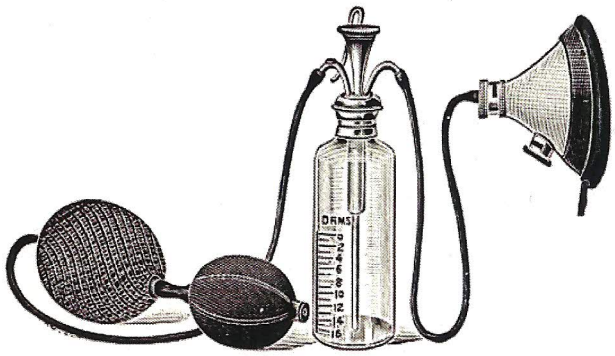
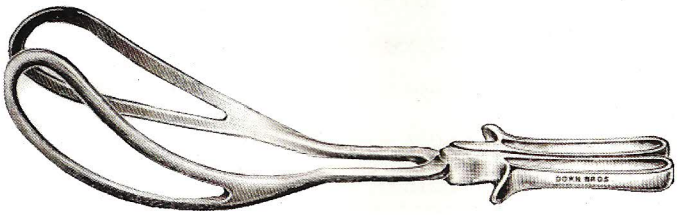


The Historical Medical Equipment Society



BULLETIN NO. 29 ISSN 1366 - 4719 MARCH 2014

EXECUTIVE COMMITTEE

CONTENTS

EDITORIAL

The Society continues to exist through the efforts of our Chairman, with the help of our Assistant Secretary, Heather Whitaker. We are still in urgent need of an Honorary Secretary. Without such an appointment the future of the Society must remain in doubt. At the time of going to press the Chairman has sent a letter to all members of the Society seeking their views.

In October the Chairman organised a very successful and memorable visit to the Mary Rose in Portsmouth. We had an excellent introductory talk from Andy Elkerton , the Collections Manager of the Mary Rose Trust. Following his talk he showed us some 'behind the scenes' examples of medical and surgical artefacts. Members of the Society then looked round the museum itself. Developed at a cost of £27 million the museum opened to the public in May 2013. The remains of the hull of the Mary Rose herself were dramatic but the real interest lay in the artefacts which were beautifully displayed and gave a vivid insight into life and death on a Tudor warship. After lunch Carol Parry, of the Royal College of Physicians and Surgeons of Glasgow, gave an excellent presentation on William Beatty's surgical instruments. The topic was particularly appropriate to the location. Then John Prosser gave a superbly illustrated talk on sixteenth and seventeenth century 'treen'. This complemented the numerous examples of treen seen in the Mary Rose displays. Very much to his regret John Kirkup missed the meeting and could not give his planned talk on 'Sea, Surgery and Surgical Instruments'. He very kindly gave permission for us to reproduce the paper in this publication.

As the anniversary of the start of the First World War approaches several members of the Society will be involved with museum displays and commemorative events. My own father served in the RAMC during the conflict. He was a medical student in an off-shore destroyer during the disastrous Dardanelles campaign. He returned to the UK and qualified in 1916. He then went out to Macedonia where he spent the next two years. Like all those who experienced it he rarely spoke about the war. When he did it was to condemn the absolute futility of it all. He hated all forms of jingoism and nationalism and particularly disliked the phrase 'The Glorious Dead'. He maintained that the great majority of the dead were victims rather than heroes and that there was nothing glorious about the way that most of them died. I very much hope that the forthcoming anniversary will be a time for quiet reflection rather than triumphalism. Unfortunately the debate has become rather polarised in recent months. Although in 1914 a strong case could be made for resisting Prussian aggression the price paid on all sides was catastrophic. I personally think that the proposed image of Earl Haig on the new £2 coin sends the wrong message and I support the campaign to replace his image with that of Edith Cavell. To my mind her courage and values are more worthy of commemoration.

"*Patriotism is not enough, I must have no hatred or bitterness towards anyone* " - Edith Cavell on the eve of her execution in October 1915.

AN INTRODUCTION TO SURGERY ON THE MARY ROSE

TIM SMITH

When the Historical Medical Equipment Society visited the Mary Rose in October 2013 the Collections Manager, Andy Elkerton gave us an excellent introductory talk. He covered the history of the Mary Rose with particular emphasis on medical and surgical aspects of the ship's story. He very kindly supplied images from the Mary Rose collection which are reproduced here. What follows is a précis of his talk transcribed by the editor.

