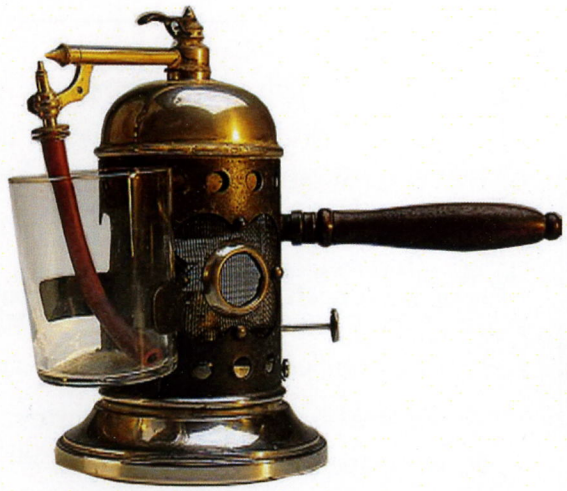
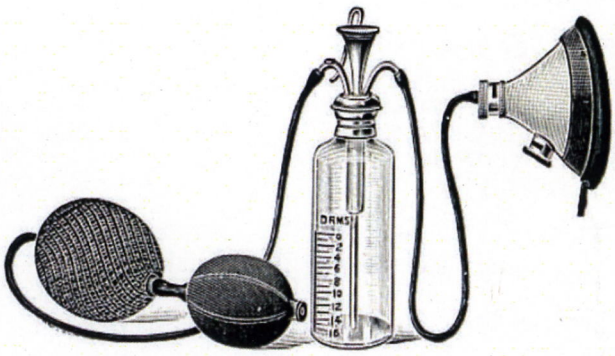
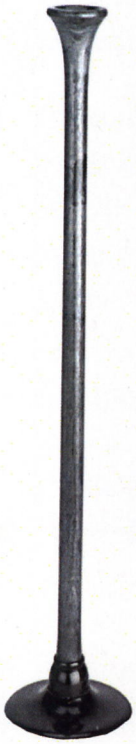
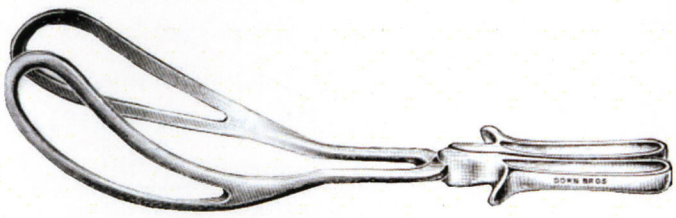




The Historical Medical Equipment Society





BULLETIN NO. 25 ISSN 1366 - 4719 JANUARY 2011

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FUTURE MEETINGS

SPRING MEETING: APRIL 15th 2011 AT THE COLLEGE OF OPTOMETRISTS, LONDON

AUTUMN MEETING 2011 AT THE ROYAL BERKSHIRE MEDICAL MUSEUM, READING

EDITORIAL

It was with some regret that I learnt of John Kirkup's resignation as *Bulletin* editor, however I understand his reasons and wish him well. Over the years he has been indefatigable in his contributions and support of the *Bulletin*. The HMES owes John a great debt; he has worked hard to keep the Society active and forward looking. He is of course continuing as a regular member and also he is still going to do the 'What Is It?' section of the *Bulletin*. The best way we can thank him is by finding an enthusiastic replacement editor!

The autumn meeting was held at the University Hospital of Wales in Cardiff on 16th October 2010. I'm grateful to Peter & Margaret Jones for doing the local organisation and to Judith Hall, Professor of Anaesthetics, Intensive Care & Pain Management, who hosted the meeting and allowed us to use the department's 'simulation' teaching rooms for the meeting. Prof Hall started the meeting with a demonstration of the life-like teaching dummies and Peter Jones's talk introduced some real science on the performance of historical anaesthetic vaporisers under experimental conditions. Later he described his work as curator of the Welsh Museum of Health & Medicine (www.whmm.org.uk) and then guided members on a tour of the Mushin Anaesthetic Museum & Collection [founded by Prof. William Mushin (1910-93) former Director of Anaesthetics in Cardiff]. Tim Smith gave a concise historical account of the ingenious devices used for obstetric analgesia, and the anaesthetic theme was continued by Ivan Houghton's detailed paper on Major Rex Marrett (1915-2003) and the evolutionary design of his portable anaesthetic apparatus. Prof. Bryan Hibbard outlined the wide contribution of the Welsh obstetrician, David Davis (1777-1841) to obstetric forceps & instruments. Prof. Terry Turner provided an entertaining account of some of the tricks & devices used in 'quack cures'. Finally I must thank Karl Johansen for the considerable effort he made to bring along his fascinating collection of 'treen' – medical boxes, containers, instruments, and apparatus, all made of wood.

Looking at medical history from the stand point of medical equipment (and its inventors) provides a fresh perspective: a Schimmelbusch mask is a common artefact seen in medical displays, yet often ignored; **what** it was used for is well known, but its true importance can only recognised when the details of **how** it was used are fully understood.

The next meeting will be at the College of Optometrists Museum, 42 Craven Street, London, WC2N 5NG (off Trafalgar Square) on Friday 15th April 2011 (10.30am-4.30pm) http://www.college-optometrists.org/en/knowledge-centre/museyeum/collections/index.cfm. The autumn 2011 meeting will be at the Royal Berkshire Medical Museum in Reading. www.royalberkshire.nhs.uk/museum.

Peter Mohr,
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THE PERFORMANCE OF SOME HISTORIC ETHER VAPOURISERS

PETER LLOYD JONES

SUMMARY

Four historic vapourisers from the Mushin Anaesthetics Museum, Cardiff University were submitted to output performance testing using a mechanical simulator. All performed within clinical requirements. The John Snow Ether Vapouriser was outstandingly efficient. The Schimmelbusch Mask, because of its water vapour condensing properties, can sustain clinically effective concentrations almost indefinitely.

INTRODUCTION

The introduction of ether as an inhalational anaesthetic agent by William T G Morton in October 1846, in Boston, Massachusetts, heralded the dawn of surgical anaesthesia. By December 1846, ether had been successfully administered in London. Morton had used a blown glass vessel incorporating sponges saturated with liquid ether with a valved mouthpiece that prevented the rebreathing of exhaled gas. Many of those who sought to imitate him designed devices that were the product of scant understanding of the volatile characteristics of ether or of the implications of hypoxia. To be effective, the vapourisers would need to be able to produce an initial maximum concentration approaching 20% ether vapour (v/v), thereafter reducing, as clinically required to approximately 3% v/v.

PROCEDURE & RESULTS

Four historic anaesthetic inhalers (vapourisers) from the Mushin Museum of Anaesthetics, Department of Anaesthetics, Cardiff University, were tested for delivered vapour concentration when applied to a mechanical patient simulator for a period of 15 minutes. The simulator had an adult 'face' and 'breathed', through its mouth, in a quasi-sinusoidal waveform at a rate of 12 breaths per minute and a tidal volume of 600 ml. A heated water bath within the simulator ensured that exhaled air was at approximately 37°C and approaching saturation with water vapour. The 'inhalers' were connected to a mask that was applied to the face of the mannequin. Inspiratory gas was sampled from the level of the lips and analysed for vapour concentration.

