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EXECUTIVE COMMITTEE

Chairman

Dr John Prosser

32 Albany Terrace

Worcester WR1 3DY

Tel. 01905 20387

email: johnprosser2005@yahoo.co.uk

Secretary/Treasurer

Dr Tim Smith

"Streams"

West Kington

Chippenham SN14 7JE

Tel. 01249 782218

email: drtgcsmith@aol.com

Bulletin Editor

Mr John Kirkup

1 Weston Park East

Bath BA1 2XA

Tel. 01225 423060

email: john.kirkup@doctors.org.uk

Committee Members

Mr Alan Humphries

Dr Nasim Naqvi

Dr Peter Mohr

CONTENTS

FUTURE MEETINGS

SHEFFIELD - 8th APRIL 2006

ASSOCIATION OF ANAESTHETISTS, LONDON - OCTOBER 2006

EUROPEAN MEETING - APRIL 2006 - proposed weekend trip to Belgium, including a visit to the Hospital of Notre Dame á la Rose, Lessines.

EDITORIAL

Our last Bulletin was not available before a very successful meeting at the Army Medical Services Museum, Keogh Barracks, Aldershot held on 15th October, 2005 and we apologise for the delayed publication due to unforeseen circumstances hoping that, as a result, no-one missed this excellent visit. HMES met at the Keogh Barracks some years ago when only the Royal Army Medical Corps was represented but since 2004 the Museums of the Royal Army Veterinary Corps, the Royal Army Dental Corps and the Queen Alexandra's Royal Army Nursing Corps have added their collections in a much expanded building. It was impressive to see outside the Museum a number of vehicles associated with Army medical care, including a railway carriage and a tank which turned out to be an armoured ambulance which had seen service in Iraq. After coffee in the Library and Archive room where historical instruments and books were displayed, 25 members were conducted round by the Curator, Captain Peter Starling who introduced us to impressive and extensive displays. These are arranged in chronological order commencing with items representing military activity during our Civil War of the 17th century and continuing through the 18th century, the Napoleonic period, the Crimean, South African Wars and both World Wars, the Korean, Malaysian, Afghanistan and Iraqi conflicts, and many others. Most of us felt overwhelmed by the quantity and quality of the collections and agreed another visit was required. After an Annual General Meeting and lunch, papers were given by Nasim Naqvi and John Kirkup (see accounts in this Bulletin). The meeting concluded with an identification session of members obscure instruments and equipment.

I am grateful to Derrick Baxby who enthusiastically continues to contribute to the Bulletin despite difficulties in attending meetings and I'm pleased to welcome David Goodwin's account of the Berkshire Medical Hertitage Centre, Reading which I hope will stimulate others to inform us about their own museums and unusual possessions. If anyone has doubts about responding to this invitation, please let me know.

Our next meeting is being organised by Adrian Padfield in Sheffield on 8th April, 2006; details will be forwarded later.

PS. On a personal note, I'm pleased to announce, my opus "The Evolution of Surgical Instruments: a historical study from the ancient world to the 20th century" is being printed after years of delay on the part of the publisher.

CENTENNIAL OF KOROTKOFF SOUNDS, 1905-2005

NASIM NAQVI

The year 2005 has been declared 'World Year of Physics' to celebrate the centenary of Albert Einstein's famous equation $E = mc^2$. For medicine, this year also marks the centenary of auscultatory measurement of blood pressure which every doctor, nurse and all paramedical personnel learn to employ. Professor J.D. Swales, a leading expert stated : "The Korotkoff sounds are the foundation of all the clinical studies on which our knowledge of human blood pressure is based, at least up to recent times."(1) Who was Korotkoff and how his sounds were discovered makes an interesting story.

Nicolai Sergeivich Korotkoff, a Russian army surgeon, was born on 13th February, 1874 at Kursk where he completed his early education, joining the Medical School of Kharkov University in 1893 and that of Moscow University in 1895, (fig.1) He graduated in 1898 with distinction, becoming an intern to the surgical unit in Moscow. In 1900, he joined the Russian Army and was sent to China during the Boxer Rebellion, entailing hazardous outward and inward journeys, returning by sea via Japan, Singapore, Ceylon and the newly constructed Suez Canal; on arrival in Moscow he was decorated with the Order of St Anna. After translating a German surgical text 'Chirurgische Diagnostik' he became assistant surgeon at the Imperial Medical Military Academy at St Petersburg but, within a year, he was sent to the Russo-Japanese war zone as senior surgeon to a Red Cross hospital with 50 other volunteers including his wife, a qualified nurse. Interested in vascular damage due to gunshot wounds and the collateral circulation resulting from arterial interruption, of which there was no shortage in this brutal war, the equipment for his research included the earliest, extremely delicate Riva-Rocci blood pressure apparatus, an arm cuff and a child size stethoscope (fig.2). He collected 50 case reports, later included in his thesis.