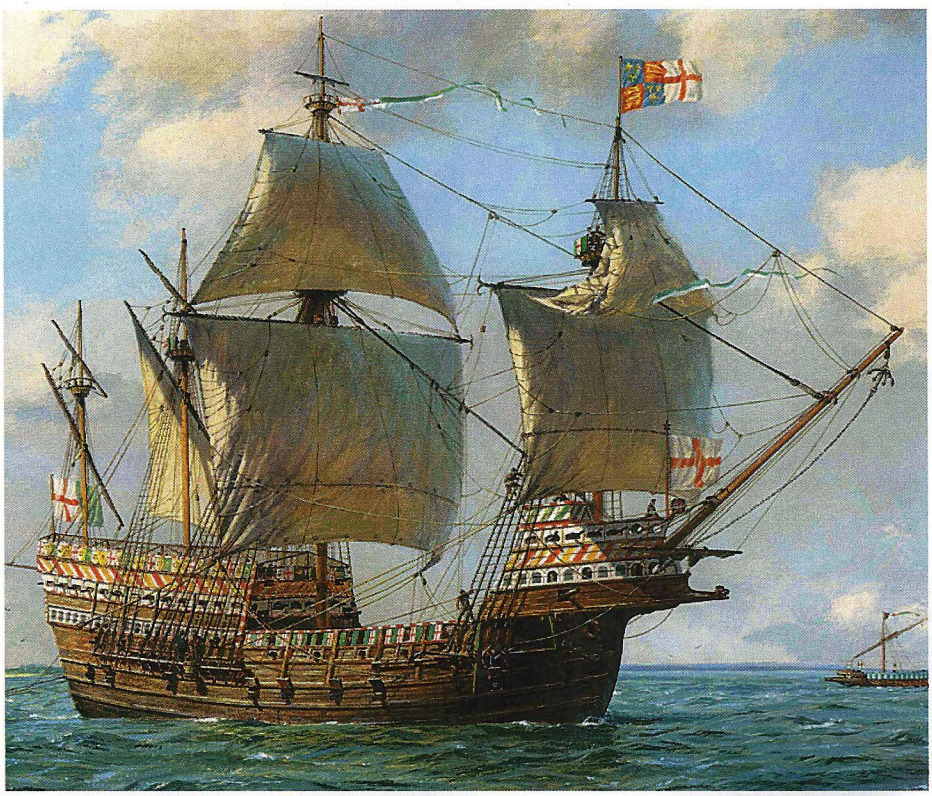


Fig.1. 'The Mary Rose' a painting by marine artist Geoff Hunt 2009

The Mary Rose was the fastest and most prestigious ship in Henry VIII's fleet (fig.1). She sank in 1545 in action against the French fleet during the Battle of the Solent. Some 500 men died and there were 35-40 survivors. The cause of the disaster has not been fully established. It was probably a combination of open gun ports and a sudden gust of wind during a turning manoeuvre. An initial salvage operation recovered some of her masts, yards and sails and some guns. It was not until the nineteenth century that the pioneer diving brothers Charles and John Deane recovered her bronze cannons. The ship was finally relocated in 1971. About 40 percent of the structure of the vessel had survived. The Mary Rose Trust was formed in 1979 and the Mary Rose herself was raised from the sea-bed in 1982. The recovery was the largest maritime archaeological excavation ever undertaken.

500 volunteer divers spent 11 years collecting 19,000 objects from the sea-bed. A long process of preservation of the ship's timbers began using polyethylene glycol (PEG) (fig.2). The final phase of controlled air drying will be completed in 2015.

Fig.2. Interior of hull during preservation process using PEG

Fig.3. Surgeon's chest and artefacts [courtesy Mary Rose Trust]

Altogether 26,00 artefacts were salvaged together with the skeletal remains of about half the crew members. Analysis of the bones shows many had suffered malnutrition, with evidence of rickets

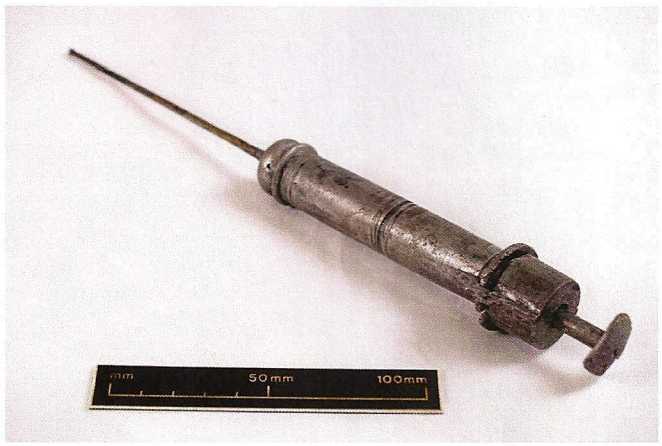


Fig.4. Pewter syringe [courtesy Mary Rose Trust]

Fig.5. Ear-scoop [courtesy Mary Rose Trust]

and scurvy. Crew members also developed arthritis through the stresses on their joints from heavy lifting and many displayed a high incidence of healed fractures. Archers could be identified by very specific bony shoulder malformations and gun crew skeletons commonly showed evidence of chronic back problems.