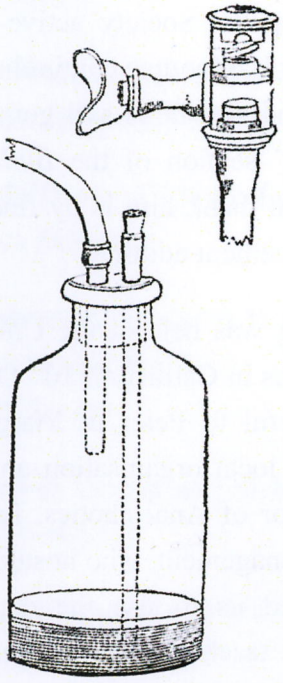


Fig.1 Jacob Bell's ether inhaler

Jacob Bell's Simplified Ether Inhaler 1847 (1) (fig.1) - consists of a large glass bottle containing both water and ether, with the ether as a supernatant layer. When the patient inhales, air is drawn into the vapouriser and has to bubble through both liquids to reach the patient via a rubber hose and a valved mouthpiece that permits only unidirectional flow from the bottle. Exhaled air exhausts directly to atmosphere from the mouthpiece.

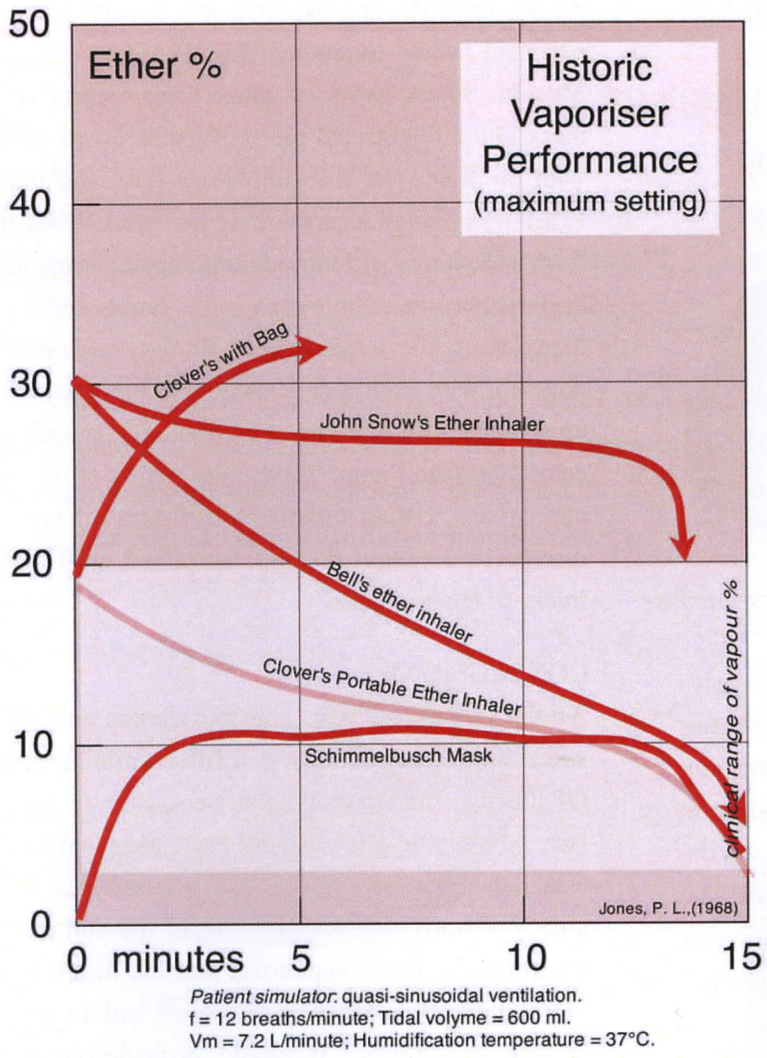


Fig.2 vapour concentration output of vapouriser versus time

The output concentration over time is shown in Figure 2. Vigorous bubbling and disturbance occurred as air was drawn through the two liquids. The inhaled concentration was initially 30% but fell with time to 10% before rapidly declining when all the ether was consumed. The use of a mouthpiece instead of a mask is likely to have been difficult to control as the patient lost consciousness.

John Snow's Ether Inhaler 1847 (2) (fig.3) is manufactured of copper, coated with black enamel. Vaporisation occurs in a squat cylinder (13[d] x 3[h] cm), to the upper face of which is soldered a copper spiral. That face is extended to form the lid of a squat rectangular tank (23 x 15 x 4 cm) that may be filled with water. Air enters the system through a 15 cm high chimney that is attached to the top of the vapouriser chamber at its perimeter. The air then follows the spiral around the chamber, gaining vapour *en route*, exiting via a central connector. A wide-bore hose delivers the air mixture to a valved mask. One valve ensures unidirectional inhaled flow in the hose while a second exhaust valve may be adjusted to permit variable air dilution of the inhaled mixture, thus controlling the inhaled concentration of ether.

The vapouriser was tested with ether in the vapourisation chamber and with water in the reservoir at room temperature (21°C). The output concentration (see Figure 2) was nearly 30% vapour at the outset and maintained its output with little reduction until it became empty.

Clover's Portable Regulating Ether Inhaler 1877 (3) (fig.4) - consists of a hand-held spherical, metal globe of approximately 10 cm. diameter. A water-jacketed chamber covers one hemisphere. A facemask is attached to one of two oppositely opposed connectors; the other is open to air or can be connected to a detachable reservoir bag. A valve system within the sphere controls the proportion of inhaled air that passes through the sphere where it is exposed to a charge of liquid ether. Exhaled gas escapes via the same route, picking up more ether vapour. Applying the bag can close this to-and-fro arrangement.

Fig. 3 Replica of John Snow's ether inhaler

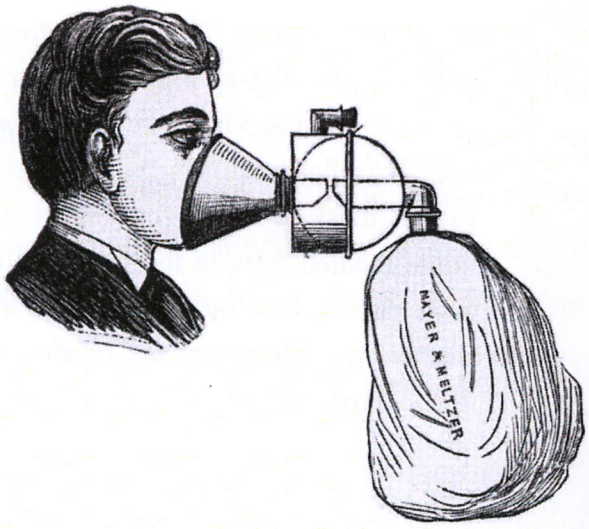


Fig.4 Clover's portable regulating ether vapouriser

The graph (see Figure 2) shows the effect of applying the vaporiser, held in warm hands, with its water jacket filled and set at maximum output and without the rebreathing bag applied. The rapid deterioration of concentration after 10 minutes was caused by the liquid ether charge (50 ml) becoming exhausted. The top curve reveals the effect of applying the reservoir bag to the inhaler. This would cause progressive hypoxia and hypercapnoea were it to be sustained.

Schimmelbusch Mask 1890 (4) (fig. 5) - is simply a

Fig. 5 Schimmelbusch mask

folding wire frame that may be erected to support fabric over a gutter shaped face flange. The flange is a poor fit when applied to the human face. Originally designed for administration of chloroform delivered by a dropper bottle, it can be used with ether if up to 8 layers of gauze are applied to the mask and the face seal is improved by placing a fenestrated piece of gamgee between face and mask.