Fig.1 Nicolai Korotkoff 1874-1920

During the spring of 1905, he started his thesis in St Petersburg and was persuaded by his professor to make a presentation at a clinical meeting on 8th November, 1905. His paper consisted of 281 words, less than a page, introducing his sounds and auscultatory method of determining systolic and diastolic pressures to the profession for the first time. The following English translation was not published until 1941 (2):

"The cuff of Riva-Rocci is placed in the middle third of the upper arm; the pressure within the cuff is quickly raised up to complete cessation of circulation below the cuff. Then, letting the mercury of the manometer fall one listens to the artery just below the cuff with a children's

stethoscope. At first no sounds are heard. With the falling of mercury in the manometer down to a certain height, the first short tones appear; their appearance indicates the passage of part of the pulse wave under the cuff. It follows that the manometric figure at which the first tone appears corresponds to the maximal pressure. With the further fall of the mercury in the manometer one hears the systolic compression murmurs, which pass again into tones. Finally, all sounds disappear. The time of cessation of sounds indicates the free passage of the pulse wave; in other words, at the moment of disappearance of the sounds the minimal blood pressure within the artery predominates over the pressure in the cuff. It follows that the manometric figures at this time correspond to the minimal blood pressure."

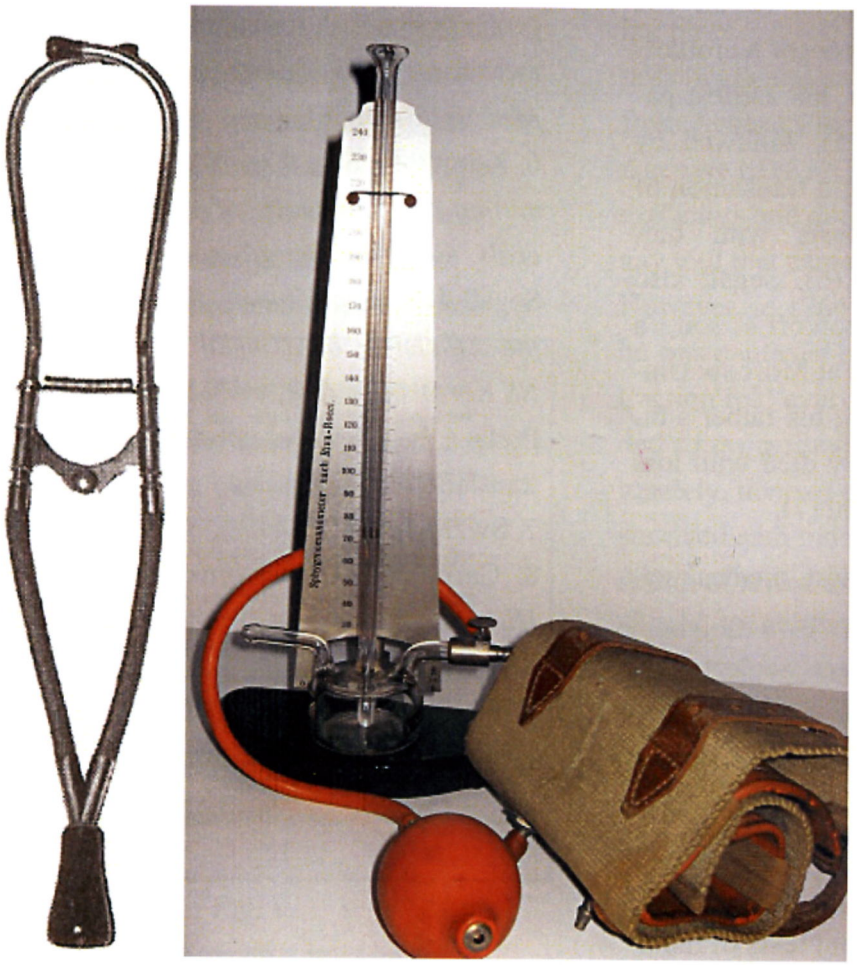

Fig.2 Korotkoff used the blood pressure apparatus as above. The stethoscope is only a speculative model popular during early 20th century.

