an exclusive patent on the device he had used and to hide the composition of the drug. Oliver Wendell Holmes (1809-94) suggested calling it letheon. One of the reasons why Morton decided to take a patent was that in the mechanical art of dentistry many processes were kept secret or protected by patent rights. The second reason was that the action of ether was not fully understood,[20] and in the opinion of the physicians and surgeons ether should be restricted to responsible persons. The last reason but not the least,

18 Henry Jacob Bigelow, 'Insensibility during surgical operations produced by inhalation', *Medical Times*, 15(1847), 271-73.

19 Bigelow.

20 *Ibid.*

was that it could be used for nefarious ends. Morton's patent was granted in England and the colonies by James A. Dorr,[21,22] 18 Duke Street, London. When John Collins Warren was informed of Morton's intentions, he decided not to use nor to encourage the use of ether inhalations until an arrangement could be made. The next experiments in hospitals were only resumed three weeks later when George Hayward had obtained from Morton a letter of explanation, and when the latter had declared his willingness to state the nature of the agent employed. On 7 November, Hayward, at the Massachusetts Hospital, amputated the right leg of a young girl for disease of this limb. She was completely insensible. On the same day, Warren removed the lower part of the jaw of a woman. She was insensible to pain for the first incision, but recovered consciousness after a few minutes. This proves that not all the experiments were completely successful.

The Boston's dental surgeons reactions to the new discovery

On 4 and 7 December 1846 respectively, at the house of Josiah Foster Flagg and then at the house of Dana, Boston's dental surgeons held two meetings.[23] A committee of 12 members: Josiah Foster Flagg, Josuah Tucker, Thos. Gray Jnr., D.M. Parker, Elisha G. Tucker, Francis Dana, A.L. Waymouth, W.W. Codman, E.G. Kelley, Chas. F. Barnard, Chas. Eastham, and John Clough, was appointed to discuss the probability that ether vapours would be extensively employed by the profession. The committee members signed the report of the meeting, and stated that they had

> not tested the effects of the inhalation of ether sufficiently to pass an unqualified decision in favour of its use; for although it promises great and most happy results, it is not without deleterious effects.

Some of the committee members were members of The Massachusetts Medical Society, particularly Josiah Foster Flagg (1789 to 1853). They had been invited to attend the operations performed by John Collins Warren and George Hayward. At the second meeting, held on 7 December, Morton went against his colleagues. They vigorously protested against Morton's intention to take a patent at the Office in Washington and hold the right to use the

21 James A.Dorr, *Medical Times*, 15(1847), 274, advertisement.

22 James A.Dorr, Letter to the Editor, *Lancet* (1847), 8.

23 'Report of a committee on the subject of inhaling the vapour of sulphuric ether to prepare patients for surgical operations', *London Medical Gazette* (1847), 172-75.

letheon. In a letter, which appeared in the *Boston Herald*,[24,25] the dental profession recognised that it would throw a shadow over the discovery. The 12 Boston dentists who signed the report did not clearly understand why and in what manner the surgeons of the Massachusetts General Hospital were exclusively allowed to use the ethereal compound. This is one of the reasons why they energetically protested against holding the right to use it as a secret medicine. Very soon after the discovery was made, John Foster Brewster Flagg (1804-72), from Philadelphia, a dentist who was a good chemist, and who was also the brother of Josiah Foster Flagg, from Boston, re-established the truth and identified the letheon as being sulphuric ether. One must say that Josiah Foster Flagg and John Foster Brewster Flagg attacked Morton by a series of remarks which were certainly not deprived of professional envy,[26] especially as at that occasion Henry J. Bigelow had championed Morton's cause.[27]

As reported by the Committee of Boston's dental practitioners,[28] until 7 December only half a dozen experiments had been made at the Massachusetts General Hospital by the surgeons, and as many more in the private practice of these surgeons. It really is true that in the same period of time, at his office, Morton had performed without pain 200 surgical interventions under the influence of ethereal vapours.[29] Nonetheless, Nathan Cooley Keep (1800-75),[30] who was associated with Morton until 31 December 1846, stated in front of Jana Chapman, Justice of the Peace to Boston, that Morton when administering ether vapours did not give enough atmospheric air. On several occasions Morton had extracted the teeth of teenagers in conditions and with results which were far from satisfactory.

24 *Medical Times*, 15(1847), 292. Reprinted from *Boston Herald*.

25 Wilbur F.Litch, 'Anaesthesia and Anaesthetics', *American System of Dentistry*, 3(1887), 42-43.

26 W.T.G.Morton, *Medical Times*, 15(1847), 331. Reprinted from *The Boston Weekly Advertiser*.

27 Henry J.Bigelow, Letter, *Medical Times*, 15(1847), 331-32.

28 *London Medical Gazette*, 1847.

29 *Notizen aus dem Gebiete der Natur und Heilkunde*, 1(1847), 15.

30 Joseph Lord and Henry Lord, *Défense des droits du DrCharles T.Jackson à la découverte de l'éthérisation suivies des pièces justificatives. Lettre du Dr N.C.Keep au Dr Charles T.Jackson*, trans. by M.H.C. D'Aquin (Paris: H.Vrayet de Surcy and Co., 1848), pp. 119-21.

We must be aware that the ethereal compound could be remarkable, striking, and sometimes alarming. The Boston dental surgeons knew the power of the narcotic agent; they knew that in many instances its operation would be uncontrollable. Some persons were subject to violent agitation, coughing, the pupils were dilated, the features distorted, blood flushed in the brain, some others showed general prostration, anxiety, sighing, laborious breathing, fright and delirium. All these reasons led the Boston practitioners to adopt as soon as 7 December 1846 the following resolution:[31]

> The whole matter, be it of greater or less value in surgical practice, should be in the hands of those only who are in some good degree physiologists and pathologists – of those who have testimonials from some one of the medical colleges.

At the end of the year 1847, Morton recognised in his *Memoire to the Academy of Sciences at Paris* that,[32]

> the dentists had organised such a formidable opposition to the use of ether, and all the medical magazines in the Union, except Boston, were arrayed against it.

He nevertheless continued to administer ether in his office and in the Boston hospital.

How did the news of the discovery cross the Atlantic?

Richard Ellis has given a most helpful description of the different ways in which the news of the discovery spread to London.[33] The first letter from the Boston patent agents Caleb and R.H. Eddy sailed on 1 November with the steamer Caledonia to the London agency of James A. Dorr, 18 Duke Street, St. James.[34] Richard Ellis's research shows that a second letter, written by the President of the Harvard College, Cambridge, Edward Everett, was conveyed by the Britannia to the London physician Henry Holland (1787 to 1873). It is noteworthy that in February 1847 the leading London dentist, James Robinson (1813-62), wrote in an original paper published in the *Lancet* that he 'was

31 *London Medical Gazette*, 1847.

32 Morton, 1846, p. 20.

33 Richard Ellis, 'The introduction of ether anaesthesia to Great Britain', *Anaesthesia*, 31(1976), 766-77.

34 Th.B.Boulton, 'Pain and analgesia for operative interventions from the beginning to 1846', in *The Fourth International Symposium on the History of Anaesthesia Proceedings*, ed. by Jochen Schulte am Esch and Michäel Goerig (Lübeck: Dräger Druck GmbH & Co., 1997), pp. 35-52.

favoured by Dr Holland with a description of the manner in which the Americans prepare ether...'[35] Robinson confirmed that he immediately adopted their method. He also attests that Dr Holland received the information in a private communication from Dr Jackson. These words are very important because they confirm that Holland had frequent correspondence with both eminent American doctors.[36] In his exceptional book *Recollections of Past Life*, Holland gives indications about his American contacts. If it is clear that he had acquaintances with Edward Everett, some confusion can arise with the name Jackson. This name can be attributed to Charles T. Jackson or even to the physician James Jackson (1777 to 1868).