As the author lacked the necessary expertise, the experiment was conducted by Professor W. W. Mushin. Seven layers of gauze were secured in the mask and a fenestrated piece of gamgee was applied with the hole over the simulator's nose and mouth. Ether was poured as a more or less continuous flow from a Hewitt's bottle throughout the experiment. No liquid ether was seen to escape the gauze. During the experiment, the outer surface of the mask became covered with condensed water vapour, having the appearance of a thick layer of frost. The output concentration (see Figure 2) was unlike that of the other vapourisers, rising initially to a plateau of approximately 10% vapour that was sustained until the delivery of ether stopped.

CONCLUSIONS:

All the vapourisers were able to maintain anaesthetic concentrations of ether over a fifteen minute period. Of the two draw-over vapourisers, Snow's vapouriser, embodying the physical principles that he had established, was an outstanding performer as it was able to absorb sufficient heat from the surrounding environment. Bell's vapouriser had the disadvantage of having high inspiratory resistance and an unsatisfactory mouthpiece. It would probably have not worked adequately in practice. Clover's inhaler, introduced thirty years after the introduction of ether anaesthesia, is cleverly engineered but inconvenient and remarkably dangerous because of its potential for suffocation. The outstanding performance of the Schimmelbusch mask confounds its critics who have held that the frozen condensate on the outside of the mask would cause low concentrations to be achieved. This might be considered close to an ideal performance. It was made possible by the multiple layers of gauze acting as a condenser humidifier, providing, for vapourisation, a constant source of heat from the patient's own exhalations.

REFERENCES

1. Bell, J., *Pharm. J.,* 1846-7, **6**, 355.
2. Snow, J., 1847 *'On the inhalation of the vapour of ether in surgical operations'*, London.
3. Clover, J.,*Brit. Med. J.,* 1877, i, 69.
4. Schimmelbusch, C., *Ill. mshr. ärztl. Polyt.* 1890, **12**, 203.

EQUIPMENT USED IN OBSTERTRIC ANALGESIA

TIM SMITH

The history of obstetric analgesia began on 19th January 1847 when James Young Simpson administered ether in a case of obstructed labour. He went on to discover the anaesthetic properties of chloroform in November of that year. Chloroform was to be the agent of choice in obstetrics for the next 90 years. Simpson and the subsequent 'Scottish School' administered chloroform on a handkerchief or on the corner of a towel (fig.1).

Fig.1 The Scottish School

The 'English School' initially led by John Snow developed anaesthetic vapourisers in an attempt to quantify or at least limit the concentration of vapour delivered. Examples include the Snow (fig.2) and the Murphy (fig.3). The introduction of obstetric analgesia was highly controversial and was bitterly opposed by many in the medical profession. The critics were largely silenced when John Snow administered chloroform to Queen Victoria for the birth of Prince Leopold in 1853.

Fig.2 Snow chloroform vapouriser 1848

Fig.3 Murphy chloroform inhaler

[Perhaps surprisingly Snow used the corner of a handkerchief on this occasion]. Later developments included the Ellis vapouriser (fig.4) designed for the delivery of a mixture of ether, alcohol and chloroform. Such mixtures were an attempt to reduce the growing number of fatalities from chloroform. [in fact when used in analgesic rather than anaesthetic concentrations deaths from chloroform were extremely rare]. Junker's inhaler (fig.5) was widely used for chloroform in obstetrics. The patient could squeeze the bulb herself and it would hopefully fall from her hand if she became too drowsy.

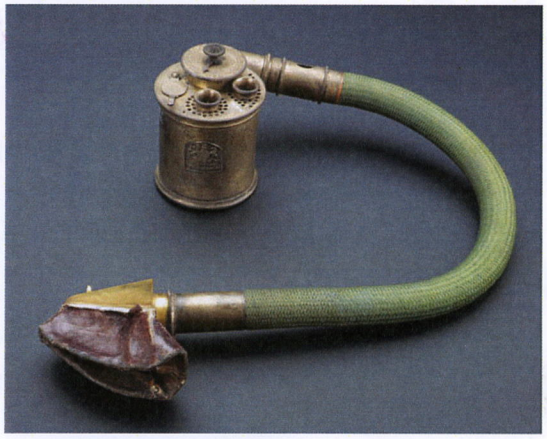


Fig.4 Ellis vapouriser for ether, alcohol and chloroform mixture 1866

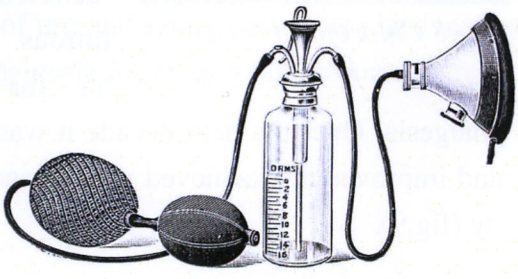


Fig.5 Junker inhaler 1867

In 1933 three new methods for the delivery of chloroform in obstetrics were described. Mennell's modification of Junker's inhaler (fig.6) designed for self-administration had safety features which prevented over-filling and incorrect connection. Only low concentrations could be achieved. Other attempts to limit the concentration and reduce the chance of overdose were Christie-Brown's inhaler (fig.7), based on the principle of the unspillable inkwell and chloroform brisettes (fig.8) which were simply snapped to release the chloroform vapour.

Fig.6 Mennell Bottle 1933

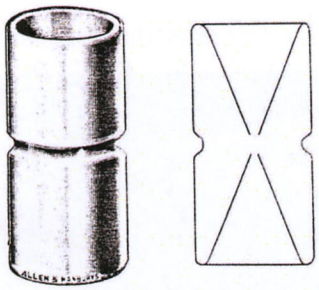


Fig.7 Christie-Brown inhaler 1933

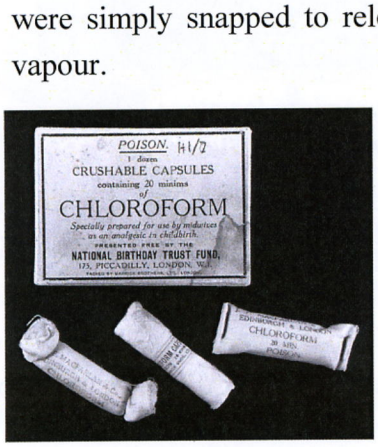


Fig.8 Chloroform brisettes 1933

But despite these advances chloroform's days were numbered. In 1933 Ralph Minnitt introduced his machine for delivering 45% nitrous oxide in air for obstetric analgesia. Over the next decade it was modified and improved and achieved widespread popularity (fig.9).

Fig. 9 Minnitt apparatus of 1945, portable model

In the early 1940s trichloroethylene ("Trilen was also introduced for obstetric analgesia. Devices such as the Cyprane inhaler (fig.10) became popular. However between 1 and 1983 the Central Midwives Board (CM laid down strict criteria governing the types apparatus that could be used by midwives wo ing on their own. Some devices such as Cyprane were not accepted. Those that pas included the Minnitt, the Emotril (fig.11) and Tecota (fig.12).

Fig.10 Cyprane trichloroethy inhaler 1947

Fig.1 The Emot Inhal 194

Fig.12 Tecota Mark 6 trichlorethlene inhaler 1955

The last volatile anaesthetic agent to be used for obstetric pain relief was methoxyflourane. It was used in the Cardiff inhaler (fig.13) which

Fig.13 Cardiff methoxyflourane inhaler 1959

was approved by the CMB. The Lucy Baldwin machine (fig.14) was specifically developed for obstetric analgesia in the hospital environment. It could deliver variable concentrations of nitrous oxide with oxygen (but not less than 20% oxygen). This was a distinct improvement on the Minnitt which delivered nitrous oxide in air (resulting in approximately 11% inspired oxygen concentration). It was not however approved for use by unsupervised midwives.