Korotkoff, only a junior doctor just 31 years old, had to face much criticism from at least one senior professor but he answered politely and skilfully. In 1908, he became physician at a Siberian hospital. In 1910, he finished his doctoral thesis based on case histories and experimental laboratory work, to conclude his last academic contribution. In 1912, when a surgeon to miners, he witnessed atrocities of Tsarist soldiers against striking miners which might have persuaded him to welcome the 1917 Revolution. During the First World War, he served as a senior surgeon and after the Revolution he was a hospital chief in Leningrad where he died in 1920 aged 45: his wife died in 1944 during the siege of Leningrad.

Although Korotkoff 's sounds and auscultatory method became established in Russia and was described by a German physician at a congress in 1907, it took several years to reach Britain and America. In June 1910, George Oliver (1841-1915)

published a detailed paper in the Proceedings of the Royal Society of Medicine, demonstrating a cuff incorporating a specially made 'tambour' or resonator to enhance the sounds (3) and the method was first published in America also in 1910 (4).

A Canadian physician, N.H. Segall has passionately worked to redeem Korotkoff to the medical profession, his earliest paper appearing in 1975 (5), followed by many more, the last being a translation of Korotkoff's doctoral thesis with biographical notes in 1980 (6). Segall also made contact with Korotkoff's son, a sports medicine physician at Moscow University who was preparing his father's biography when he suddenly died with loss of the biographical material (7).

Korotkoff was a shy, modest, medical scientist whose brilliant invention of blood pressure estimation has been neglected by medical historians, even in his own country, not being mentioned in the first few editions of the Russian Encyclopaedia. Garrison in his massive medical histories did not include him (8), and many historians of cardiology and recent texts of medical history overlook his contributions (9). We must not forget Korotkoff's fundamental innovation now in daily use for 100 years.

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THE RISE AND DECLINE OF ARROW AND BULLET EXTRACTORS

JOHN KIRKUP

Mankind has been struck by arrows for many thousands of years but by bullets for only a few centuries and yet we know infinitely more about bullet than arrow extractors. From our personal, almost reflex, experiences of removing thorns and splinters from our hand s or feet we can understand the urgent impulse of victims to remove arrows themselves, witness the Bayeux Tapestry image of King Harold pulling on an arrow in his eye. Unfortunately, most arrow shafts were designed to separate from their embedded arrow heads which proved much more difficult to remove, especially when barbed, and some surgeons recommended pushing the arrow onwards to exit by its sharp point as less traumatic. One of the first paintings of a missile extraction, found at Pompeii, shows Iapix using pincers which might be blacksmith's or possibly dental to extract the buried arrow from Aeneas's leg. Until the early Middle Ages we have no details of specific arrow extractors and doubtless fingers, teeth and any tool that came to hand was applied. However, in 1264 Theodoric complained he was confused by methods of arrow extraction for "every day a new instrument and a new method is invented" (1). Unfortunately, none of these instruments have survived and, indeed, there is a complete dearth of arrow extractors of any age in the collections I've examined. We can only rely on illustrations in Brunschwig, Croce, Paré (2) and other authors demonstrating extractors of either pincer or dilator design, the latter aimed to engage inside the socket of metal arrow heads, emptied when the shaft was removed (fig. 1).

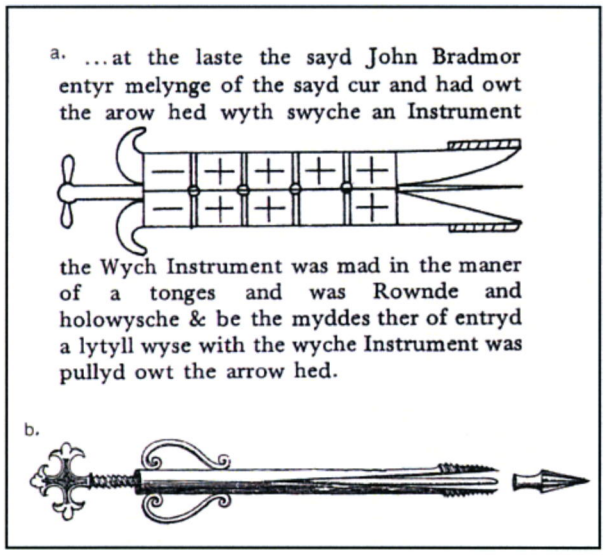

Fig. 1.

a). A cylindrical extractor used by John Bradmore to remove an arrow head from the face of Prince Henry at the battle of Shrewsbury in 1403. (Text and diagram transcribed from Thomas Morstede's 'Fair Book of Surgery', ca. 1420-1450) Its action is evident in the following later and more accurate version. b). A cylindrical extractor demonstrating the divided screw termination which was inserted into missile sockets and then expanded by the central rod to grip for extraction. (Croce, 1573).