James Robinson, an exceptional English dental surgeon

At the 2nd Lilian Lindsay Memorial Lecture, Christine Hillam has given much detail on the life and work of James Robinson.[37] I only would like to remind you that James Robinson, domiciled at 7 Gower Street, London, who was a surgeon-dentist of the Metropolitan Hospital, gave a description of his first experiences in anaesthesia in a letter dated 28 December 1846. This letter, only published in the first issue of the *Medical Times* in January 1847,[38] indicates that Dr Francis Boott, an American physician also working at Gower Street, London, had informed James Robinson on the new applications of sulphuric ether on 17 December 1846. Francis Boott himself took the information from a letter of Jacob Bigelow, from Boston, which arrived with the regular steamer of the Cunard Line, the Arcadia, that had docked in Liverpool on 16 December 1846. Without delay Robinson contrived an apparatus to test the announcement of Boott, and, on 19 December, he extracted, at Boott's own residence, a molar tooth of the lower jaw of a young lady, Mrs Lonsdale. The time of inhalation was short: only one minute and a half elapsed. Robinson took advantage of this state of analgesia, applied the forceps, and extracted the tooth. I say analgesia, because it can not be considered as a deep anaesthesia. Recovery did not need more than another minute. The patient only felt the coldness of the forceps. Luckily, Robinson had not been confronted with roots with anatomical particularities! Of course, in that situation the trial would certainly have failed. The inhaler employed consisted of the lower part of a Nooth's old soda-water apparatus, with a flexible tube, to which was attached a ball and socket valve, and a mouthpiece. The device was similar to those commonly used by people affected by pulmonary disease or galloping consumption when it was necessary to inhale hydrogen gas or ethereal vapours. The glass vessel contained 20 or 30 pieces of sponge, cut in a triangular shape and impregnated with ether.

35 James Robinson, 'On the inhalation of ether', *Lancet*, 1847, I, 168-69.

36 Henry Holland, *Recollections of Past Life* (London: Longmans, Green and Co., 1872). Holland received the degree of L.L.D. from the University of Cambridge, Massachusetts, in 1847.

37 Christine Hillam, *James Robinson (1813-1862), Professional Irritant and Britain's First Anaesthetist*, 2nd Lilian Lindsay Memorial Lecture, British Dental Association Conference, Edinburgh (The Lindsay Society for the History of Dentistry, 1996).

38 James Robinson, Letter, *Medical Times*, 15(1847), 273-74.

A few days after this first successful operation, Robinson repeated the experiment on several other patients, but little or no effect was produced by the vapours. The reason was that the ball valve did not act freely. When the patient was becoming insensible and asleep, he or she had not enough power to raise the ball. Understanding that it was an enormous handicap, Robinson bought immediately another apparatus in the shop of the surgical instrument maker, Elphick, of Castle Street, Oxford Street. The woodcut of this second device was published in the *Medical Times* on Saturday, 9 January 1847.[39] Elphick's most important modification was that the mouthpiece was equipped with two valves – a perpendicular one to permit free inhalation, which closed when expiration begins; and an horizontal valve, which was placed one inch above the pad, with a perpendicular action, and which opened when exhaling. The pad contained a spring that could be adapted to the external contour of the patient's mouth. A small clip for compressing the nostrils prevented the patient from breath anything but the ethereal vapours.

Robinson used it on Saturday, 26 December 1846 on two patients; from one he removed without pain an upper molar, from the other a deep-seated root. The next day at his house, in the presence of Dr Boott, Robinson removed without the slightest pain the root of a tooth of the surgical instrument maker W. Dixon of Tonbridge Place, King's Cross.[40] Confident in his technique, Robinson repeated the experiments at the Metropolitan Free Hospital the next morning on a child 12 years of age and on a man of 27 years of age.[41] He removed an upper molar from the man and two teeth from the child. This was the first time in Europe that anaesthesia was performed on a child. Both operations were successful.

39 'Painless surgical operations: description of Robinson's inhaler', *Medical Times*, 15(1847), 290-91.

40 W.Dixon, 'Letter to Mr.Robinson', *Medical Times*, 15(1847), 274. Also in Robinson, 1847.

41 Robinson, 1847, p. 274.

William Hooper's improvement

On 13 January 1847, at the meeting of The Pharmaceutical Society, William Hooper exhibited a new inhaler that he had made on the suggestions of Boott and Robinson.[42]

To obtain more vapours, sponges were placed on the top and in the lower part of the inhaler. With this kind of apparatus the full effect of the vapour was generally produced in two or three minutes. Nevertheless it was recommended to keep the stopcock to the right hand and the capped valve perpendicular, and to draw attention that the mouthpiece was perfectly horizontal during the inhalation. The stopcock permits the regulation of the volume of the vapour at the beginning of the inhalation, and to cut off the access of the vapours to the mouth if the patient needs atmospheric air. The nasal spring for compressing the nostrils is placed when the vapour is inhaled or during exhalation. It is taken off when the stopcock is closed to allow the breathing of atmospheric air. The valves must act freely so that expired air can escape without reserve.

When at the end of January 1847, the English agent for the patentees issued a prohibition against the manufacture and use of what was ascribed in the metropolitan hospitals to be Robinson's apparatus,[43] the question of the American patent was not solved yet. It was likely to come before a Court of Law. The English agency called Morton's device: 'Patent Letheonic apparatus', and a certain confusion could emerge.

During all this period of time, Robinson had made numerous operations on teeth. He also had administered ether vapours for different surgeons at King's College Hospital,[44] at University College Hospital,[45] at Guy's Hospital,[46] at Westminster Hospital,[47] at St. Thomas Hospital,[48] or at his home. Even J.G. Landsdown,[49,50] a surgeon to the Bristol General Hospital,

42 'Apparatus for inhaling the vapour of ether', *Lancet*, 1847, I, 73. Report of meeting held on 13 January 1847 at The Pharmaceutical Society, Mr. Morson in the Chair.

43 'Ether vapour apparatus', *London Medical Gazette*, (1847), 167-68.

44 Sir William Fergusson, 'Painless surgical operations', *Medical Times*, 15(1847), 273.

45 'Painless operations', *Medical Times*, 15(1847), 290.

46 'Guy's Hospital', *Lancet*, 1847, I, 78.

47 'Westminster Hospital, Operations under the influence of ether', *Lancet*, 1847, I, 78-79.

48 'St.Thomas', *Lancet*, 1847, I, 79.

49 J.G.Landsdown, 'Bristol General Hospital', *Lancet*, 1847, I, 79.

H.G. Potter,[51] at the Newcastle Infirmary, Beales and William E. Cronfort,[52] at Beccles, Edwin Morris,[53] at Spalding, and the surgeons of the Kent Ophthalmic Institution,[54] Maidstone, had used Robinson-Hooper's apparatus.

James Robinson the anaesthetist

After several experiments, Robinson came to the conclusion that the ether employed for the purpose of inhalation should be the strongest and purest rectified sulphuric ether, of the least specific gravity, and of the most volatile kind. Ether must have been washed with water and rid of any acid. Then, it had to be decanted from the water and dried with chloride of calcium to free it from any water that might otherwise remain from the washing.