Fig.14 Lucy Baldwin machine 1955

None of these machines are still in use. Volatile agents no longer have a place in obstetric analgesia but nitrous oxide in the form of Entonox (fig.15) is widely available. Developed by Tunstall and the British Oxygen Company in 1961 it is a 50/50 mixture of oxygen and nitrous oxide. Its ease of use and safety ensure its place in obstetric analgesia for many years to come.

Fig.15 Entonox 1961

THE MARRETT ANAESTHETIC APPARATUS : A DESIGN MASTERPIECE

IVAN HOUGHTON

Fig.1 Rex Marrett 1915-2003

Rex Marrett (fig.1) qualified in medicine in 1940 and immediately took up anæsthesia under Dr Langton Hewer with whom he investigated the clinical use of trichloroethylene. By 1942, he had passed the DA and designed his first anæsthetic apparatus. He joined the RAMC in 1943 and was with 6 field surgical team after the D Day landings. The standard military anæsthetic apparatus at the time was the heavy field-pattern Boyle's machine with water-sight flowmeters for oxygen and nitrous oxide and a single plenum-vapouriser for chloroform or ether. Marrett took his own machine but, on breaking out of Caen, he found a closed-circuit rescue-apparatus in a mine which he was able to convert into a simple closed-circuit anæsthetic-machine, using his own vapouriser, a scrounged Adams valve and an oxygen cylinder. This so impressed OC Anæsthesia Europe that he was asked to design a new field anæsthetic-apparatus.

The Marrett apparatus was introduced in 1948, having been patented by the War Office in Marrett's name. It embodied many new features including an extendable rotameter block, non-interchangeable bayonet connections, a trichloroethylene interlock, the availability to use all the usual gases and breathing circuit configurations including draw-over. He virtually eliminated all perishable parts to allow prolonged storage and use in the tropics. The apparatus was relatively light and revolutionary in design having all the controls, valves and gauges conveniently grouped together and visible. The cylinder stand was equally novel having a space-saving circular design. The main system was designed around the ether vaporiser in circuit, providing economy and some self compensating adjustment of vapour concentration depending upon depth of ventilation.

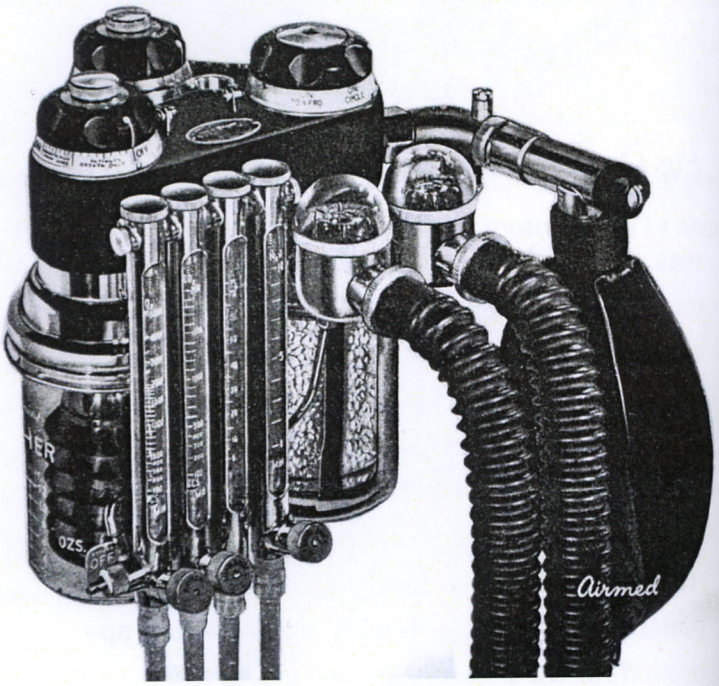


Fig.2 Marrett Anaesthetic Head 1958

Ten years later, further improvements were made (fig.2) to improve safety including a transparent soda lime canister, changes to the emergency oxygen to prevent excessive pressures and by-passing the vaporisers. Contents gauges were incorporated for all the cylinders and the layout of the valves and bag made more visible. After quantitative output measurements, it was found suitable and safe for use with halothane.

Marrett's name was placed on a Royal Commission list of wartime inventors for which he received £450 with which he bought a caravan. His machine continued to be made until 1976 but if it had continued for a few more years until vapour analysis was readily available and closed circuit anæsthesia had regained its popularity, it could have still been with us – a masterpiece of design.

Bibliography

Marrett HR. A new general anæsthesia apparatus. *Anæsthesia* 1949; **4**: 39-44.

Marrett HR. Halothane: its use in closed circuit. *British Medical Journal* 1957; **ii**: 331-332.

Marrett HR. Modifications to the Marrett Apparatus. *British Medical Journal* 1958; **i**: 83.

Marrett HR. A brief history of the Marrett head. *History of Anaesthesia Society Proceedings* 1994; **15**: 18-23.

DAVID DAVIS OF LLANDYFAELOG

BRYAN HIBBARD

David Davis (1777 - 1841) was born in the hamlet of Llandyfaelog, in Carmarthenshire. He started to train for the non-conformist ministry but turned to medicine because of his deep concern for the social problems of the day. Davis settled in London in 1813 and, in 1827 became the first Professor in Midwifery in the University of London at University College.

To understand his importance in British obstetrics we need to go back nearly a century, to the times of William Smellie and William Hunter. When Smellie retired to his native Lanark in 1759 rational conservatism went with him, leaving the way open for a large number of undistinguished practitioners. So it was that a degree of polarisation developed, with interventionists in a minority at one extreme and arch conservatists in the mould of William Hunter at the other, with such aphorisms as:
'Use the forceps sparingly - Where they save one they murder many'

The culmination of British conservatism was epitomized by the obstetric management of Charlotte Augusta, daughter of George, Prince of Wales (later George IV) and Princess Caroline, during her pregnancy in 1817 which was expected to produce an heir to the throne but ended with the death of Charlotte, her child and her obstetrician. In 1818 the Duchess of Kent became pregnant and a new Royal Accoucheur was needed. Davis was appointed by the Duke of Kent and the Hunterian legacy of conservatism was about to be challenged.