These early authors also illustrated bullet extractors which replaced arrow extractors entirely in Western Europe by the 17th century, although United States Army surgeons coped with arrow wounds during the 19th century (3).

Actual specimens of bullet extractors only survive in the UK from the 17th century and have taken the following forms, related partly to the shape of missiles and their composition in lead or steel:

(i) Scoops and spoons which mimic the

flexed index finger (fig. 2, IX), known from 1517 and still advertised in the early 20th century;

(ii) Cylindrical and cannulated extractors, either with a sharp threaded termination, the bullet screw, only useful for lead bullets and quite dangerous near vital structures (fig 2, VII, VIII), or with blunt scoop terminations such as the Alphonsinium (fig. 2, I, II, III) or Coxeter's extractor (Table I);

(iii) Pivoting forceps either with a permanent articulation, the commonest bullet extractor (fig.2, IV, VI) or with a dismounting articulation, the so-called obstetric-type forceps.

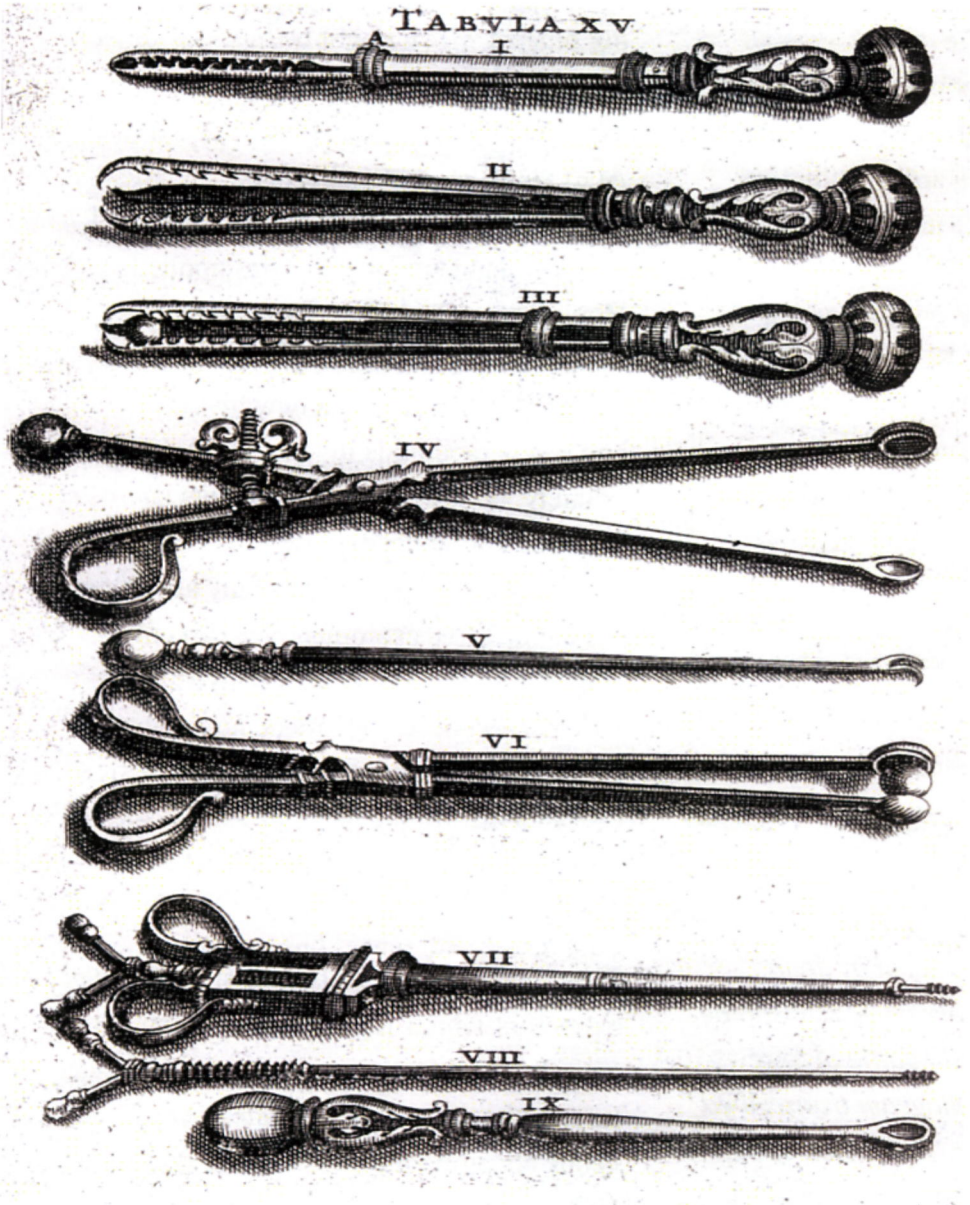

Fig.2

I,II, III, The Alphonsinium, a three-bladed spring forceps controlled by a sliding collar, III contains around bullet; IV, Pivoting forceps controlled by a cross screw; V, Small double hook retractor; VI, Pivoting forceps with round bullet; VII, VIII, Bullet screw or tire-ball; IX, Bullet scoop. (Scultetus J, The Chyrurgeon's Store-House (London: Starkey, 1674)).

TABLE 1

BULLET EXTRACTORS IN BRITISH COLLECTIONS
-PERCENTAGES

	Science Museum	*Thackray Museum*	*RCS England*	*Private Collection*
SCOOPS & SPOONS	4	5	6	9
CYLINDR. -SCREW	9	5	6	0
CYLINDR. -BLUNT	23	15	6	9
FORCEPS PERMANENT	50	56	71	64
FORCEPS TAKE APART	14	19	11	18
TOTALS OF EXTRACTORS ANALYSED	126	21	18	11

Table I summarises the extractors contained in four British collections confirming that forceps with a permanent articulation form 50% to 71% of surviving bullet forceps. The introduction of anaesthesia enabled gunshot wounds to be extended and carefully explored, being further promoted by antiseptic and aseptic techniques. With World War One trench warfare, bullet extractors were finally eliminated for over 70% of wounds were caused by shell and bomb fragments carrying in clothing and infection, to establish routine open exploration for all gunshot trauma.

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3. Bill JH, "Notes on arrow wounds" *Med Record* (1862) October: 365-387.

A SURGEON'S POCKET CASE AND ITS DISTINGUISHED OWNER

DERRICK BAXBY

A collector of antiques feels particular satisfaction when an acquisition meets all three of the main goals: condition, completeness and perhaps the ultimate, an interesting provenance. Such was my luck on acquiring the 19th century surgeon's pocket case described here.