Robinson recommended to always allow the patient to inhale the vapour three or four times without closing the nose at the beginning of the inhalation. With some free inspirations and expirations the patient gradually took confidence in the procedure. Robinson was also the first to observe the appearance of the pupils during inhalation. I think that this was the result of the professional ability of dental surgeons to carefully notice every movement occurring in the facial area. Robinson believed that the state of the eye would be a sufficiently good guide in the field of anaesthesia. In most cases, he said,[55]

> the pupil will after a minute of inhalation be considerably dilated. After eight or ten more inspirations the pupil will remain stationary and fixed, for a period varying from two to three seconds; it will then turn towards the upper eyelid, and this motion will be repeated several times. If the inhalation be continued the pupil will be observed to turn beneath the upper eyelid and remain fixed. Three or four inhalations more, and the operator can commence.

William Harcourt Ranking wrote in the 'Half-Yearly Abstracts' that surgeons differ in opinion as to the exact point at which inhalation should be

Continued ...

50 A.Fairbrother, *Lancet*, 1847, I, 79.

51 *Medical Times*, 15(1847), 353.

52 William E.Cronfort, *Medical Times*, 15(1847), 352.

53 Edwin Morris, *Medical Times*, 15(1847), 352.

54 Francis Plomley, 'Operations upon the eye', *Lancet*, 1847, I, 134-35.

55 James Robinson, Letter to the Editor, *Medical Times*, (1847), 332.

each patient a full dose of the vapour of ether, and subsequently a few inhalations of oxygen. In no case did the patient complain of debility, but recovered promptly in less than a minute and a half. Curiously a week earlier, on 22 March 1847, in a letter which was read at The Academy of Sciences at Paris, Charles T. Jackson had informed the French scientist Elie de Beaumont (1798 to 1874) that in one case at the Massachusetts Hospital a prolonged insensibility after etherization happened.[62] That accident was due to the lack of atmospheric air passing in the inhaler. As a remedy the surgeons promptly insufflated air. To attend to the most urgent things first, Jackson had suggested administering pure oxygen. Jackson said that a gasometer made of copper and a rubber gas-bag would be enough to store the gas. So, it should be asked: Did Robinson some days earlier read the *Gazette des Hôpitaux Civils et Militaires de Paris* where Jackson's letter was published? Maybe!

Indications and contra-indications of anaesthesia

Approximately one year after the first successful demonstration of general anaesthesia at the Massachusetts Hospital, on 10 October 1847, the dental surgeon Joseph Taylor,[63] from Maysville,[64] mailed a letter to the editors of the newly created *Dental Register of the West*. This letter, which was published in the first issue of this quarterly journal, perfectly summarises the conditions of use of sulphuric ether. In the United States, and in Europe as well, the medical profession had thrown much light upon the subject. In several medical journals,[65] the 'Half-Yearly Abstracts' of Dr Ranking, the *American Journal of Medical Sciences*, doctors and surgeons had given some excellent rules that should govern those who administer ether:

1 The ether should be the purest washed sulphuric ether.

62 Charles T.Jackson, 'Report Académie des Sciences, 22 March 1847', *Gazette des Hôpitaux Civils et Militaires de Paris*, (1847), 148. Also in 'Inhalation d'éther, report of the meeting of the Academy of Sciences, 29 March, 1847', *L'Abeille Médicale*, (1847), 105. Also in 'Report of the meeting of the Academy of Sciences, 29 March, 1847. Inhalation d'éther: insensibilité prolongée; insuflation d'air; question de priorité', *Gazette Médicale de Paris*, (1847), 267. Note that in these journals, except the *Gazette des Hôpitaux*, the report is read on 29 March.

63 Joseph Taylor, 'On the use of letheon', *Dental Register of the West*, 1(1847), 41-43.

64 There is a misprint in the original text. 'Maysaille' is Maysville.

65 'Ether inhalation as a means of annuling pain', *American Journal of the Medical Sciences*, 14(1847), 512-13. Also in Ranking's 'Half-Yearly Abstracts', *American Journal of the Medical Sciences*, 14(1847), 512.

2 The patient should be allowed to respire atmospheric air alone for a few moments, if the conception of the apparatus allows it. If not, the nose should not be closed with a clip, until the patient begins to breathe without trepidation.

3 The stopcock of the inhaler should be so regulated as to allow the bronchial ways of the patient to gradually accustom to the vapour. By regulating the jet of the ether, coughing which often ensued after the first respiratory movements, could be stopped.

4 In prolonged operations the patient alternately should inspire pure atmospheric air with that of ether vapour if the apparatus is not equipped with a three way stopcock.

Such inhalers, manufactured by the surgical instrument maker Joseph Charrière, were used in French hospitals since January 1847. We have to remember that it was not the case in all countries. In the first months after the introduction of anaesthesia in surgical practice each hospital, I would like to say each surgeon, had manufactured his own device. Improvements followed week after week, but we must be aware that the diversity of the effects produced by the inhalation on the patient was so particular that often failures occurred. Joseph Taylor had much experience in the matter. Until October 1847 he had used the letheon 350 times, but he thought that in the dental profession we 'should have some way of discriminating how and to whom it should be administered'. If the inhalation worked well for some patients, some others were so over excited after breathing the drug that they stretched the arms and pushed the practitioner to the corner of the room. There were cases where the most thrilling sensation of pleasure, or unwillingness to be operated upon was the result. A person with a very excitable temperament could seldom be brought under the influence of the gas as to prevent all pain. Pickwey W. Ellsworth,[66] an intimate of Horace Wells, recognised that sulphuric ether alone occasionally answered his purpose, but often failed, even when giving several ounces. After an inhalation that was not pushed to its utmost power, one of his patients showed a paralysis of the tongue that continued for one week. Insensibility was more rapidly induced in children and

66 Pickwey W.Ellsworth, 'Anaesthetics in military surgery', *Dental Register of the West*, 16(1862), 265-68.

women than in men. Another argument against the use of ether was the delay necessary in getting the patient under the influence of the vapours.

Conclusions

In the United States, in France, in England, in German-speaking countries as well, the subject was a matter of discussion in academic societies. Ether inhalations were far from being administered in all the cities; 50 years after the introduction of anaesthesia, the grandson of John Collins Warren, John Collins Warren,[67] wrote that

> many major operations were performed in Philadelphia without anaesthesia as late as 1850 or even later. It was not at first thought necessary to give more than a single dose of ether. Continuous etherization was only gradually reached. Many prolonged operations could not therefore at first be carried on by this method.

All inhalers did not answer well; they performed rather the reverse, as frightening the patient by their appearance. For that reason we may see that Jonathan Mason Warren, as soon as February 1847, used a large sponge impregnated with ether,[68] a method that his father adopted and widely continued to use. In an address delivered before the American Medical Association of Cincinnati, 8 May 1850, John Collins Warren remembered that since the first introduction of ether in surgical practice the number of administrations of the vapours exceeded 500.[69] J.C. Warren applied over the nose of the patient a sponge, of a conical form, which was filled with ether. He recommended that the application should not be severely pressed upon the patient, in such a way as to prevent him from getting a quantity of atmospheric air into the lungs. If coughs or symptoms of distress would appear, the best method was to raise the sponge for a moment, and to reapply it with slight intermissions till the operation was terminated.

67 Warren, p. 18.

68 Warren, p. 25.

69 John Collins Warren, *Address delivered before the American Medical Association at the Anniversary Meeting of Cincinnati, 1850* (Boston: John Wilson, 1850).