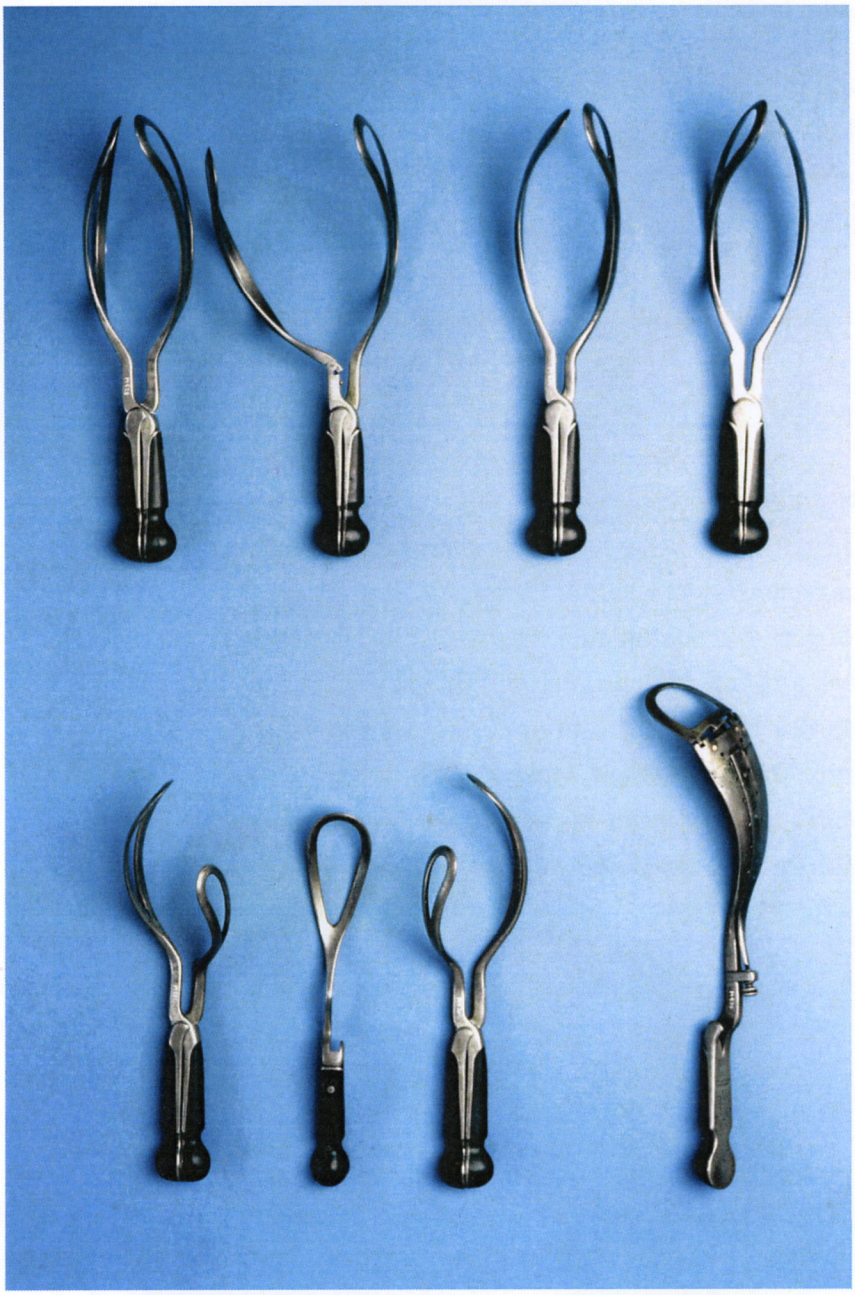


Fig.1 Davis' set of interchangeable forceps blades

Davis pleaded for better training, better design of instruments and more ready recourse to intervention in the interests of both mother and

baby, claiming that:

'....the entire subject of Operative Midwifery has been in a state of the most abject neglect for the last fifty years.'

Davis' magnum opus was *'Elements of Operative Midwifery'*, first published in 1825. His writings show clearly how different he was from those who had started him on his career.

Davis was particularly concerned to minimise injury to the baby. He designed numerous pairs of forceps for use in various circumstances and. His destructive instruments were so constructed to reduce the risk of maternal trauma. A complete set of his forceps and destructive instruments, as illustrated in his textbook, are now in the RCOG collection (figs.1, 2 and 3). They were beautifully made by Botschen of Finsbury, and have interchangeable blades, facilitating their use in a variety of malpresentations.

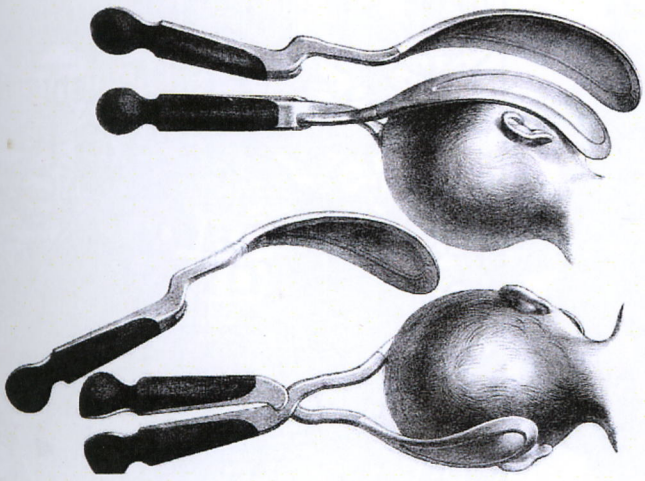


Fig.2 Davis Table VII Application of asymmetric blades

However fortune was not on his side. From 1831 he suffered recurrent ill health and eventually this forced his retirement from the Chair in 1841. He died just four weeks later. As an epitaph it would be difficult to better

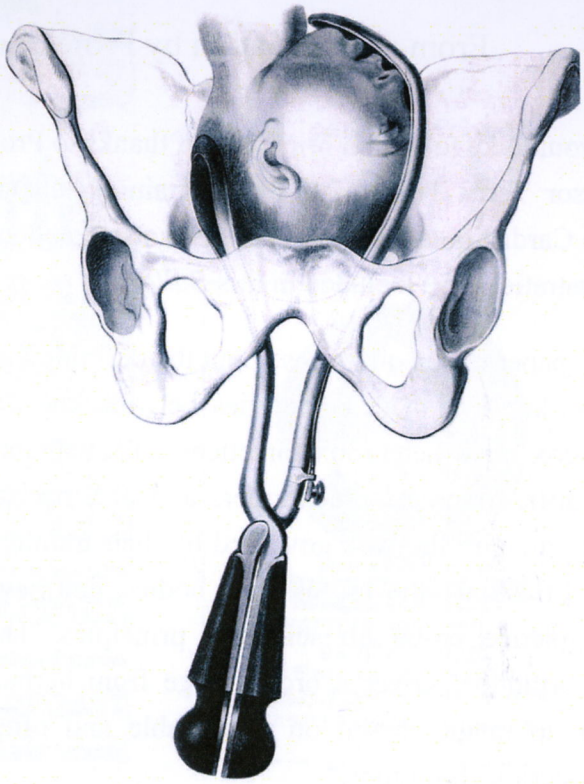


Fig.3 Davis Table X Application of a hinged blade

the words of Dr Glynne Jones:

" A man of sound judgement and wide clinical experience, he combined clarity and precision as a teacher with dexterity and caution as an operator..... he was able by his teaching and example to revolutionise the practice of midwifery in this country."

[A detailed description of Davis and his instruments can be found in "The Obstetrician's Armamentarium" by Bryan Hibbard. Norman Publishing, 2000.]

ILLUSTRATIONS FROM "A POTPOURRI OF DEVICES & POTIONS"

From a presentation by Professor Terry Turner University of Wales, Cardiff

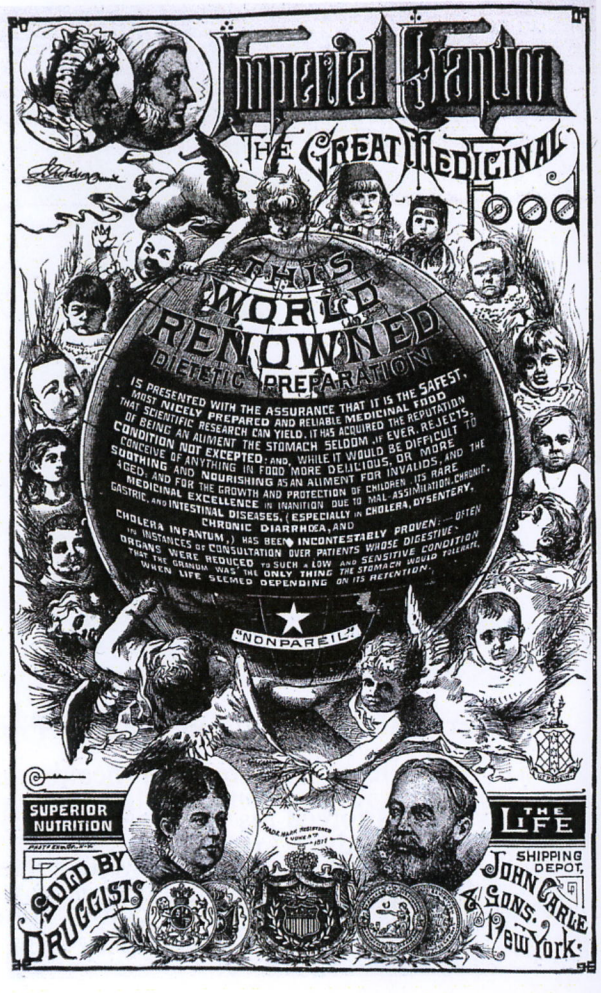
I would like to offer a brief note of thanks to Professor Terry Turner for his entertaining talk at the Cardiff meeting. A few of his many excellent illustrations are included in this *Bulletin*.