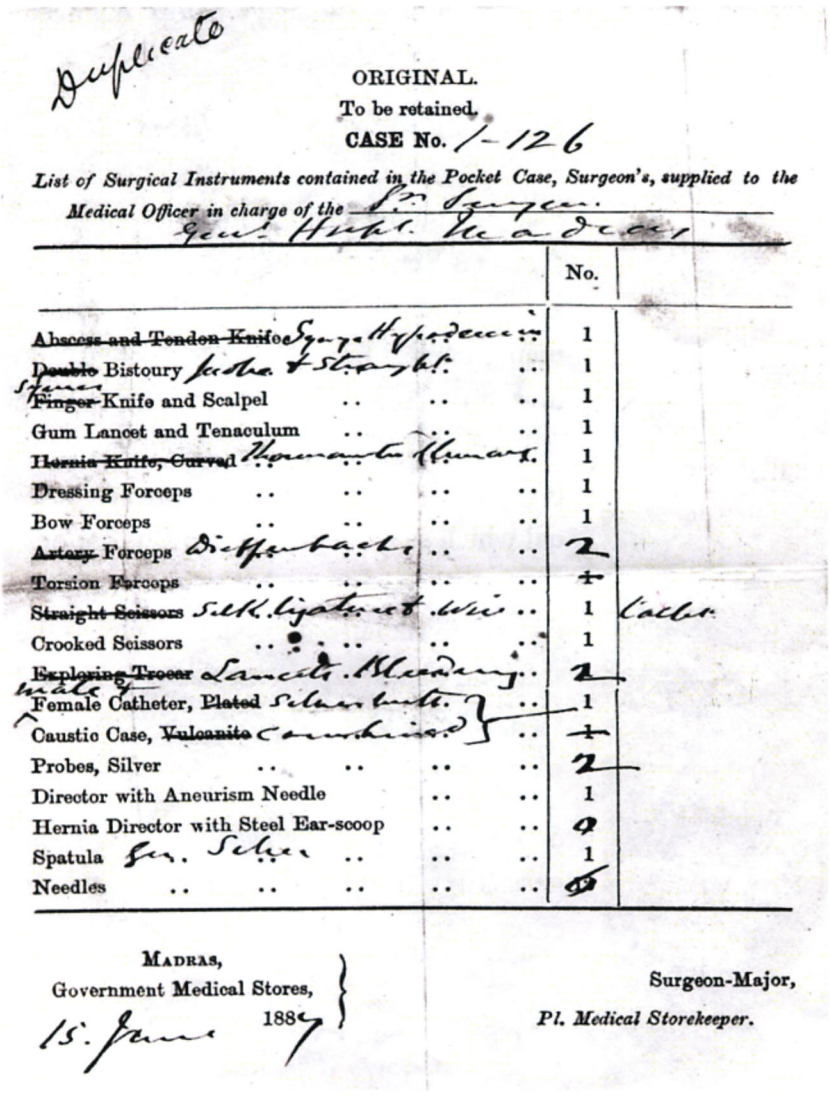
The Case

This and all the instruments, bar two by Weiss, are by C. Wright of New Bond Street, London. They are also marked with 'broad arrows' over 'I' which identifies them as (British) Indian Government issue. Figure 1 shows the case and contents, most of which are easily identified but note two Dieffenbach's bulldog artery clips and a silver caustic holder case threaded to take male and female catheters. Each tortoiseshell-handled instrument has two blades. Not so obvious are a silver cased hypodermic syringe and a Hicks half-minute thermometer. In pockets behind are two thumb lancets, silk thread, silver wire and a packet of curved needles. The condition is excellent with silk thread and silver wire untouched. At this date (1887, see below) all-metal instruments, that could be heat sterilized, had not yet replaced those with tortoiseshell handles. The case looks overcrowded but this is explained by the provenance.

Fig.1 Sibthorpe's pocket case of minor instruments, 1887

With the case was a document listing the contents of 'Case 1-126' issued to the Senior Surgeon of the General Hospital Ma-

dras, dated 15th June, 1887 (fig. 2). Marked 'Duplicate', it would be checked against the original when the case was returned (clearly not undertaken here). Each listed item is present in the case; the Weiss instruments/may be replacements. From the list, it is clear a surgeon of seniority could reject items (eg. hernia knife) in favour of his own choice (eg, thermometer).



Duplicate

ORIGINAL.
To be retained.
CASE No. 1-126

List of Surgical Instruments contained in the Pocket Case, Surgeon's, supplied to the Medical Officer in charge of the Sr. Surgeon. Genl. Hospl. Madras

	No.
~~Abscess and Tendon Knife~~ Syme's Knife	1
~~Double~~ Bistoury Curved & Straight	1
~~Finger~~ Knife and Scalpel	1
Gum Lancet and Tenaculum	1
~~Hernia Knife, Curved~~ Thermometer Clinical	1