The small cabin located on the main deck underneath the sterncastle is thought to have belonged to the ship's surgeon. He was responsible for the health and welfare of the crew. This was probably his own sleeping quarters rather than an area used for surgery. Inside the cabin was an intact wooden chest (fig.3) which contained over 60 objects relating to a barber-surgeon's medical practice. These include the wooden handles of a set of surgical instruments, several shaving razors

Fig.6. Shaving/ bleeding bowls [courtesy Mary Rose Trust]

(although none of the blades had survived) and syringes for wound irrigation and treatment of gonorrhoea (fig.4) . Other objects found in the cabin included ear-scoops (fig.5), nit combs (fig.10) and shaving/bleeding bowls (fig.6). The surgeon's duties would have been to perform amputations, set bone fractures and deal with other acute injuries (fig.7).

Fig.7. surgical instruments on display [courtesy Mary Rose Trust]

Fig.8. wooden, metal and ceramic containers [courtesy Mary Rose Trust]

Fig.9. wooden feeding bottle [courtesy Mary Rose Trust]

Numerous containers were found of glass, wood, metal and ceramic construction (figs.8). No identifiable medications were found within them.

A wooden 'feeding bottle' (fig.9) was possibly used to feed the severely sick or disabled.

An important object found rolled up in the surgeon's chest was a silk velvet hat or coif (fig.10) This is identical to those depicted in Holbein's classic painting of 'Henry VIII and the Barber-Surgeons' (fig.11). One two-handled pewter bowl (possibly a bleeding bowl) from the surgeon's cabin is stamped with initials W.E. These could have been the

Fig.10. Objects on display include a 'coif', nit combs, razors and a purse with coins [courtesy Mary Rose Trust]

Fig.11. Detail from Holbein's 'Henry VIII and the Barber Surgeons' c. 1543. Thomas Vicary is clearly wearing a surgeon's 'coif' or skull cap

initials of the surgeon but no surgeon with these initials has yet been identified. It is tempting to think that he might have been one of the surgeons depicted in Holbein's painting.

SEA, SURGERY & SURGICAL INSTRUMENTS IN 1545

JOHN KIRKUP

In 1545, surgery in Western Europe was designated a craft to be studied on terra firma by apprenticeship with a master. However at sea, surgeons were faced with injuries specific to ship management and wounds due to close-range gunshot and cold steel, but also demands as a general practitioner, dental surgeon and pharmacist. Surgery with instruments, as conceived by today's public, was principally minor in nature involving venesection, wound exploration to remove missiles and foreign bodies, and the lancing of abscesses. However, principally under battle conditions, limb amputation was relatively common, partly because movement in the confines of a ship was easier without the burden of damaged and painful limbs. For example Wiseman reported at sea in 1676:

"In the heat of Fight, I cut off a Man's Arm, and after he was laid down, the Fighting growing hotter, he ran up, and helpt to traverse a Gun."

Cases Detailed by British Authors

William Clowes (1544-1604)	1
John Woodall (c.1569-1643)	2
Richard Wiseman (c.1622-1676)	9
James Yonge (1646-1721)	4
Hugh Ryder (fl. 1665-1685)	13
John Moyle (d. 1714)	1
	30

Fig.1.

Hazards at Sea Sadly, we have no precise records of patients and practice on the Mary Rose and indeed, case histories on naval vessels in the 16th century are untraced and we need guidance from later records. A few authentic accounts of injuries and surgery are recorded in books written in the later 16th and the 17th centuries by surgeons with sea experience and may help. The six British authors are Clowes, Woodall, Wiseman, Yonge, Ryder and Moyle (fig. 1). Unfortunately, the accepted histories total a mere 30 cases yet it is reasonable to suggest their accounts are similar to accidents and injuries in 1545. Any differences in ship construction, sea-worthiness and weaponry changed little at this time. In any event it is easy to imagine injuries due to falls from rigging and down stairways, and blows by falling spars and moving cargo especially in severe weather, extremes of heat and cold, the effect of a poor diet and energy sapping diseases, especially scurvy.

With respect to battle injuries, it is probable the power of cannons and guns gradually increased with time but the destruction of rigging, masts and yard arms would prove similar hazards in 1545. In particular, if missiles missed sailors, they struck wooden structures to create flying splinters the cause of severe injuries. Wiseman warned:

"...all these Fractures made by splinters are exceedingly dangerous, they generally shattering the Bones to pieces:[and] are subject to extraordinary Pain, Inflammation, Convulsions, and Death, unless immediate Remedy be had by removing those Bones, or by Amputation of the Member."