His paper raised questions about the definition of 'quackery' and the boundaries between the orthodox and heterodox practices of medicine. Qualified medical practitioners and pharmacists would claim they are governed by their training, qualifications and professional bodies, and have a practice based on scientific principles. The 'unorthodox' cover a broad range from herbalism to magic, based on unprovable and often mysterious traditions.*

The 'quack' offers a single remedy for all ills – a 'cure-all'. The quack's nostrum is usually a bottle of 'patent medicine,' but as Terry Turner points out, it can also be a 'device' – healing pads and corsets, massage machines, magnets, special chairs and cups were all on offer. The quackery is not in the medicines or devices themselves (massage machines do massage,) but in the outrageous claims made by their protagonists that they can cure everything from headaches to venereal disease. Once sold, the itinerant salesman moved quickly on to the next town!

Peter Mohr

(* A full discussion can be found in *Studies in the History of Alternative Medicine* (1988) edited by Roger Cooter)



Examples of quack remedies and their extravagant claims

EXTRAORDINARY EFFECTS OF MORRISONS VECETABLE PILLS!

Vy Snook is that you! Vell if I arnt completely Struck! Vy Vot did you change your Vooden Legs for Cork'uns!—— Cork ones! now do they look like a Pair of Cork ones. No old Boy they are real Flesh and Blood, and ten times a Best Pair than wot I was Born with. Vi'll only cost you a Shilling my Tulip and you'll have as good a Pair of Stumps as myself. Yesterday you must know I bought a Box of Morrisons Universal Vegetable Pills, for a Svelling in my Thight, well so I took'em all afore I went to Bed and when I awakes in the morning to kick of the clothes, I'm bless'd if I didn't find myself with these 'ere Couple of Jolly good Legs and my Old Wooden ones right at the bottom of the Bed!!!

TREEN IN HEALTH AND SICKNESS

KARL JOHANSEN

The word 'Treen' generally describes portable utilitarian objects made from wood but may extend to include other items of vegetable origin. Wood and its products have been used to make tools and domestic utensils since prehistoric times. Its application to building and transport followed in due course but its application to health, diagnosis and medication was more gradual and only became widespread during the last two centuries.

In practice, wood has been used by pharmacists for extracting, mixing and containing medicaments in the form of powder, tablets, ointments, lotions and liquids – typically in glass bottles, carefully blown to size and matched to a wooden case, itself more skilfully turned to a secure fit. Its use by doctors has been more limited, their needs being for metal instruments and for glass, china, rubber and latterly, plastics. Thus purely medical items are relatively uncommon and are often not recognised for their true origin. They include cases for glass syringe, thermometers and similar fragile items; articles used in the consulting room - stethoscopes and specula - or in nursing care, such as pap boats and bandage winders.

In the pharmacy, pestles and mortars, measuring and mixing vessels and pill-making devices are fairly common; being well made from closely grained timber, they have survived two hundred years or more. The wood most commonly seen is Box, but Lignum Vitae, Olive, Rosewood and Ebony as well as home grown Laburnum, Walnut and Yew have the same remarkable property of resisting both splitting and shrinkage, so that a screw thread may be turned in both the container and its cap which still function after a couple of centuries. Some of these woods have only been accessible since sea-trade expanded in the 18th century and earlier examples of containers were often of native fruitwoods, particularly Apple, Pear and occasionally Plum.

Oak, Elm and Ash are Britain's best known hardwoods and together with Pine are found typically where strength rather than finesse is required, often in an orthopaedic role such as splints, artificial limbs or crutches. They also feature amongst items used for keeping fit, including Dumbbells, Indian Clubs and the occasional rarity such as the bicycle featured in the Treen encyclopaedia written by Edward Pinto.

Another group of artefacts relate to 'fringe medicine' and include bottles, flasks and drinking vessels sold to folk visiting springs and Spas and 'taking the waters' in search of a remedy for their chronic malaise . Tobacco too was promoted as beneficial for a variety of ailments particularly those of the chest including, absurdly, phthisis. It is perhaps stretching credibility too far to include tobacco pipes and snuff boxes but the facts are indisputable.

One further use for wood is as a pattern for an instrument destined to be forged in steel by a smith. Perhaps the ultimate rarity in medical treen artefacts is the carved template for a wooden obstetrical forceps, though a few of the earliest examples were also undoubtedly put to actual clinical application as recorded by Bryan Hibbard in his treatise *The Obstetrician's Armamentarium*.

In conclusion, examples of medical Treen though rare, are still to be found and when encountered should be carefully recorded and conserved for their historical importance.


Medical :
5 Fetal stethoscopes
Proctoscope case (L)
Thermometer cases
Speculum (C)+ obturator (R)
Invalid feed. "Pap Boats" (L+R)
3 Tongue depressors / Spatulae
Orthopaedic surgeons mallet
Paediatric Patellar hammer
Dental screw Gag
Silver nitrate cautery stick in
Thermometer case
small case


MORTARS & PESTLES
==========
V.Large Mortar is walnut ;
Large pestles are lignum vitae
and ? Teak
Small mortars are , L > R :
Laburnum . Boxwood ; Elm
fruitwood ; Lignum vitae
Pestles in front are Oak + Box

Karl Johansen showing examples from his collection of treen to members of the Society

MEDICAL TOURISM, PART 3: VIENNA AND BUDAPEST

JOHN PROSSER

Last year we made a positive decision to travel by train across Europe to Budapest via Vienna so that we could see the medical museums in both these cities.

Vienna of course has a long history of the teaching of medicine and is one of the foremost medical schools in Europe. The medical museum is housed in one wing of a building specially built for Emperor Joseph 11 in 1783 as a medical and surgical academy (fig.1). The

Fig.1 The Josephinum Museum in Vienna

museum is famed for its collection of anatomical models in wax produced in Florence in about 1784 and laboriously transported overland to Vienna (fig.2). There are in total 1192

Fig.2 wax anatomical model

specimens. A few are enough to see their quality but the gloom of the rooms and their content do not encourage you to stay too long. In other rooms there is quite an extensive collection of medical and surgical instruments (fig.3). The whole does make a worthwhile visit.