Dressing Forceps	1
Bow Forceps	1
~~Artery~~ Forceps Diffenbach's	2
Torsion Forceps	1
~~Straight Scissors~~ Silk. ligature. Wire	1
Crooked Scissors	1
~~Exploring Trocar~~ Lancets. Bleeding	2
Female Catheter, ~~Plated~~ Silver Metal	1
Caustic Case, ~~Vulcanite~~ Combined	1
Probes, Silver	2
Director with Aneurism Needle	1
Hernia Director with Steel Ear-scoop	1
Spatula Sr. Silver	1
Needles	12

Catheter

MADRAS,
Government Medical Stores,
15. June 1887

Surgeon-Major,
Pl. Medical Storekeeper.

Fig. 2. Photocopy of issue document for case no. 1-126 to Senior Surgeon, General Hospital, Madras, 1887

The Owner

The clue to the owner was a card engraved 'Brigade Surgeon C. Sibthorpe', and it was decided to investigate his story. Born in Dublin in 1847, Charles Sibthorpe was licensed to practice by the Royal College of Surgeons in Ireland and the King and Queen's College of Physicians, Dublin in 1869. After a course in military medicine he joined the (British) Indian Medical Service in 1870 as an assistant surgeon in the Madras Presidency. He never married and spent his whole career in India. Promoted to surgeon in 1873, he served as Civil Surgeon and Medical Superintendent of Banda Gaol (Central Provinces), but from 1875 he was based in Madras, at the General Hospital and Medical School, where he was successively Professor of Pathology, Anatomy and Surgery. Interchange between Civil and Army medical services was common and he volunteered for active service with the Peshawar Valley Field Force in the Afghan War of 1879-80, receiving the campaign medal. In 1880 he gained first Membership and then Fellowship of the Royal College of Physicians of Ireland, and in 1883 published his 'Clinical Manual for India' This was intended initially for students at the Madras Medical College, but later used more widely. He served with distinction as Staff Surgeon of the Madras Army in the Burma campaign of 1885-86, was mentioned in