AN UNDISTINGUISHED CAREER IN THE ROYAL ARMY DENTAL CORPS, 1943-947

Graham Turner*

I was working in Pickering in May 1943 when I received notification that I must present myself at Imphal Barracks, York, for a medical examination, with a view to being commissioned in the Army Dental Corps. I duly presented myself and instead of having to line up with many other putative recruits I was taken to the bedroom of a R.A.M.C. officer and told to strip completely. It was a warm sunny day and I stood at the window watching a number of soldiers drilling on the barrack square. After some minutes the door opened and a medical officer walked in followed by a red haired man in his thirties, dressed in a pair of shoes and nothing else.

'Ah, Mr Turner, this is Mr Bedford who, like you, is a dental surgeon.' I walked across the room, and held out my hand and shook hands. Bedford had the advantage of me in being dressed to the extent of having shoes! Bedford and I met and lived near each other in later life.

I was medically examined and when it was discovered that I had had three attacks of rheumatic fever, one a couple of years earlier whilst at university, it was decided to bring in a full colonel to listen to my heart and decide whether or not I should be passed. In the end it was decided that I should be passed as category A, but a note made of my bad medical history in my officer's blue book which I would receive when I was called up.

My calling up letter, which amusingly rhymed and was in metre, instructed me to report to the Dental Centre, Welsh Walls, Oswestry. Of course one set off in uniform for one's first unit, not knowing whom or how to salute. On the way to the station at Sheffield, in my new uniform, I sat in the bay at the front of the top deck of a tram. At a stop when the tram was quiet, a small boy, who had been observing me with interest, remarked in a shrill voice, 'Mummy, hasn't that soldier got a big, long nose?'

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I could comfortably have strangled him.

Three of us were welcomed at Oswestry by Major Leslie Fairey OC Dental Centre, a man about forty years old. I hit it off well with Major Fairey who, like myself, was a keen walker and often in the evening we would go for 10 or 12 mile walks in the lovely country around Offa's Dyke. The other two recruits were Miles Bewlay, a forty year old from Retford, and Geoffrey Christian, like myself newly qualified.

Christian was about five feet five and I am six feet two odd. The disparity in our heights led to complications on the barrack square. On day two we were taken to the Royal Artillery OCTU to be kitted out with battle dress etc., into which we changed, there and then, prior to having a session on the square with the RA sergeant major. This was a pretty dicey business for none of us had ever drilled before. At the end of the half-hour Bewlay fainted and was carted off to hospital, where it was found that he was suffering from pneumonia. We never saw him again, although the army didn't let him go when he had recovered! Christian and I went for a drill session next day and the RSM attempted the difficult task of teaching the two of us how to form threes. He drilled us at the time when the cadets were having their morning coffee break, and they stood around the square, mugs in hand watching the best bit of untaxed entertainment in years. When we arrived at the far side of the square I was usually twelve yards in front of Christian. The RSM taught us without great success how to salute and ultimately in desperation he shouted at us, Turner being about four yards ahead, 'Squad, to the left bloody well salute', which command was followed by cheers from the assembled cadets.

I was billeted with a strange old Welsh lady who had managed to retain a living in maid who was also a splendid cook and provided delicious meals founded on black market produce. Unhappily I had to share a bedroom with a dental officer who came in drunk every night. He was ultimately erased from the register in view of a misplaced interest in female patients.

We learned to ride motor bikes in order to act as liaison officers in the field, and set off into the Welsh Mountains with very little preliminary training. I lost a bike, which had a defect preventing my using the engine as a brake when descending a very steep grass slope above a quarry, I just got off before it went over the edge - a bit of a stupid place to take riders on their second venture. I had to travel back on the uncushioned luggage carrier of the sergeant's motor cycle, which was most uncomfortable. I remember the RASC sergeant tutor got a bit of a rollicking. Captain Granville-Barker distinguished himself by entering a hairpin bend too fast. He went through a hedge onto a lawn where people were sitting enjoying the evening air. He missed them, circled a flowerbed and left via the hole he had made in the hedge!

We slept out in deplorable wet weather and were soaked to the skin. I picked up a letter from my mother at the Post Office at Chirk. The first line began

> Dear Graham, I always took great care to see that your underclothing was well aired ...

If only she could have seen me!

From here I was posted to the 14th TTC REME at Ashton-under-Lyne. The dental centre was in a semi-detached house outside the walls of the barracks. This was a three-chair centre with a resident technician. We had to work very hard getting the new recruits fit, but I did learn to operate fast and this experience benefited me for the rest of my life. I was about the only officer under forty in the mess, where I was housed and fed.

Whilst my dental CO was on leave his place was taken by a dental officer who shared my bedroom. He was a Buddhist and chanted prayers accompanied by incense for an hour every night when we went to bed. This was rather tedious. After three weeks I was chucked out of the sleeping quarters due to a large influx of REME officers. I was billeted with a retired meat pie maker and his wife.

Each week I was given the task of taking six Italian prisoner medical and dental officers for exercise on parole on the stark moors above Ashton. One of the poor blighters, an eye specialist, had been exchanged twice previously by the International Red Cross for a British medical officer. Their views of the awful wet ugly countryside to the east of Manchester were not flattering, particularly as two of them came from Catania, Sicily. Their allegiance to Mussolini seemed very tenuous.

At this time I started having rheumatism in my hands and was sent for massage and a specialist examination. A raw RAMC orderly had nine attempts to get into a vein, before he got a blood sample. I returned from the hospital with my arm in a sling. The net result of this was that I went before a medical board, where after some argument amongst the members as to whether I should be B or C. I was finally categorised B.

I was then posted to a cotton mill at Oldham, now the prison for 2000 Italian prisoners, whom I had to examine. I was not provided with a clerk orderly so I had to enter up all the dental cards myself. This took ten days. I had to perform one or two emergency extractions during this time, and to my great surprise some of the patients would refuse a local anaesthetic for extraction of broken down lower molars. They never made a sound and yet most German prisoners were extremely fussy.

Just before Christmas I was sent to Aldershot to be trained to be a real army dental officer. I stayed in the Victoria Hotel where I shared a room with two other officers. We got several air raid alerts every night, and the elder one of my companions dressed fully each time, and went down to the air raid shelter where he sat on his own, under his steel helmet, until the all clear sounded. We were a group of twenty officers including three Americans. There we had more training on the barrack square. This was all very well until we had to take a turn at commanding a squad, when we discovered that this was no mean task. Frequently commands were given on the wrong foot; often the squad was marched into a wall because a command had been given too late.

We had to learn how to shoot with a revolver in order to be able to protect our patients and also how to throw a hand grenade, the purpose of which in dental hands was never explained. There was an ass from Manchester who seemed to be completely lacking in common sense. He tossed the grenade straight up in the air and it returned to the trench causing a rapid evacuation of half a dozen putative dental warriors.

On one occasion a German plane circled round as we were getting out of the back of a lorry, and started to dive towards us. We had a sergeant from some proper fighting regiment with us who was to teach us about the Sten gun, I think. Then I heard for the only time in my life a triple negative in English.

'Now what, sergeant?' I shouted full of fear.

'Run, behind those trees, sir, or we won't bloody well never run no more!' We did and we had no casualties.

It was here that we were taught about maxillo-facial injuries by the famous Colonel 'Sammie' Woods who had the most incredible fund of doubtful jokes. He managed several very impure stories an hour for the whole fortnight with never a repeat. However, we never forgot the points he was making.