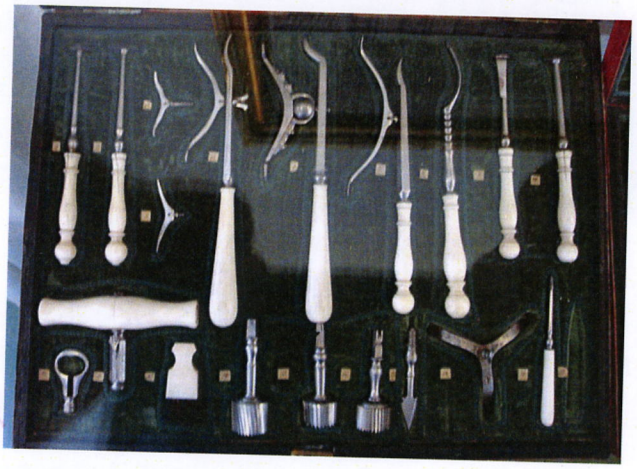


Fig.3 exquisite case of surgical instruments

Finally we reached Budapest. The city is a great place to visit and the Semmelweiss Museum making it more so (fig.4). The museum the most extensive we have seen in Europe is set out in the large 18th century house where Ignaz Semmelweiss was born. I am sure we all

Fig.4 The Semmelweiss Museum in Budapest

recall how he made the link between the attendance of medical staff in the mortuary and the

incidence of the often fatal childbed fever. His insistence on the washing of hands in chloride of lime before attending patients in his ward dramatically reduced the incidence of this source of maternal mortality. His discovery, although appreciated later, was largely ignored by his colleagues.

Fig.5 obstetric set

This discovery was made some twenty years before the discovery of micro-organisms by Pasteur.

The museum is extensive and covers instruments from the roman era to modern times (an example is shown in fig.5). Many Hungarian doctors of whom we know little are featured but this does not take away anything from the large collection. We found it all very interesting and we met quite by chance two anaesthetists visiting the museum from Canada and the USA which made the visit even more enjoyable. The staff in the museum who spoke some English were most helpful and even gave us a copy in English of the list of the contents of the museum which runs to some 58 pages of A4. One could spend one day at least there but we saw most of it in one afternoon.

On leaving we passed through the garden where Semmelweiss is buried. A doctor only appreciated for his discovery after his death.

THE WELSH MUSEUM OF HEALTH AND MEDICINE TRUST

PETER LLOYD JONES

The Welsh Museum of Health and Medicine started life in North Wales when a group of consultants began collecting items being discarded from a number of regional hospitals, general practices and sanatoria. Their vision was for the collection to be housed in one of the redundant hospital buildings and to become a museum that would be open to the public. They sought to engage and educate the public in the radical changes in health care that had accompanied the industrial revolution and its aftermath in the Principality. The development of the slate quarrying and coal mining industries had, in conjunction with the prevalence of tuberculosis, introduced pressures to which the emerging health services had needed to respond. The rural communities outside the industrial north and south had their own issues of isolation and transport that produced more stories that needed to be told.

A Charitable Trust was established with a view to pursuing the objectives of the group. A number of possible locations were investigated and ultimately abandoned, largely because of the unsustainable cost of maintaining such an undertaking. The Welsh National School of Medicine offered to provide secure housing for the expanding collection and, as a result, it was moved to Cardiff where it currently resides. The emphasis has shifted towards establishing a fully documented and illustrated record of all the items in the collection. A website http://www.wmhm.org.uk has recently been launched to encourage the public and past health care employees to share their experiences.

The Museum Trust has recently become affiliated to the very active History of Medicine Society of Wales http://www.homsw.org.uk - an association

that is proving most encouraging and informative. Having, from time to time, provided small, temporary displays of its artefacts around the Principality, it is now hoped that the collection may be of service in fostering a greater understanding of the history of health care in the evolving process of medical education.

Some of the items in the collection are shown below.

Field Surgical Kit in brass bound mahogany case - circa 1850.

Brass bound mahogany case with hinged lid, with lock but key missing. The dedication brass plate is in situ but not engraved. The lid opens to reveal a field surgical kit with dedicated locations for components and nearly all items present. The majority are marked Ferris & Co., Bristol. Many of the instruments have ebony handles, indicating that they date from before the introduction of sterilisation.

Bossi's Cervical Dilator

This 4 bladed cervical dilator is described as being of 'Improved Pattern' in the A&H catalogue 1930 p484 #3388. Nickel plated. The image shows the blades separated. Bossi's dilator was commended by J W Ballantyne for the dilatation of the cervix in eclamptic patients and their early delivery by forceps. Ballantyne, J. W., 1903, Brit. Med. J. Feb. 21, 420-21.

Joseph Clover's Lithotomy Crutch c 1860 but in use during the early 20th century *The patient would be lying on her back with the ankles held apart in the padded cuffs The strap, often thought to be a neck strap, was more effective if taken over one shoulder and under the opposite arm. Contained in a canvas bag identified as coming from the Maternity Unit of the H. M. Stanley Hospital, St Asaph, Flintshire. Professor Brian Hibbard recalls the device in use, maintaining posture in pelvic procedures requiring the patient to be maintained in the knee-elbow position.*

Secured boot

This is one of the boots worn by an inmate of a 19th century workhouse. The modification was undertaken to one of a pair of boots to prevent the paupers from removing them and selling the pair.

THE MUSHIN ANAESTHETICS MUSEUM

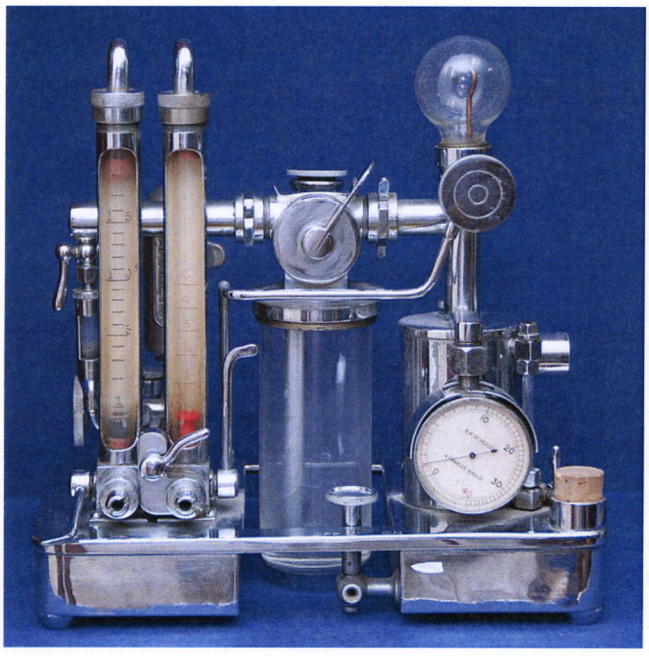
Department of Anaesthetics, School of Medicine, Cardiff University

PETER LLOYD JONES

When Professor William W Mushin was appointed to be Director of Anaesthetics in Cardiff, in July, 1947, he had, as a primary responsibility, the improvement of the standard of anaesthesia in the City. He pursued his teaching responsibilities by conducting weekly formal teaching ward rounds, providing tuition in the practical skills and by conducting a programme of tutorials and lectures outside the clinical arena, in the new Department of Anaesthetics at the Cardiff Royal Infirmary. He brought with him a small collection of historic apparatus and lost no time in extending it to form an important part of training in the principles of anaesthesia.

The museum, as the collection became to be called, was housed in a series of glass cabinets that formed one wall of the main laboratory. At that time, the primary Fellowship examination required an understanding of the physics of anaesthetic apparatus and so the museum reflected that fact. Later, work on the book 'Artificial Ventilation of the Lungs' required the acquisition of a wide range of commercial lung ventilators. This meant that any newly arrived anaesthetist to the Department would have been confronted by a different ventilator in every theatre of the hospital group. Many of those machines have now been laid to rest in the museum. When the University Hospital of Wales replaced the Cardiff Royal Infirmary as the main teaching hospital in Cardiff, the Museum was moved to its more salubrious present location, flanking the walls of the Anaesthetics Department Seminar Room. Under the direction of Professor Judith Hall, the Museum is currently undergoing the latest of a series of periodic refurbishments with a view to presenting a searchable virtual museum on the internet, supported, where appropriate, by anecdotal and historical observations to animate this significant collection.