Of the 30 cases, 27 took place at sea and three involved sailors brawling with daggers on shore. Gunshot wounds totalled 15 (five requiring amputation), cold steel five and 10 cases were caused by falling material, breaking hawsers and flying wooden splinters as noted by Wiseman; of these latter 10, 50 percent required amputation. Unfortunately, this does not create the actuality of sea fights as Ryder underlined, after the battle

of Lowestoft, describing his hospital ship in 1665:

"...above 500 wounded men aboard, near 200 of them with amputations, the rest with compound fractures, and other Wounds by Gunshot."

Mary Rose Surgical Instruments

The resistance of copper alloy and pewter syringes in the surgeon's cabin of the Mary Rose emphasises the severe loss of ferrous material due to corrosion leaving surviving but empty wooden handles. In attempting to name these items in the surgeon's chest, it is helpful to examine instruments figured in printed surgical books of this period. The following armamentaria offer some guidance. Brunschwig's military kit of 1497, Charatenus's minor instruments of 1546, Clowes military chest of 1596 and Woodall's complete instrument kit for sea surgeons of the East India Company; the latter is the only one with significant wooden handled items (fig. 2); the relatively plain handles are coloured red and the more decorative coloured green. Although it is dated some 72 years after the sinking of the Mary Rose, I suggest any significant change in surgical problems and instrumentation at sea during this period is small and probably limited to the slow emergence of superior weapons and hence more traumatic wounding. The 4 green handles are for two iron cauteries , the amputation saw and a gimlet or perforator; the red handles are relatively plain for a cranial saw, two amputation knives, a mallet, two dental items and the head of a cranial trepan brace.