A few weeks later I was sent up to Whitehaven to relieve whilst the DO went on leave. I had to service a couple of German POW camps in the Lake District. One day whilst writing up a treatment card my orderly brought in a German prisoner who clicked up in the usual German way. I turned round and to my surprise, and his, I recognised a young man, Hans Meyer, who had stayed with us on a school exchange before the war. He was now a linguist and spoke immaculate English. He seemed to be happy to be safe in British hands and out of the scrap. I think the way we treated our prisoners was admirable. I treated many prisoners and I never heard one complain; they were certainly a lot better cared for than our prisoners in Germany and Italy. A prisoner, whose father had been a prisoner in the First World War at Lodge Moor Camp, Sheffield, told me his father had advised him to give himself up to the first British troops he saw as he himself had been well treated as a prisoner. Many of them made poor patients who seemed terrified of dentistry.

I returned to Ashton once more, to my extremely comfortable lodgings with the retired pie maker and his wife. One snowy Sunday the wife told me to have lunch with them and not struggle through the deep snow to the mess. At lunch, where she provided the finest meat pie I have ever eaten, she said in her delightful Lancashire accent, 'wouldst like another 'elping, Lieutenant?'

'Yes please, Mrs Broadbent, I've never had such a good pie in my life.'

'Aye, I always says there's nowt makes such a good pie as cow's udder.'

In April I was posted to Blackpool, to a large eight-chair centre at Greystoke Place commanded by a Major Edney. We worked very hard indeed for a month getting each intake dentally fit, and some of the mouths of these youths were in chaotic condition with few teeth not badly broken down with caries. We then had a few days relief before another intake of recruits came to claim our attention. Colonel Quinlan, the ADDS, congratulated us in person, for we had the highest output per officer in the Command. I think this was probably the hardest working part of my life.

A university friend, Melville Smith, handicap three, decided to continue to encourage me to play golf, as he had at university. He and Capt. Jack Cropper (father of the actress Anna Cropper) and Capt. Roy Morrison (who became Chief Dental Officer for Scotland, I think) took me to play at the swagger course at Lytham St. Anne. For some strange reason we hired caddies, four old septuagenarians. I was pretty hopeless and at the ninth hole, having scored about ninety strokes, I heard one of the old caddies remark to his mate, 'my God, thin bugger's not so good!'

This was the last time I played golf.

Later in the summer I received orders to go on embarkation leave prior to posting to a tropical country. I was instructed to go to the camp hospital with the other chap who was on the draft to be medically examined. When my turn came the MO, a young captain, stated that with my medical history I should not go to the tropics. He consulted his boss, a major, who agreed and telephoned the War Office for guidance. They replied I was to be sent immediately to the nearest medical specialist for his opinion. The nearest available specialist was a young visiting psychiatrist who was attending the barracks at Lancaster that day. I was run in the MO's utility to my billet to pack and then to the station. I caught a train to Preston for Lancaster where I duly met the specialist (a young captain of about twenty-eight) who examined me meticulously and then travelled back on the train to Manchester with me. He told me to proceed on leave, but he was recommending me for discharge, to my great

surprise. He added that he thought I should never have been called up with my medical history. I proceeded home to Sheffield, with a lot of extra coupons to buy tropical kit. After a week I received a phone call from the WD to proceed the next day to Preston for a medical board. A delightful old RAMC full colonel looked at me sympathetically, said I'd had rotten luck with my health and he thought I should be discharged. However a young woman RAMC officer said very reasonably, 'that's nonsense, sir. If you discharge him, he'll continue to do dentistry. There's no reason why he can't work in England in the army. If you're discharged you'll work in civvy street, won't you, Captain Turner?'

I agreed and after more discussion it was decided that I should be downgraded to C and stay in the army. I was told to return home and await orders. A couple of days later I was instructed to proceed to Lancaster. I regret to say that I kept most of the extra clothing coupons, later used for my wife's trousseau! The other chap who was on this draft with me went to Bermuda! I cannot understand why the army felt Bermuda would be unsuitable for me. (At the end of the day, I am seventy-nine and still cycling. So much for the prognosis! The Dental Provident twice refused to insure me, and in my working life I was away from work on three occasions, once with 'flu and twice for hernia repairs.)

At Lancaster I was stationed with a Major Webb, who had worked at the Royal Dental Hospital and produced the most beautiful work. I had a delightful woman dental orderly from Sheffield, who was considerably embarrassed when Major Webb asked her to go and buy a new hat for him to give to his lady friend as a birthday present. As the most junior member of the team I was given the pleasant job of servicing the dental centre at the camp at Morecambe and also the POW camp at Aspatria in Cumbria where I had worked the previous year. The POW camp was a pleasant chore, for the mess kitchen was staffed by German cooks. It was staggering what wonderful meals they could produce using the ordinary army rations.

It was at Lancaster that I first came in contact with ATS Pte Martin MJLW 305999. I was very taken with this pretty nineteen year old Scot. When I had finished her treatment I asked her to go out for an evening. She declined very smartly saying she already had a boyfriend. When she arrived back at her unit north of Lancaster she told her friends that a fool dental officer had tried to get fresh with her. However I did not forget her face.

Early in 1945 I was posted back to Blackpool, but onto a mobile dental unit. This was not ideal, since the internal height was only six feet, which meant I had to bend all the time I was working with the foot operated treadle drill. Colonel Quinlan came on one of his routine visits and I was summoned to his presence where he played hell with me for letting the side down with my

low production of work. I pointed out that he had congratulated me on my output the last time we met, but that it was not fair to compare output in a proper surgery with a caravan where I was unable to stand upright and where I had to work with a treadle foot engine. He was furious with me and instructed me not to waste time polishing fillings. I stuck to my guns and told him I would continue to polish fillings and this was my professional opinion. He made it clear what his opinion of me was - bloody-minded! Fortunately for me he was posted to India the following month so the matter was not ventilated further.

A few days after my interview with the colonel a movement order came instructing me to take the mobile unit to Holmes Chapel in Cheshire. I indented for transport using a three-ton lorry with the local RASC unit only to be told it was a petrol-less day except for MO's transport and adjutant's vehicles. I rang District HQ and spoke to Colonel Quinlan, who said he would ring Command at Chester. In twenty minutes District HQ rang to say transport would arrive in an hour, and it did - a tank transporter, which was exempt from petrol restrictions. They did five miles to the gallon! The caravan was loaded on, and off we set for Cheshire at ten miles an hour. We arrived at eight o'clock at night at Holmes Chapel, leaving the transporter and caravan at the Ordnance Depot, and went in search of digs. The driver decided to sleep in the cab, my orderly slept in the van and I found a farm where I was comfortably housed for the next month.

Alongside the Ordnance Depot was a long line of tall leafless poplars, which burst into leaf in the warm April sun during our stay there and formed a high green hedge swaying in every breeze. Life in a mobile could be quite idyllic. Often in lovely country, one was far from HQ and not easily found on the telephone and it was difficult to realise that there was a war going on. Whilst at Holmes Chapel, however, one realised with horror what the war had been about, for during my month there the army overran many of the concentration camps in Germany. Daily photographs in the papers filled everybody with horror and almost disbelief. One could not appreciate that humans could behave as the Germans had. I can clearly remember sitting in the warm spring sun on the step of my caravan one morning, drinking a mug of tea and opening the paper and seeing these truly terrifying pictures of starving, ill people, dressed in striped clothing: the inhabitants of Belsen.

We then moved to Congleton, where we were to treat the Royal Ulster Rifles. When we arrived the regiment had not yet arrived and there was nowhere for us to go. I managed to find a small RASC unit billeted in an old silk mill, where we could park the caravan. We unhitched the caravan and a RASC officer lent me a squad of men to manhandle it up a steep slope. A small crowd of pensioners gathered to watch. I stood there supervising opera-

tions and sometimes shouting directions. I heard one old man say, 'that young bugger would do better if he did a bit of shoving himself, instead of waving his stick around.'