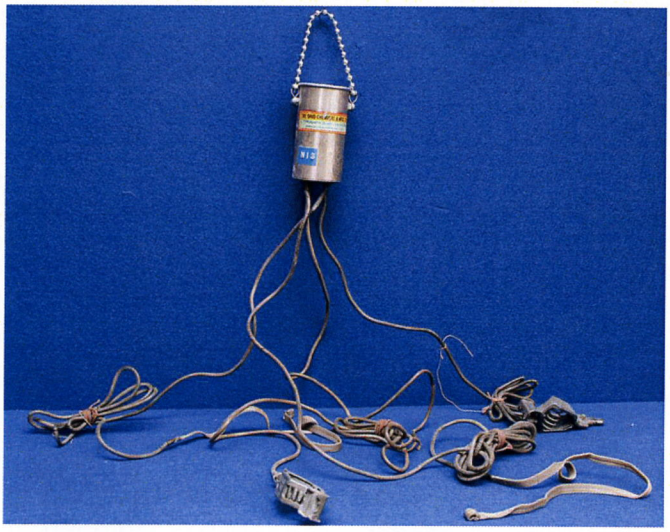
Items from the museum are shown below.



Magill Apparatus - 1932

This Magill Endotracheal Apparatus was introduced in 1932 as improvement on previous versions of 1921 (an warmed ether/air insufflation device), 1923 (a nitrous oxide, oxygen and ether device) and 1927. It incorporates dry gas flow meters and a Sparklet CO2 dispenser added to the original device. It is complex, compact and portable, designed for the peripatetic anaesthetist. The outlet incorporates a bag-mount and is wide bore.

Clover's Portable Regulating Ether Inhaler
This example of Clover's Ether Inhaler is complete in a case and is equipped with the later development of a Hewitt valve. The inhaler consists of a water jacketed spherical vaporisation chamber into which a measured charge for ether would be poured. The metal pointer adjacent to the mask connector passes over a graduated scale. The output of the device is adjusted by rotating the whole vaporiser about its axis. The Hewitt valve directs exhaled air into a bag that would have been attached at its base or, alternatively, out to atmosphere. The case includes a bottle for the liquid ether and a measuring filler. The cork retains water in the water jacket. The angled filler is not shown but is designed to prevent over-filling.

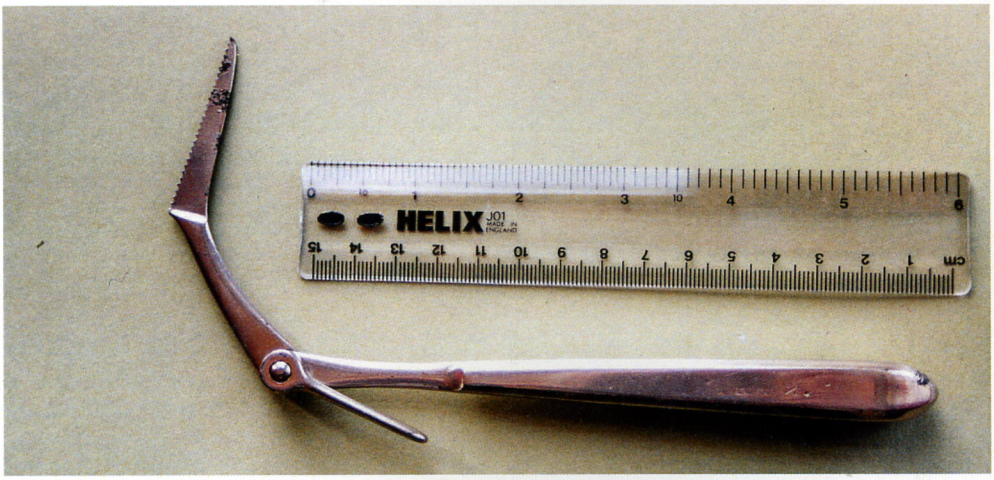


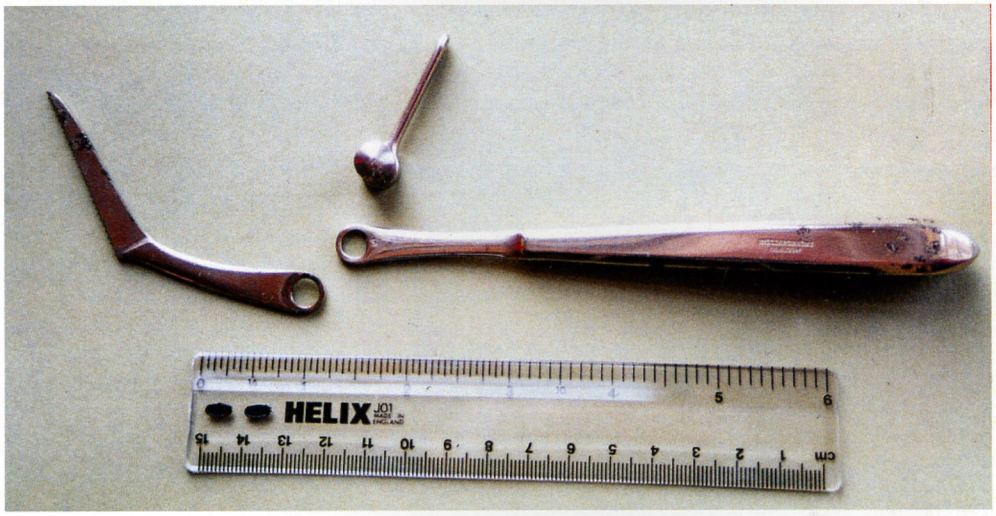
Horton Intercoupler *(Ohio Chemical Company)*
When cyclopropane became available as an anaesthetic, its great disadvantage was that typical anaesthetic mixtures of cyclopropane and oxygen were explosive and these mixtures could be ignited by static discharges. To improve safety, hospitals were required to employ antistatic precautions that had massive implications for the fabric of the operating theatres. The Horton Intercoupler was an attempt to provide some protection from static electricity in locations where full antistatic provisions had not been provided. The theatre team and essential equipment were intercoupled using this device. Each cable has a large resistance in series with it within the container to minimise the risk of electrocution. Equipment was interconnected by spring clips and personnel by metal mesh ribbons.

Elsberg Apparatus for ether insufflation
This apparatus is designed for delivering ether vapour by intratracheal insufflation (circa 1910). The main body of the apparatus has an upper ether vessel with a water reservoir below. Fresh gas is delivered through a narrow bore nozzle at the left, passing a tap that offers connection to air or to a mercury u-tube blow-off. The gas then passes to a system of 3 cog-linked valves that divide the flow so that it passes through the liquid ether chamber or via a bypass to the outlet nozzle. A thermometer indicates the ether mixture temperature close to the outlet.

WHAT IS IT?
[January 2011]

What is this instrument and with which famous surgeon is it associated?





WHAT IS IT? [August 2010]

This composite scene illustrates methods of bullet extraction at the end of the 16th century, by Guillemeau, Pare's son-in-law (2010 was the 500th anniversary of Pare's birth). On the left, a thigh is explored by a terebrum or terebellum with a screw point to impale, hopefully, a lead bullet. To the right a bullet scoop is exploring a chest wound to 'catch' a bullet perhaps lodged on a rib. The box below illustrates a variety of scoops and also bullet forceps.