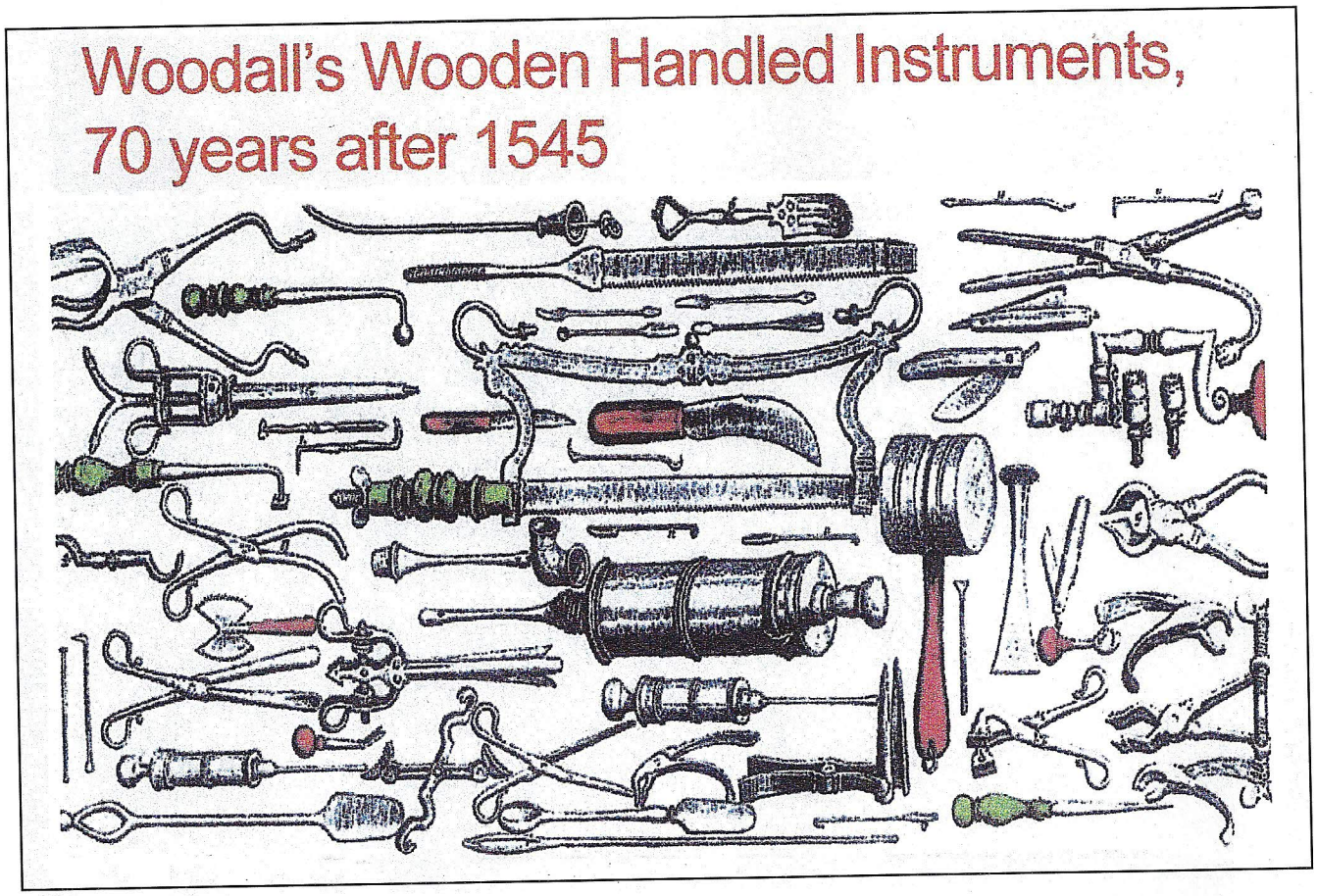


Fig.2.

The Mary Rose instrument handles, detailed in 'Before the Mast'[1] (fig. 3/4) vary in length significantly from 143 mms to 38 mms; however

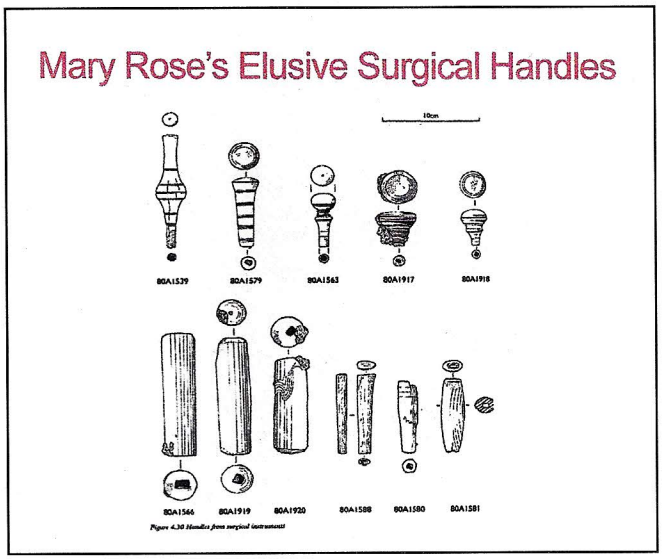


Fig.3.

most diameters vary little from 40 to 30 mms, that is more than one & a quarter inches at their maximal diameter, indicating that most were held in the full grasp of the palm, unlike for example modern scalpel handles or ophthalmic instruments. It is clear the largest handle of al-

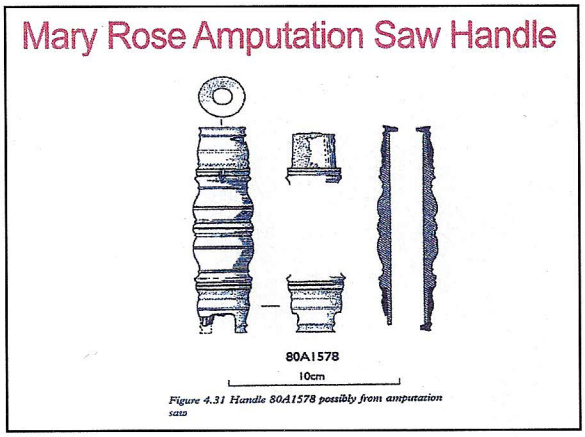


Fig.4.

most six inches in length and one and a half inches in width resembles that of Woodall's amputation saw. Of other surviving handles it is likely the large plain handles are for amputation knives which were also huge at this time, often with concave blades. The lesser plain handles may be for iron cauteries but on the whole cautery handles were bulbous or ridged to diminish heat transmission to the surgeon's hand; two items are possible for this role. The lesser items are uncertain but could be instruments such as gimlets or dental items. In the light of current knowledge accurate identification will remain doubtful.

Reference

[1] J.Gardiner (Ed). *Before the Mast: Life and Death Aboard the Mary Rose.* Oxbow Books 2012.

TREEN FROM THE SIXTEENTH AND SEVENTEENTH CENTURIES

JOHN PROSSER

After arranging the HMES meeting at the Mary Rose Museum I wondered if there were items from my Treen collection that could be related to items found in the Mary Rose. Treen from the Tudor period is rare and few can be accurately dated. The wooden objects from the Mary Rose of course all date from 1545 or earlier thus their date is known.

Just from looking at the Mary Rose website it was clear that the shape and design of many of the wooden objects remained unchanged until the 19th or early 20th century. This, I suppose is not entirely surprising as domestic items with satisfactory function would not need to be changed until the arrival of new materials such as plastics.