dispatches and received the campaign medal with clasp. He also received special promotion to Brigade Surgeon for his services. As promotion was usually slow, this acceleration caused some resentment amongst those he overtook. He was promoted Deputy Surgeon-General, an administrative post, in 1890 and seconded as Principal Medical Officer to Rangoon where he edited the 3rd edition of the Manual, by now a multi-author textbook of 394 pages. He also established BMA branches in southern India and Burma. In 1894 he became Surgeon-General of the Madras Presidency. The three Presidential medical services were amalgamated into a unified Indian service in 1896, by which time his responsibilities included Bangalore, Mandalay and Rangoon as well as Madras. He was appointed Companion of the Order of the Bath (CB) in 1897 (fig. 3) and retired in 1900, although the 5th edition of the manual appeared in 1903. He returned to Ireland, spending the winter months in Egypt from whence he returned to Dublin only five days before his death in 1906.

Fig. 3. Photo of Surgeon General Charles Sibthorpe, CB, c. 1900.

According to his obituary (BMJ, 1906, I, 1257-8), he was an administrator rather than an innovator. As histories of India focus on Bengal (with its capital Calcutta) and Bombay ('Gateway to India') rather than Madras, Sibthorpe has slipped into obscurity. However, in addition to his obituary, we have his service record (Crawford, 1930) and copies of his Manual which survive in three British libraries. He is still remembered by the Royal College of Physicians of Ireland which has the splendid photograph reproduced here, and his pocket case provides an interesting reminder of an impressive individual.

Sibthorpe's photo is reproduced by kind permission of the Royal College of Physicians of Ireland. Captain Peter Starling of the Army Medical Services Museum kindly provided a photocopy of Sibthorpe's entry in D.G. Crawford's 'Roll of the Indian Medical Service (1930).

BERKSHIRE MEDICAL HERITAGE CENTRE

DAVID GOODWIN

In 1998 a group of Consultants and Nursing staff about to retire formed a Heritage committee to consolidate the history of hospitals recently closed in West Berkshire and South Oxfordshire, and to preserve for posterity changes in medical and nursing practice during the long life of the Royal Berkshire Hospital opened in 1839. The Reading Pathological Society which has met regularly since 1841 possesses a fine library of medical books and historical artefacts. The late Dr K. Bryn Thomas, renowned internationally as a bibliophile and historian, and his colleague Dr Thomas Boulton, former President of the College of Anaesthetists, collected anaesthetic apparatus over a number of years to form the basis of the early collection (including the Wilson ether inhaler illustrated here). To this have been added artefacts from medicine, surgery, paediatrics, pathology, general practice, dental, pharmacy and nursing. A photographic collection completes the record of 166 years of the Royal Berkshire Hospital's evolution and concurrent changes in medical practice. The museum owns more than 3,000 items.

Wilson ether inhaler 1847

Believed to be the only one of its kind in existence this device was patented in March 1847 by George Wilson, glass manufacturer of York. This was just six months after the first successful public demonstration of anaesthesia in Boston, Massachusetts. The mouth-piece is believed to represent the first attempt to construct a uni-directional respiratory valve. Two blue hollow glass spheres are utilised but the sphere in the inner chamber could easily pass through the mouth-piece and might be swallowed or aspirated. This probably limited the practical use of the inhaler.

In 2001, the museum was created in an old laundry, a grade 2 listed building of architectural interest, and opened to the public in 2002. Visitors are welcome from 2.30 to 4.30 pm on the first Sunday in the month and at other times by arrangement. Anaesthetic, Surgical and Nursing trainees all visit as part of their study courses.

Displays have been mounted in the new hospital "street", depicting the hospital's history, Douglas Bader our most famous patient whose records reside in the archives, the history of blood transfusion, dentistry and "quack

medicine" in the early 20th century. In the maternity department obstetric artefacts are displayed. In the Trust Education Centre we have in turn illustrated bladder stones, medicine in wartime and maintenance of the airway. External exhibitions were mounted for the "D Day" memorial in 2004 and on Remembrance Day in November 2005. We open to the public every September for part of Reading heritage week.