I had nowhere to lay down my head. In the street I stopped a young man and asked him if he knew where I could find a night's lodging. He promptly said he and his wife would accommodate me. He had been a teacher, but as a conscientious objector he was doing farm work. They didn't seem to object to having a soldier billeted on them, although what their attitude would have been had I been a real warrior I do not know. This was a bit of luck for I spent a happy two months with this couple, during which time the European war came to an end. There being no dentist in Congleton at that time, I had many requests for dental treatment from members of the public. I could have made a lot of money had I dared.

VE day came and, like most of the army, I awarded myself an unofficial day's leave and decided to nip over to Sheffield for the day to see my ill father. On the way to the station I met Colonel Martin, my new ADDS, calling in unannounced to see me on his way elsewhere. I was a bit shaken. I explained where I was going and he laughed and said he would see me some other time and not to come back until the following evening. He was a most delightful and considerate person, and got the very best from his officers.

In July we were transferred to Peover Superior Hall, near Knutsford, to No. 2 Civil Resettlement Unit for returned prisoners of war. Discipline was relaxed, after six o'clock everyone was allowed to wear civvies. The odd Hall consisted of a Tudor wing to which was attached a Georgian wing. A hundred yards away was a series of huts which were being fitted out for the arrival of the first batch of a hundred prisoners, who were coming on a six week rehabilitation course prior to being released into civvy street. The whole staff were carefully selected and when I mentioned on the phone to my mother that there were sixty hand-picked ATS, my father remarked that I was a goner! There were no punishments - anyone overstepping the mark was posted immediately.

We pitched the caravan in an open space overlooking the grounds and the lake. I went into the orderly room to report our presence to the adjutant. In the orderly room were about a dozen ATS girls busily working, and there was the pretty Scots girl, my patient at Lancaster! Her name I had forgotten, but her face never. I went to see the ATS officer, a Junior Commander of massive proportions who had entered the army from the fashion industry. I asked the JC if I could have the ATS girls' treatment cards as I wished to start work first thing in the morning. She handed them over to me, and later I heard she commented to the CO of the unit, 'you wouldn't believe it, sir, but

we've got a conscientious dental officer who wants to get cracking without wasting time.'

I went back to the caravan and hastily thumbed through the dental cards until I found one where the treatment was entered with my initials and I then knew the Scot's name. She was one of the first people to be sent for treatment! We were engaged about a month later, just after VJ day, and married the following May. A couple of years ago we celebrated our Golden Wedding. What were the ethics of marrying a patient I often ask myself? I refused to act as orderly officer at the weekend at the unit, pointing out that I was part of a scheme involving a weekend rota of three one chair dental centres to ensure weekend cover in the area. The commanding officer (Colonel Shelton, Royal Inniskillin Dragoon Guards), at a mess meeting, when the question of an entertainment's officer was being discussed casually remarked, 'I thought this was a post the "Toothie" could well fill.'

Since I was anxious to keep a clean record and carry on courting the Scot, I felt I had little option but to agree. I had to run two dances a week in the beautiful new dance hall. The Scot helped me, which was useful, as I have no sense of rhythm and am useless on the dance floor. I ran two or three dances a week and a series of film shows.

A new dental centre was being finished and I was very anxious to move into it and continue to woo the Scot. Here fortune smiled upon me. Colonel Shelton rang me in great agitation. He had broken his full upper denture and he was going to his sister's wedding on the Saturday, and today was Tuesday. What could I do to help? I told him I'd ring back. I had a quick chat with the lab. at Manchester. I went to see the colonel to put my proposition to him face to face. Even in the army it is harder to refuse face to face rather than on the telephone. I suggested that if he would lend me the unit's despatch rider to go back and forwards to Manchester, I could get the job done in time and for free. (Officers had to pay for dentures at that time.) In return, I would like him to ring the ADDS, Colonel Martin, and ask him for my transfer from the mobile unit to the new permanent centre. The colonel at once agreed to this devious plot and promptly rang District HQ, telling Colonel Martin what a hard working officer I was and they wished to keep me in the new centre. The net result was that the colonel went to his wedding with a shiny new and free denture, whilst I moved into the new dental centre in a fortnight and won the fair lady's hand!

The ensuing eight months were a very happy period of my army life. VJ came and the daily life in the unit became even more relaxed, nobody objected to my being engaged to a girl in the ranks. We were able to hire unit transport and groups of officers and ATS other ranks would go to surrounding

restaurants, of which there were many, being near the posher suburbs of Manchester.

I shared an oak-panelled room in the old wing of the house with two other officers. We had a huge fire every night to sit by and life seemed very rosy, particularly for those officers who had suffered during the war. The Scot and I had all our meals together in the unit restaurant, there being no separate eating facilities for officers. Quite a number of matches were hatched in this unit.

Unhappily I was posted in March 1946 to make way for a compassionate posting, and I went up to Barrow-in-Furness to my old mobile unit which was now based in a CRS with a civilian doctor. I was the CO of the whole outfit and had a couple of dental orderlies, a RAMC sergeant and three RAMC orderlies. The hospital part of the set up was in a beautiful, large Victorian house.

One day a RAMC orderly came to see me, to report his concern about the sergeant. The sergeant was stripping the fixtures from the house and removing them to his home. I was unhappy about this but felt I must act, and called in the Military Police who searched his home and found immense quantities of stolen material. The sergeant ended up in the glass house. An unpleasant experience having to go as a witness to the court martial.

The Scot and I married in early May, and she was demobbed and we had a flat to move into in Barrow. Two days after her release we were posted to Worcester, where we lived in a small residential hotel. A Captain Moon also lived in the hotel, and we used to cycle or hitchhike out to the barracks each morning.

My ill father died whilst we were there, and no sooner had we returned from compassionate leave than we were posted to Aberdeen, arriving on August Bank holiday with no billet. We hired a taxi, and at the twentieth hotel we found a bed in a garret under the tiles. So low was the ceiling that the only way I could stand upright was to open the skylight! It would have been all the same had I been on my own, for the barracks at Bridge of Don by this time refused to have temporary officers living in! This was scandalous. We dental officers felt like pariahs when we went from the dental centre to the mess for lunch. The dental centre was in a state of chaos as it was in the process of being handed over by a Major, who was being demobbed, to a regular officer who was on the edge of a mental breakdown. The first officer I met was a friend of mine from university, Capt. Bill Morton, who greeted me with the words, 'this place is a mad house. There's no one in command.' Morton was posted after two weeks, and then I was posted after three weeks to another Civil Resettlement Unit at Buchanan Castle on the shores of Loch Lomond.

My wife was appointed secretary to the CO, and the quartermaster fixed us up in an army hut for living accommodation (in a 'Spider' actually). We had a bathroom with three baths, a dozen wash basins and a dozen WCs. When we had used the toilet paper we moved into the next one! We had a batwoman to look after us so my wife had no housework to do, a régime of which she heartily approved.

We were very happy exploring the lovely surrounding countryside during the following weeks. Princess Mary, the Princess Royal, visited and my wife and other women in the mess were given a lesson in how to curtsey by a lady-in-waiting who came a day in advance. At lunch I was amused to see that Princess Mary drank all her coffee from a teaspoon.

The weather was trying and it rained for three weeks without stopping, easing up into a Scotch mist from time to time. Our shoes, in a wardrobe, grew green mould. After three months the unit was closed and I was posted to the Cameron Highlanders at Inverness, where we stayed for a very happy year.