I chose photos of my earliest pieces (figs 1-15) many of which are made of Lignum Vitae wood , which is very dense and hard, and thus are great survivors. I suspect that many domestic wooden objects of the Tudor era were used as firewood when they broke or became worn out. However some of the items from my collection looked very similar to those found on the Mary Rose.

There are few treen objects that are dated from Tudor times and these are very costly. The dating of most treen depends on the style and function of the object. Treen that has silver mounts may be dateable but frequently the silver is not hall-marked.

Andy Elkington's talk confirmed the long lasting nature of the design of many wooden items found on the Mary Rose. Indeed some of my pieces of treen from the 19th century could not be distinguished from those three hundred years older. Thus I found the Museum collection of recognisable wooden objects fascinating.

To illustrate the enjoyable nature of treen collecting I showed a number of objects from my collection to be handled and their function identified. These included included a pill silverer from the 19th century and a clicket stick from a dame school from the same era.

INDIVIDUAL TREEN ITEMS

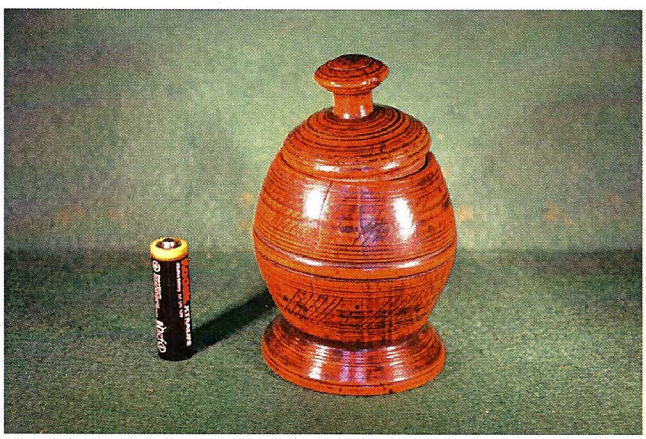


Fig.1. 16th century Spice or Medicine container.

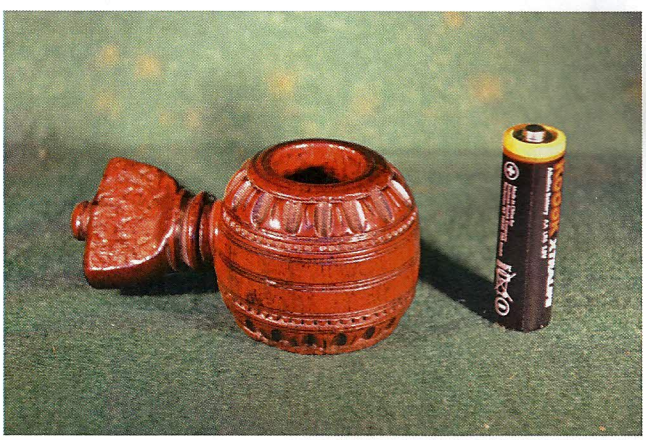


Fig.2. Nut Cracker, Cup and Cover design 17th century.

Fig.3. Dipper in Lignum Vitae. To accompany a wassail bowl. Unmarked silver rim. circa 1660.

Fig.4. Dipper with rose engine turning in Lignum circa 1620.

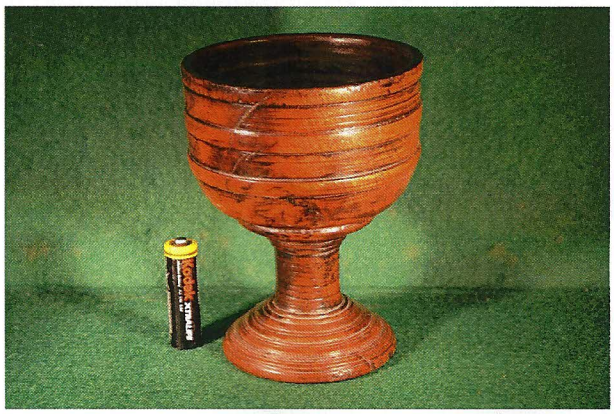


Fig.5. Drinking vessel or Chalice in yew wood. 16th century.

Fig.6. Spice pot in Laburnum. 18th century

Fig.7. Bowl in Sycamore 18th or 19th century.

Fig.8. Platter well used back and front. 18th century.

Fig.9. Candlestick stand in Oak circa 1680.

Fig.10. Platter in Sycamore scribed with geometric pattern. First half of 17th century.

Fig.11.Pestle and Mortar with cover. Rare 17th century.

Fig.12. Large Wassail bowl in Lignum. 17th century.

Fig.13. Spice grinder. Circa 1680.