Our chairman Dr Marshall Barr, formerly consultant anaesthetist, has co-authored three books with a local historian, Margaret Railton, on the "History of the Royal Berkshire Hospital", a pictorial record of Berkshire hospitals "Care and Compassion" and in December 2005, "The History of Battle Hospital". Over several years, staff and patients have recorded orally their experiences of the Reading hospitals and, after editing, visitors will be able to listen to the recordings in our new oral history unit, shortly to be installed in the museum. We run a schools project in conjunction with the Reading Museum. Simple medical artefacts are shown in attractive display cases loaned out to schools for pupils to study and handle where appropriate. The BBC recently recorded an antiques programme "Flog It" in the museum. Visitors can talk to our staff and view various locally made devices including one to fix jaw fractures, an anaesthetic vaporiser made from a coffee jar by a consultant anaesthetist, and a two-way valve made from a copper pipe and incorporating a copper coin by a general practitioner who gave anaesthetics. There is a large collection of instruments, some dating from the 19th century. Visitors from the medical and allied professions, former patients and the healthy lay person will all find something of interest.

WHAT IS IT ?

Accompanying Sibthorpe's pocket case of instruments (see Derrick Baxby's paper) was a separate item not described in the documentation from Madras (figure 1).

Fig.1

Partly hidden by a small leather protector we find a nickel-plated 'arrow shaped' object divided into two equal limbs connected by a bridge (8cms long) in which a blunt probe (7 cms long) is lodged. The probe unscrews and, it is believed, functioned pointing away from the arrow shaped extremity (figure 2). On the bridge is engraved PROV PATENT which Alan Humphries considers is only found in America. The 'instrument' is obviously hand-forged, being slightly asymmetrical; the bridge gives a slight spring to the two

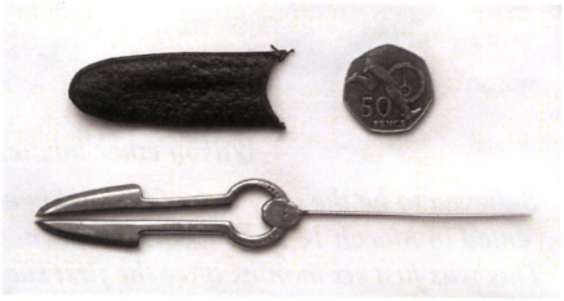


Fig.2

limbs. Was this made in India, or America?

What is this?

It has been suggested that the probe was intended to free the prepuce prior to holding the foreskin between the two limbs for circumcision.

We would be grateful for your views.

Phone, email or write to the editor.

John Kirkup

RECENT BOOKS OF INTEREST

Peter Stanley, *For Fear of Pain; British Surgery, 1790 – 1850* (Amsterdam: Rodopi, 2003) pp. vi, 362, 25 b&w illustrations, ISBN 90- 420-1034- 7 (bound), ISBN 90-420-1024-X (Paper back). This refreshing study of the 'social history of the operating theatre' before anaesthesia comprehends pioneering research by a medical historian where few have dared to venture. As he admits, objective assessment of the reasons for painful surgery and its conduct provoked his physical discomfort when reading documentary evidence towards understanding the patient's acceptance and the surgeon's part in capital operations. By dint of assiduous scrutiny of books, journals, newspaper accounts, military documents, and private diaries, Peter Stanley has uncovered much new information to show that patients and most surgeons were equally human and could only respond to their particular world. Among topics explored are surgery for children, the concept of patient's fortitude and the torment of some surgeons before and long after operations. This ground-breaking book is comprehensively referenced.

Mick Crumplin & Peter Starling, *A Surgical Artist at War: the Paintings and Sketches of Sir Charles Bell, 1809-1815* (Edinburgh: Royal College of Surgeons, 2005), pp. vii, 96, 32 coloured illustrations of wounded soldiers, ISBN 095462131X. Edited by two HMES members, this memorial to Sir Charles Bell both surgeon and artist and to soldiers injured by gunshot during the Napoleonic wars is beautifully produced in colour throughout. It is a stark reminder of the problems of the wounded after great battles due to delay in evacuation and surgical limitations at that time. Fifteen oil paintings illustrate wounds sustained at Corunna in 1809 and seen by Bell at Portsmouth and seventeen watercolours depict wounds seen by Bell in Brussels some two weeks after the Battle of Waterloo. All paintings are accompanied by a comprehensive analysis of their management, often with details of the victim's regiment and place in the battle. Originally produced as student teaching aids, Bell's paintings now form a unique record of the period not available elsewhere. Copies can be obtained from Peter Starling at The Army Medical Services Museum, Keogh Barracks, Aldershot, GU12 5RQ.