I was CO of the centre with three lieutenants, a corporal (whose qualifications for the job were having been a beer drayman's mate in Birmingham) and three clerk orderlies. (The corporal disappeared soon after our arrival. The MPs picked him up engaged in some thuggery on a Saturday night in Inverness!) I also had a dental centre at Elgin with one dental officer, and another at Fort George.

There were three POW camps full of Germans, each of which had their own excellent hard working dentist. One was situated at Craigellachie, one near Strathpeffer, and the furthest a hundred miles away at Loch Watten, near Thurso. The Watten dentist had been a teacher at the dental school at Hamburg. He made beautiful jacket crowns from white or cream toothbrush handles. Their gingival fit was immaculate. His amalgam fillings were a joy to see. He was a died in the wool Nazi, and had no regrets about having been in the SS, and said he'd do the same again, which was horrifying. I was also responsible for a few naval units and also for the RAF flight control centre at Inverness, which gave me occasional access to a Vauxhall 14 staff car, which was a great improvement on an army Austin utility.

We were much more involved in the social life of the army than at any other station. I was often a guest at solemn functions in the Camerons' Mess. I was invited when a general, who was the colonel of the regiment, was visiting. Being summer, the mess was blacked out and we ate by candlelight. A piper playing the pipes paraded up and down behind the table, and from time to time he was recharged with a small bowl of whisky, which he had to toss off in one gulp. His playing became more exuberant as the evening passed. Came the Royal Toast, and we all stood on our chairs, placing our right foot

on the beautiful mahogany table and, after drinking the King's health, we threw our exquisite cut glasses in the fireplace lest any lesser toast be drunk from them!

The CO's wife, a Mrs Myers, was keen on the welfare of the other ranks and families, and held regular meetings of the officers' wives to arrange comforts and recreation for them. It was all organised in a very military way at a morning coffee party. She sat the wives around in the order of their husband's rank. The first time she met my wife, then twenty years old, she said, 'Mrs Turner, if you'll sit with the lieutenants' wives over there.'

'Indeed, I won't. My husband is a Captain and in command of the dental unit. I'll sit with the captain's wives.'

I had one grave problem. A whole dental outfit, including the chair, was missing from Inverness from which several officers had been demobbed! My ADDS instructed me to get this written off, bit by bit, using some army form which allowed one to convert dental instruments, for example, into workshop tools, etc., and then write them off a few at a time as being worn out.

Life was delightful and amusing. It was the hard winter of 1947. I had a young spaniel who used to walk across the golf course with me each morning from our flat to the barracks. He was young and I noticed he had worms. I went over to the CRS and said to the pharmacy sergeant, 'mix up some gentian violet pills for my pup, the same strength as for a twelve pound baby, please.'

The dog was dosed each morning for a week. It snowed, and we only had three inches when England was reduced to a standstill. The old golfers still continued to play golf using red balls. We crossed the golf course four times a day, dog depositing small purple piles across a broad front along our route. The patches diffused into the snow until there were dozens of purple patches a foot across in a continuing trail for a half mile, much to the bewilderment of the golfers.

We had a delightful Colonel Williams for ADDS. He was a keen fisherman, and after heavy rain he would ring up from Perth, his headquarters, and tell me to send an orderly to look at the colour of the River Ness. I rang back, 'it's in spate sir.'

'What colour is it, Turner?'

'Well, brownish, sir.'

'Is it the colour of porter?'

'Why yes, sir,' I would reply, having no idea what the colour of porter was.

'Right Turner. I'll be up first thing in the morning. Book a room for me at the Royal Hotel, and book a table for three for dinner tomorrow night. Bring that pretty little wife of yours for dinner.'

He arrived early at the dental centre, made sure the place was clean by running his hand along the tops of the surgery doors, found some little thing to criticise and then scooted off to the river.

He was a sad man for he and his wife had lost their only child with typhoid in West Africa before the war. He used to tell us stories of his wife Laura, of whom he seemed to stand in awe. He was always kind to us. We kept in contact for years after I left the army and he was living in Brighton.

One dental officer was a thorough pest. I got him posted out of the way to Fort Georgé, whilst he was in the middle of a course of music lessons at the cathedral. (Fort George was built after the '45 rebellion on a peninsular sticking out into the Moray Firth and receiving the full benefit of the Siberian winds.) The organ master would not return part of his fees. One night at two in the morning the police arrived at my flat. Could I identify a young man who said he was a dental officer, whom they had apprehended in the cathedral? I got dressed and toddled down to the station. Sure enough it was our beauty. He felt he had been cheated, had taken an impression of the front door lock, cast a key, and was cycling in, letting himself in and practising the organ during the night. People who lived nearby had complained about the organ playing at two in the morning. This had to be reported to the ADDS, who was not pleased and instructed me to read the riot act to the offending officer!

I had to report this officer AWOL when he did not return from leave during the heavy snow of early 1947. He arrived two days late, with the excuse that the trains were twenty-four hours behind hand due to the snow, so he deferred his return journey. Colonel Williams would have liked to court martial him, but decided he would have to make do with a reprimand.

However all was not lost. He had a girlfriend whom he rang every night using the dental centre line. The adjutant arranged for all these calls to be timed. When the gentleman was demobbed he was presented with a bill from the local unit which more than wiped out his gratuity.

There was a handful of young officers both in the centre and in the barracks, and we formed a lively social group, going off fishing, climbing, and dancing. The war was behind us all and the world seemed happy again. Mollie was the only girl in the circle and tended to get spoiled. Invitations used to arrive at the barracks for 'two unmarried officers to spend the weekend at ...', or 'would three officers and their wives care to visit Castle ... for a day's fishing?' It was a good year.

Capt. Trevor Bourne, a student friend, was posted to me at Fort George. He came to visit us one Saturday with his new wife. Mollie, like all the officers' wives in Inverness, was dressed in tweed skirt and blouse. However Bourne's wife arrived in her going away clothes, a hat with bright green feathers on each side and a full length edge to edge summer coat and very high heels, which almost crippled her on the steep hills of Inverness. She appeared to be a very sophisticated young London lady. However when we stayed a weekend with them at Findhorn we were met by a jolly lass in a pair of old trousers who fitted in well with the local populace. We saw each other several times that summer.

Colonel Williams repeatedly tried to persuade me to apply for a permanent commission and would not believe me when I said my medical category would preclude that, apart from the fact that I did not want to stay in the army. He said matters could be arranged.

I was demobbed on the 1 November 1947. We had immense amounts of stuff to move to Grantham where I had a job to go to. We had the crate, which had contained the missing dental chair, I imagine, and which I had been allowed to purchase for two pounds, absolutely full: a vacuum cleaner, an electric sewing machine, etc., etc. Mollie left ahead of me. I had heard rumours of the discomfort of the transit mess at the demob centre at York. I decided I would spend my last night in the service in comfort at the Royal Station Hotel there. I called at Edinburgh to bid Colonel Williams, now OC army dental laboratory, farewell and to thank him for his kindness to us. I came out of the army laboratory into Princes Street and a howling north-easterly full of sleet. I was glad to be going south.

The Royal Station Hotel was comfortable, but, unlike Inverness with its excellent food, the breakfast consisted of greenish coloured scrambled egg made with dried egg. I got a taxi to the demob centre, got a suit, etc., and set off back to the station in a two-ton truck with three other ranks, also Army Dental Corps. When we got to the station they said they would escort me to my train which, was taking me up to my wife's home in Annan. I was a wee bit wary of this solicitous behaviour from three strangers. I stood talking to them at the door of my first class carriage, and when the train was about to leave the eldest of them knocked my hat off, saying, 'I've always wanted to do that to an officer. Goodbye sir, and we wish you all the very best!' He then shouted, 'squad, 'shun,' and brought up a smashing salute. And how could I grumble? I was my own man again.