Fig.14. Lignum caster circa 1700 with Silver caster hallmarked for 1708

Fig.15. Lignum rose engine turned box. Rare circa 1620

THE INSTRUMENTS OF WILLIAM BEATTY

CAROL PARRY

The instruments of William Beatty, surgeon on board HMS Victory at the Battle of Trafalgar, are one of the most important items within the museum collection of the Royal College of Physicians and Surgeons of Glasgow (figs.A&B.) They were gifted in 1921 by Mr William Ewing Gilmour of Rosshall, Sutherlandshire on the instigation of Mr J.B. Hilliard, surgical instrument maker in Glasgow. The instruments were made by Laundy of London, a family firm with a workshop at St Thomas's Street, opposite Guy's Hospital, in business from 1783 to c.1843. Laundy produced a pamphlet catalogue (without illustrations) of its instruments in 1795. The London instrument maker, Savigny, however, published a large printed catalogue in 1798. The volume, entitled *"A Collection of Engravings Representing the Most Modern and Approved Instruments used in the Practice of Surgery"* is the first illustrated British catalogue of surgical instruments. In his introduction, Savigny laments that in nearly twenty years as a workman there had been no engravings and explanations of such items, particularly in consequence of the "rapid and astonishing improvements" of recent years. He notes the publication of two others on the Continent, namely Brambilla at Vienna and Peret at Paris. The book consists of engraved plates of instruments, largely reproduced in life-size along with an accompanying text describing the items. Of most interest in relation to Beatty's instruments is Plate XXI entitled *"Portable Amputating and Trepanning Instruments"*.

Fig.A. Beatty's surgical case, exterior

Savigny states, when describing the instruments depicted in Plate XXI, that because of "The unavoidable bulk of the complete sets of instruments for these operations rendering them inconvenient for carriage to gentlemen practicing in the country...and still more so to those engaged in the military departments of the profession; it has been suggested that, by dividing the instruments from their handles, confining their number to those only actually necessary, and disposing them in the most compact compass, the size of the case might be so essentially reduced as to be conveniently carried in a pocket".

A quick comparison between Plate XXI and the case of Beatty's instruments reveals that many of the instruments are almost identical. Beatty's set

Fig.B. Beatty's surgical set, interior

does not include the capital saw depicted in Savigny's Plate XXI fig.1. It does, though, include almost identical handles with screws to secure the blades (fig.2); a similar amputation knife (fig.3); metacarpal saw (fig.4); trephine (fig.5) (Beatty's set contains two different sizes); a knife, "constructed to answer the double purposes of a catlin in amputation and as scalpel in trepanning" (fig.6); a pair of spring forceps, for removing the circular piece of bone cut by the trephine (fig.7); an elevator (fig.8); a tenaculum (fig.9); a pair of spring forceps, with a slide for securing the artery (fig.10). Savigny illustrated the bullet forceps to be found in Beatty's set but himself preferred scoops for extracting balls (fig.11). Savigny also felt a tourniquet was too bulky for this "compact and portable set". Beatty's set, however, includes the popular Petit's tourniquet. In addition Beatty's set includes a brush with ivory handle used to clean the teeth of the crown of the trephine; a lenticular; and raspatory. The semi-circular gap where an item is missing in the upper lid is most likely for long curved needles.