I did not like the army, but I would not have missed the experience. It now astounds me the way most emergency commissioned officers in the RADC grumbled. I remember at Blackpool some officer or another, self included, was always grumbling. At the end of the day we were very lucky:

we were well paid, practising our own profession, more often than not living in comfortable civilian billets, and unlikely to be in the situation of being in danger, much less being exposed to the horror of combat. We should never have grumbled.

One reason for dissatisfaction was the fact that in general one was on one's own. An officer was posted to a dental centre at some regimental depot. He did not belong to that regiment. He would be posted to another station; he did not go with his mates as a regimental officer did. He went alone and rarely had time to put down any roots. My last happy year at Inverness was the only time when I felt I belonged to the unit to which I was attached, i.e. the Cameron Highlanders. Oddly enough this was the occasion when, due to my situation of having several officers and three German officers under my command, I was at my most independent and self-sufficient. The CO made great efforts to include the MOs and DOs in the general and social activities of his regiment. Of course it was now peacetime (1946-47), which helped, there was more stability.

I was very happy in my mobile unit, and the period at Peover Hall and Inverness were two of the happiest periods of my life. Blackpool and Ashton-under-Lyne I did not enjoy. At the end of the day I gained much from my four and a half years with the Corps. I learned to put up with difficulties and, particularly in conditions of difficult working, without bellyaching. I learned to stand up for myself professionally, e.g. insisting that only the highest standard of work should be provided for soldiers whose lives were going to be endangered. The period at Inverness taught me how to deal with awkward subordinates, and I learned a great deal from organising a service spread over the whole of Scotland north of the Caledonian Canal and along the coast of the Moray Firth. My experience stood me in good stead. In two years after being demobbed I became Chief Dental Officer of York and was the youngest administrative officer in the country, and when I became Area Dental Officer of North Yorkshire I was already experienced in managing a widely scattered service. Finally, and perhaps most importantly, I gained an excellent wife.

BOOK REVIEW

Tom Sholl*

White as Whales Bone, Dental Services in Early Modern England, by A.S. Hargreaves. Leeds: Northern Universities Press, 1998. ISBN 0 901286 89 3.

White as Whales Bone is a simile, we are informed on page 104, ante 1400, but it is taken from *Love's Labours Lost* (1598) by William Shakespeare. It refers to the ageing Boyet's teeth, which may have been constructed from baleen, or just looked that way. The title makes the point that the roots of dentistry lie deep in our evolving culture and history.

This book fills the gap in the knowledge of the ordinary and expert reader about dental services in early modern England. Written by an historian who has practised dentistry, her insight has unusual depth which she has employed to the full in seeking, selecting and interpreting a large body of material in a hitherto relatively unexplored period in dental history. She is to be congratulated for pioneering a work that will be a source of reference for years to come.

Written in the tradition of describing 'how it was' as a means of portraying history, a wealth of well annotated facts have been skilfully linked as a narrative without becoming lost in the detail. The numbered notes at the end of each chapter are a delightful mix of reference and supplemental explanation which fits well with the presentation. A separate bibliography plus the all-important index round off an excellent book.

Her concluding chapter entitled 'Reprise' is a good summary of the text and the Introduction correctly explains the cardinal need to interpret primary sources in the context of their time. It would have been of benefit to the general reader to define 'Early Modern England' and how this era arose. For example, Henry VIII (who died of scurvy) dissolved the monasteries, already in decline as their secular functions were increasingly being taken over by the expanding populations of the towns. However, for a thousand years, social welfare had been supplied by the monasteries and their abrupt demise led to

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the immediate enactment of the Poor Law whose ramifications are still felt in this century and cover the period explored in this book. Perhaps that is another story!

This type of history portrays the paramount importance of placing the evolving pattern of dental- or any other service into contemporary demographic context, a lesson as relevant today as ever. It is a good read and gives invaluable insight to anyone involved in the provision or receipt of professional services in post-modern Britain.

BRITISH SOCIETY FOR THE HISTORY OF MEDICINE

What is the British Society for the History of Medicine?

This meeting is the 18th Congress of the British Society for the History of Medicine. The Society was formed in 1965, by representatives of the Section of the History of Medicine of the Royal Society of Medicine, the Faculty of the History and Philosophy of Medicine and Pharmacy of the Worshipful Society of Apothecaries of London and the Osler Club of London.

Its objectives are to hold a biennial congress, to arrange the biennial Poynter Lecture in alternate years with the congress, to represent Great Britain in the affairs of the International Society for the History of Medicine and to encourage study, teaching and research in medical history.

The Society has no direct individual membership, membership of an affiliated society automatically makes one a member. It is governed by an Officers and Representatives Committee, which meets annually and is comprised of the officers and one representative of each affiliated society or two if its membership exceeds one hundred. The Society publishes the *BSHM News,* which provides a link between its affiliated societies and a forum for the exchange of ideas and a noticeboard for meetings, queries, with the occasional book review.

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President:	Mr Robin Price
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If you wish to be kept informed of the activities of the Society, please contact the Secretary of the society to which you belong or write to me at the address below.

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DENTAL HISTORIAN: GUIDELINES FOR AUTHORS

1. Papers may be of any length up to 6,500-7,000 words.

2. They should be submitted to the Editor both in hard copy and on 3¼in. disk (in an IBM compatible form and preferably in a version of Word). The name of the word-processing program should be written on the disk.

3. Papers should be fully referenced, adopting the style of the *Modern Humanities Research Association*, as used in, for example, *Dental Historian* issue 33. In general terms -

Articles in journals should be referred to as in the following example:

> W.H.Dolamore, 'Some old advertisements', *Btit.dent.J.*, 45(1924), 185-87.

[author/comma/space/single quote mark/title/single quote mark/comma/space/journal name in italics/comma/space/volume number/parenthesis/year/parenthesis/comma/space/inclusive page numbers/full stop]

Names of journals may be abbreviated to the commonly accepted forms. Where it is considered necessary to indicate a particular page, this may be done in the following way:

> ... 334-67, on p. 340.

Books should be referred to as in the following examples:

> Alfred Hill, *The history of the Reform Movement in the Dental Profession in Great Britain during the last twenty years* (London: Trübner, 1877), p. 257.

[name of author as it appears on the title page/comma/space/title of book in italics/space/parenthesis/place of publication/colon/space/publisher/comma/space/year of publication/parenthesis/comma/space/p. or pp./space/page number or numbers/full stop]

Edited books are referred to thus:

> *Emily Dickinson: Selected letters*, ed. by Thomas H.Johnson, 2nd edn (Cambridge, MA: Harvard University Press, 1985), pp. 194-97.

Articles/chapters in books should be referred to as in the following example:

> R.Ramasubban, 'Imperial health in British India, 1857-1900', in *Disease, Medicine and Empire*, ed. by R.Macleod and M.Lewis (London: Routledge, 1988).

Later references - if it is necessary to refer to the same source later in the paper, the above forms may be abbreviated (provided this causes no ambiguity):

> Dolamore, p. 190.
> Hill, p. 321.
> *Emiy Dickinson, p.* 200.

4. Notes and references should preferably be contained in word-processor generated footnotes; alternatively, they may be listed in numerical order at the end of the paper, these same numbers being clearly marked in the appropriate place in the text.