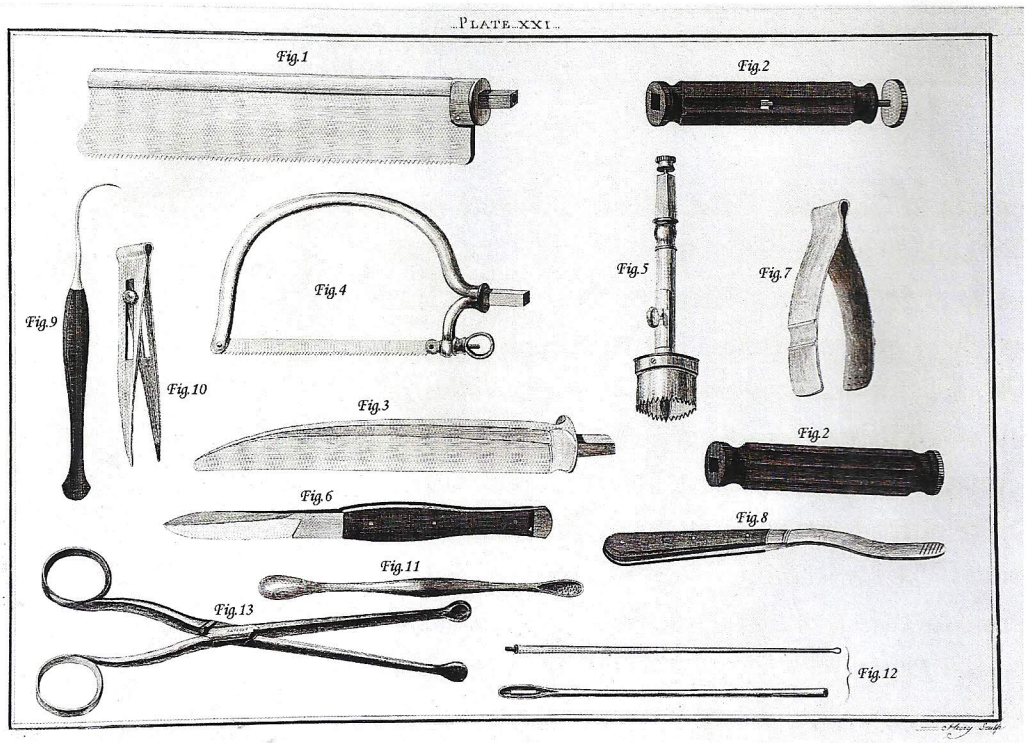


Fig.C. Plate XXI from Savigny's catalogue

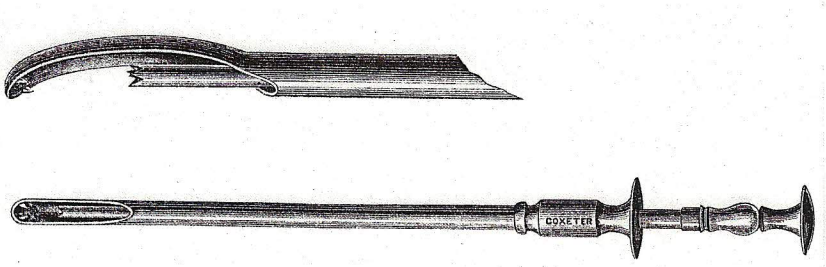
Unlike Savigny's portable set, designed to go in the pocket, Beatty's set is contained in a neat wooden box with the name "William Beatty Royal Navy" engraved on a brass plaque on the top. Unfortunately we do not know if the set was specifically ordered by Beatty or purchased as a ready-made set with the plain brass plate subsequently engraved.

Beatty, of course, was unable to save Admiral Nelson at Trafalgar and he may well have died comparatively unknown had it not been for his book "The authentic narrative of the death of Lord Nelson" which was published in 1807 when Beatty was Physician of the Channel Fleet. The Library of the Royal College of Physicians and Surgeons of Glasgow holds a copy of the second edition of this work, printed in 1808. The work is still used as the main source for the events surrounding the death of Nelson. It was Beatty who memorialized Nelson's last words, including the famous saying "Kiss me, Hardy". It was Beatty who described how he preserved Nelson's body in a casket of brandy so that it could be brought back to Portsmouth to be examined. It was at this stage that the ball that delivered the fatal shot was discovered. Beatty later had the ball mounted in a gold case as a keepsake. Undoubtedly, the fame brought to Beatty by the publication of his book led to the surgical kit being treasured and handed down the generations as an heirloom until gifted to the Glasgow College.

The instruments revisited Portsmouth during the celebrations of the 200th anniversary of the Battle of Trafalgar in 2005. They were conveyed by a Royal Navy minesweeper, HMS Dulverton, from the Faslane Naval Base in Scotland and, after a photo-shoot on HMS Victory, were then displayed at the Royal Maritime Museum for the exhibition "Nelson and Napoleon". The instruments are now only rarely displayed within the College as the box is quite fragile. There are, however, details available about the set on the College website www.rcpsg.ac.uk and also on the library blog: libraryblog.rcpsg.ac.uk.

Carol Parry, *Library and Heritage Manager, Royal College of Physicians and Surgeons of Glasgow*

WHAT IS IT? (February 2013)



This is Coxeter's tubular bullet extractor, made before 1856 by James Coxeter the instrument maker to University College and the Middlesex Hospitals, at the request of the Army Medical Board. It was especially recommended for extracting lead missiles, proving less effective for later small steel bullets; unfortunately the sharp teeth were inclined to pick up soft tissues with the missile. On the other hand enlargement of the wound or distension was unnecessary as required for alternative hinged extracting forceps. Coxeter's extractor was popular during the Crimean War, but generally discarded by the end of the 19th century as missiles changed. Alternative extractors were also discarded during World War One as shrapnel wounds dominated and efficient anaesthesia permitted exploratory incisions to remove both missiles and also indriven clothing, coins, etc.

I can confirm by experiment that Coxeter's extractor will pick up a lead bullet, at any angle, with extreme efficiency.

WHAT IS IT? (March 2014)

All five instruments are surgical scissors each with a different function. What are these?